SeeBeyond ICAN Suite

# WebSphere MQ eWay Intelligent Adapter User's Guide

Release 5.0.1



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# Chapter 1

# Introducing the WebSphere MQ eWay

This chapter introduces you to SeeBeyond<sup>TM</sup> eWay Intelligent Adapter for WebSphere MQ<sup>TM</sup>. It includes an overview of this manual and a list of system requirements for installation.

#### 1.1 **Overview**

WebSphere MQ (formerly MQSeries<sup>TM</sup>) from IBM<sup>TM</sup> is a client-server message broker supporting an open API (application programming interface), available on a variety of operating systems including AIX<sup>TM</sup>, Solaris<sup>TM</sup>, HP-UX<sup>TM</sup>, and Windows<sup>TM</sup>. WebSphere MQ is "middleware" that provides commercial messaging and queuing services. Messaging enables programs to communicate with each other via messages rather than direct connection. Messages are placed in queues for temporary storage, freeing up programs to continue to work independently. This process also allows communication across a network of dissimilar components, processors, operating systems, and protocols.

The SeeBeyond eWay Intelligent Adapter for WebSphere MQ (referred to as the MQSeries eWay throughout this document) allows the eGate system to exchange data with IBM's WebSphere MQ. The eGate Integrator, using the MQSeries eWay, uses business logic within a Collaboration or Business Process to perform operations for data identification, manipulation, and transformation. Messages are tailored to meet the communication requirements of specific applications or protocols. Queues or Topics provide non-volatile storage for data within the eGate system allowing applications to run independently of one another at different speeds and times.

The MQSeries eWay transparently integrates existing systems with IBM's WebSphere MQ. This document explains how to install and configure the MQSeries eWay.

# **1.2 Supported Operating Systems**

The MQSeries eWay is available on the following operating systems. See any notes below regarding your specific operating system.

- Windows 2000 SP3
- Sun Solaris 8 and 9
- AIX 5.1 and AIX 5.2
- HP-UX 11.0 and HP-UX 11i (RISC)
- HP Tru64 5.1A
- Red Hat Linux 8 (Intel)
- Red Hat Linux Advanced Server 2.1 (Intel)

For **AIX** operating systems, the environmental variable LDR\_CNTRL for JVM may need to be adjusted in order to accommodate WebSphere MQ shared memory. Java uses 8 segments by default (this is the maximum value allowed; each segment is 256 MB). For example, the following setting changes the number of segments to 3:

setenv LDR\_CNTRL MAXDATA=0x3000000

For **HP-UX 11** operating systems, HP-UX Java binding support is only available for systems running the POSIX draft 10 threaded version of WebSphere MQ. The HP-UX Developers kit for Java 1.1.7, Release C.01.17.01 or above is also required.

# **1.3** System Requirements

To use the MQSeries eWay, you need the following:

- A TCP/IP network connection.
- Windows XP SP1a, Windows 2003 Server, or Windows 2000 SP3. This is required for the User Interface.
- Microsoft Internet Explorer 6.0 SP1 or above.
- *Note:* Open and review the *Readme.txt* for any additional requirements prior to installation.

## 1.3.1. External System Requirements

The MQSeries eWay requires the following installed on the participating host:

- IBM WebSphere MQ V5.3 or MQSeries V5.2 with SP MA88
- **Note:** Install either the WebSphere MQ server or the WebSphere MQ client code. If the WebSphere MQ server is installed on the participating host, the eWay connects to the server in bindings mode. If the WebSphere MQ client code is installed on the

participating host, the eWay connects to the server in client mode. A client mode connection cannot participate in XA transactions.

Install the following after installing IBM MQSeries V5.2:

- IBM MQSeries classes for Java 5.2.0.
- Classes for Java Message Service 5.2.0.0

WebSphere MQ V5.3 includes the WebSphere MQ classes for Java and JMS. The use of SupportPac MA88 with WebSphere MQ V5.3 product is not supported. MQSeries V5.2 requires the installation of SupportPac MA88 for all supported platforms.

The **MA88 SupportPac** download and installation information can be found at: http://www-4.ibm.com/software/ts/mqseries/txppacs/ma88.html.

The MA88 patch includes updates for several jar files and DLL's/shared libraries. Most notably, **com.ibm.mq.jar**, **mqjbnd02.dll** and **mqxai01.dll**. It is important that the patch overwrites the existing versions of these files if they are present on your machine. Alternatively, if they do not overwrite the existing versions, it is important that the new versions of these files exist on your classpath and path before the old versions. Once you have downloaded the SupportPac, make sure that all .jar files installed as part of the SupportPac are included in the classpath.

### Requirements for the Topic Publish/Subscribe Connection Type

IBM **SupportPac MAOC** is required by both MQSeries V5.2 and WebSphere MQ V5.3. The SupportPac MAOC installation information and download can be found at: http://www-3.ibm.com/software/ts/mqseries/txppacs/ma0c.html

# Chapter 2

# Installing the WebSphere MQ eWay

This chapter explains how to install the MQSeries eWay.

**Chapter Topics** 

- Before installing the eWay on page 10
- Installing the MQSeries eWay on an eGate supported system on page 10
- After Installation on page 11

# 2.1 Installing the MQSeries eWay

During the eGate Integrator installation process, the Enterprise Manager, a web-based application, is used to select and upload eWays (eWay.sar files) from the eGate installation CD-ROM to the Repository.

When the Repository is run on a UNIX operating system, the eWays are loaded using the Enterprise Manager on a Windows computer connected to the Repository server using Internet Explorer.

#### Before installing the eWay

Open and review the **Readme.txt** for any additional information or requirements, prior to installation.

#### Installing the MQSeries eWay on an eGate supported system

The MQSeries eWay is installed during the installation of the eGate Integrator. The eGate installation process includes the following operations:

- Installing the eGate Repository
- Uploading products to the Repository
- Downloading components (including eGate Enterprise Designer and Logical Host)
- Viewing product information home pages

Follow the instructions for installing the eGate Integrator in the eGate Integrator Installation Guide, and include the following steps:

- 1 During the procedures for uploading files to the eGate Repository using the Enterprise Manager, after uploading the **eGate.sar** file, select and upload the following files:
  - **MQSerieseWay.sar** (to install the MQSeries eWay)
  - FileeWay.sar (to install the File eWay, used in the sample Project)
  - WebSphereMQeWay.sar (to download the WebSphere MQ eWay user's guide)
- 2 Continue installing the eGate Integrator as instructed in the *eGate Integrator Installation Guide.*

### After Installation

Once the eWay is installed and configured it must then be incorporated into a Project before it can perform its intended functions. See the *eGate Integrator User's Guide* for more information on incorporating the eWay into an eGate Project.

# Chapter 3

# **Configuring the eWay Properties**

This chapter describes how to create and configure the MQSeries eWay.

**Chapter Topics** 

- Creating and Configuring the MQSeries eWay on page 12
- Using the Properties Sheet on page 14
- Outbound MQSeries eWay Connectivity Map Properties on page 15
- MQSeries eWay Environment Explorer Properties on page 18

# 3.1 Creating and Configuring the MQSeries eWay

All eWays contain a set of parameters with properties unique to that eWay type. After the eWays are established and an MQSeries External System is created in the Project's Environment, the eWay parameters can be modified for your specific system. The MQSeries eWay properties are modified from two locations:

- From the **Connectivity Map**. These properties most commonly apply to a specific eWay, and may vary from other eWays (of the same type) in the project. The MQSeries Connectivity Map properties will vary depending on whether the MQSeries is an Inbound or Outbound eWay
- From the **Environment Explorer tree**. These properties are commonly global, applying to all eWays (of the same type) in the project. The saved properties are shared by all eWays in the MQSeries External System window.

The properties for the MQSeries eWay must be set in both locations.

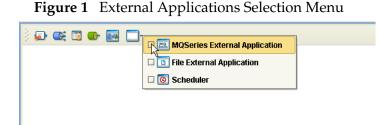
# 3.1.1 Selecting WebSphere MQ as the External Application

To create a MQSeries eWay, you must first create an MQSeries External Application in your Connectivity Map. MQSeries eWays are located between an MQSeries External Application and a Service. Services are containers for Java Collaborations, Business Processes, eTL processes, and so forth.

#### To create the MQSeries External Application

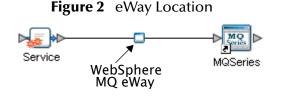
1 From the Connectivity Map toolbar, click the External Applications icon.

2 Select the **MQSeries External Application** from the menu (see Figure 1). The selected MQSeries External Application icon appears on the Connectivity Map toolbar.



3 Drag the new **MQSeries External Application** from the toolbar onto the Connectivity Map canvas. This represents an external WebSphere MQ system.

From the Connectivity Map, you can associate (bind) the External Application with the Service to establish an eWay (see Figure 2).



When MQSeries is selected as the External Application, it automatically applies the default MQSeries eWay properties, provided by the OTD, to the eWay that connects it to the Service. These properties can then be or modified for your specific system using the **Properties Sheet**.

# 3.1.2 Creating Custom Properties for a MQSeries eWay

A Project's eWay properties can be modified after the eWays have been established in the Connectivity Map and the Environment has been created.

Modifying the MQSeries eWay (Connectivity Map) Properties

- 1 From the Connectivity Map, double click the eWay icon, located in the link between the associated External Application and the Service. A Templates dialog box appears.
- 2 From the Templates dialog box, select **Inbound** or **Outbound MQSeries eWay** and click **OK**.
- <sup>3</sup> The eWay **Properties Sheet** opens to the Inbound or Outbound MQSeries Connectivity Map properties. Make any necessary modifications and click **OK**.

Modifying the MQSeries eWay (Environment Explorer) Properties

1 From the Environment Explorer tree, right-click the Inbound or Outbound WebSphere MQ external system. Select **Properties** from the shortcut menu. The **Properties Sheet** appears. 2 Make any necessary modifications to the Environment parameters of the MQSeries eWays, and click **OK** to save the settings.

# 3.1.3. Using the Properties Sheet

Modifications to the eWay configuration properties are made from the MQSeries eWay Properties Sheet.

#### To modify the default eWay configuration properties

- 1 Open the Properties Sheet to the MQSeries eWay default properties. An eWay has two different sets of parameters: those specific to that particular eWay (accessed from the Connectivity Map), and those that are common to all eWays of this type (accessed from the Environment Explorer tree).
- 2 From the upper-right pane of the Properties Sheet, select a section of the configuration directory. The parameters contained in that section are now displayed in the Properties pane of the Properties Sheet. For example, clicking on the **MQSeries** subdirectory displays the editable parameters in the right pane, as shown in Figure 3.

🗟 Properties		
environment-configuration	¥ [2 IV  /=   🔳	
L D MQSeries	Channel	
	Host Name	
	Password	
	Port Number	1414
	Queue Manager Name	
:	UserID	
Description (Password)		
The password required to		
access the queue manager.		
If none is required loove it		
If none is required, leave it blank.		
Comments (Password)		
	Properties	]
ОК		Cancel
		Curron

Figure 3 Properties Sheet -- WebSphere MQ Properties

<sup>3</sup> Click on any property field to make it editable. For example, click on the **Password** parameter to edit the Password value. If a parameter's value is true/false or multiple choice, the field, when selected, reveals a submenu of property options .

Click on the ellipsis (. . .) in the properties field to open a separate configuration dialog box. This is helpful for large values that cannot be fully displayed in the parameter's property field. Enter the property value in the dialog box and click **OK**. The value is now displayed in the parameter's property field.

- 4 A description of each parameter is displayed in the **Description** pane when that parameter is selected, providing an explanation of any required settings or options.
- 5 The **Comments** pane provides an area for recording notes and information regarding the currently selected parameter. This is saved for future referral.
- 6 After modifying the configuration properties, click **OK** to close the Properties Sheet and save the changes.

# 3.2 Outbound MQSeries eWay Connectivity Map Properties

The MQSeries eWay parameters, accessed from the Connectivity Map, are organized into the following sections:

- General Settings on page 15
- **Connector** on page 16

## 3.2.1. General Settings

This section contains the following parameters:

• Transaction Type on page 15

### **Transaction Type**

*Note:* The XA-compliant Transaction Type is not supported for the WebSphere MQ eWay, version 50.

#### Description

String-set. Specifies the Transaction Type. There are two transaction types.

- Non-Transactional. Provides the highest level of performance, with the minimum level of message protection. No rollback is available during the send and receive period, causing the possible loss of data in the case of a system error. When the send() method is called the transaction is immediate. Non-Transactional (single-phase transaction) is subject to the user calling the commit and backout methods.
- **XA-compliant**. (two-phase transactional behavior) Highest level of transaction protection, providing rollback for internal and XA compliant transactions. The

transaction is also extended to other XA supported data exchange applications, such as Oracle, DB2, and WebSphere MQ. When the send() method is called the transaction takes place at the end of the Collaboration.

XA can only be used in Binding mode. This means that a Host Name is not entered in the properties. A Host Name in the properties implies that the API is setup in Client mode. XA cannot be used in Client mode. In addition, when using XA:

- There must be only one queue manager.
- The method **connectToQueueManager** cannot be called.
- The methods **commit** and **backout** cannot be called. In Bindings mode, eGate is the transaction coordinator and is in control of these methods.
- *Note:* Consult the XA Transaction Processing section of the eGate Integrator User's Guide for information on XA use and restrictions.

#### **Required Value**

• Select Non-Transactional or XA-compliant. Non-Transactional is the configured default.

### 3.2.2. Connector

This section contains the following top level parameters:

- class on page 16
- **Property.Tag** on page 17
- type on page 17

*Note:* The Connector properties are not applicable for WebSphere MQ eWay, version 50.

#### class

*Note:* The Connector - class property is not applicable for WebSphere MQ eWay, version 50.

#### Description

Specifies the connector class for MQSeriesOTD. The default value should always be used.

#### **Required Value**

The configured default is **com.stc.eways.MQSeriesOTD.MQSeriesConnector**.

# Property.Tag

*Note:* The Connector - Property.Tag property is not applicable for WebSphere MQ eWay, version 50.

#### Description

Specifies the data source identity. This parameter is required by the current EBobConnectorFactory.

#### **Required Value**

The data source package name.

### type

*Note:* The Connector - type property is not applicable for WebSphere MQ eWay, version 50.

#### Description

Specifies the connector type for WebSphere MQ OTD. The default value should always be used.

#### **Required Value**

The connector type. The default value should always be used. The configured default is **MQSeriesOTD**.

# 3.3 Inbound WebSphere eWay Connectivity Map Properties

The Inbound MQSeries eWay parameters, accessed from the Connectivity Map, are organized into the following sections:

• Settings on page 17

# 3.3.1. Settings

This section contains the following parameters:

- Queue Name on page 17
- Schedule Interval on page 18

### Queue Name

#### Description

Specifies the IBM WebSphere MQ Queue name.

#### **Required Value**

The name of the WebSphere MQ Queue.

### Schedule Interval

#### Description

Specifies the polling interval by the number of milliseconds at which the WebSphere MQ Queue is polled for messages.

#### **Required Value**

The number of milliseconds at which the WebSphere MQ Queue is polled. The configured default is 5000.

# 3.4 MQSeries eWay Environment Explorer Properties

The MQSeries eWay parameters, accessed from the Environment Explorer tree, are organized into the following sections:

• **MQSeries** on page 18

## 3.4.1. MQSeries

This section contains a set of top level parameters:

- MQ Channel Name on page 18
- **MQ Host Name** on page 19
- MQ Queue Manager Name on page 19
- Password on page 19
- Port Number on page 19
- UserID on page 19

### **MQ** Channel Name

#### Description

Specifies the name of the channel being used. This option is only relevant with transport type 'Client' and is ignored for transport type 'Bindings'. If no channel is specified the default channel is used.

#### **Required Value**

The name of the channel.

# MQ Host Name

#### Description

Specifies the name of the host on which the Queue Manager resides. This option is only relevant with transport type "Client" and is ignored for transport type "Bindings". As for "Bindings", the Queue Manager must be on the same host.

#### **Required Value**

The name of the specific Queue Manager host.

### MQ Queue Manager Name

#### Description

Specifies the name of the IBM WebSphere MQ Queue Manager.

#### **Required Value**

The name of the WebSphere MQ Queue Manager.

### Password

#### Description

Specifies the user password required to access the Queue Manager. This parameter is optional.

#### **Required Value**

A user password that grants access to a specific WebSphere MQ Queue Manager.

### Port Number

#### Description

Specifies the number of the port to connect to. This option is only relevant with a transport type 'Client' and is ignored for transport type 'Bindings'. If this option is left empty the default port is used.

#### **Required Value**

A port number, in the range of 1000 and 65536. The configured default is 1414.

### UserID

#### Description

Specifies the User ID required to access the WebSphere MQ Queue Manager. This parameter is optional.

#### **Required Value**

A User ID required for the Specific WebSphere MQ Queue Manager.

# Chapter 4

# Using the WebSphere MQ eWay With eInsight

This chapter describes how to use the MQSeries eWay with the ICAN Suite's eInsight Business Process Manager and its engine's Web Services interface.

Note: You must have the eInsight.sar file installed to use the Web Services interface.

#### **Chapter Topics**

- eInsight Engine and Components on page 20
- The MQSeries eWay With eInsight on page 21
- Importing a Sample Project on page 21
- The MQ\_BP\_Get\_ Sample Project on page 22
- The MQ\_BP\_Put\_ Sample Project on page 33

# 4.1 eInsight Engine and Components

eGate components can be deployed as Activities in eInsight Business Processes. Once a component is associated with an Activity, eInsight invokes it using a Web Services interface. eGate components that can interface with eInsight in this way include the following:

- Java Messaging Service (JMS)
- Object Type Definitions (OTDs)
- eWays
- Collaborations

Using the Enterprise Designer and eInsight, you can add an Activity to a Business Process, then associate that Activity with an eGate component, for example, an eWay. Then, when eInsight runs the Business Process, it automatically invokes that component via its Web Services interface.

See the eInsight Business Process Manager User's Guide for details.

# 4.2 The MQSeries eWay With eInsight

An elnsight Business Process Activity can be associated with the MQSeries eWay during the system design phase. To make this association, select the desired operators under the eWay in the Enterprise Explorer and drag it onto the eInsight Business Process Designer canvas.

The MQSeries eWay has the following operators available:

- receive
- mqget
- mqput

The operation is automatically changed to an Activity with an icon identifying the component that is the basis for the Activity. At run time, eInsight invokes each step in the order defined in the Business Process. Using eInsight's Web Services interface, the Activity in turn invokes the MQSeries eWay.

# 4.3 MQSeries eWay eInsight Sample Projects

Two sample projects for the MQSeries eWay using eInsight Business Processes, are included with the installation. This chapter also walks you through the creation of these sample Projects:

- The MQ\_BP\_Get\_ Sample Project on page 22
- The MQ\_BP\_Put\_ Sample Project on page 33

# 4.4 Importing a Sample Project

Sample eWay Projects are included as part of the installation CD-ROM package.

To import a sample eWay Project to the Enterprise Designer do the following:

- 1 The sample files are uploaded with the eWay's documentation .sar file and downloaded from the Enterprise Manager's Documentation tab. Extract the samples from the Enterprise Manager to a local file.
- 2 From the Enterprise Designer's Project Explorer pane, right-click the Repository and select **Import Project** from the shortcut menu. The **Select File to Import** dialog box appears.
- 3 Browse to and select the sample file (for this sample, WebSphereMQSeries\_BPEL\_Get\_Sample.zip) and click Open.
- 4 From the File Destination dialog box, select **Import to a new Project**, enter the name of the Project (for this sample, **MQ\_BP\_Get\_Sample**), and click **OK**.

- 5 When the import has successfully completed, click the **Refresh All from Repository** icon from the Enterprise Designer toolbar.
- 6 Before an imported sample Project can be run you must do the following:
  - Install and configure a WebSphere MQ Queue on the localhost
  - Create an **Environment** (see **Creating an Environment** on page 29)
  - Configure the eWay properties for your specific system (see Configuring the eWay Properties on page 30)
  - Create a Deployment Profile (seeCreating and Activating the Deployment Profile on page 31)

# 4.5 The MQ\_BP\_Get\_ Sample Project

The MQ\_BP\_Get\_ Sample Project demonstrates the following:

- 1 The MQSeries eWay, in receive mode, retrieves a message from an MQ Queue. The message is published to an outbound File eWay.
- 2 The File eWay published the message to an external directory.

The following pages provide step by step directions for manually creating the **MQ\_BP\_Get\_ Sample** Project.

## 4.5.1. Creating a Project

The first step is to create a new Project in the SeeBeyond Enterprise Designer.

- 1 Start the Enterprise Designer.
- 2 From the Enterprise Explorer's Project Explorer tab, right-click the Repository and select **New Project** (see Figure 4). A new Project (Project1) appears on the Project Explorer tree.



Figure 4 Enterprise Explorer - New Project

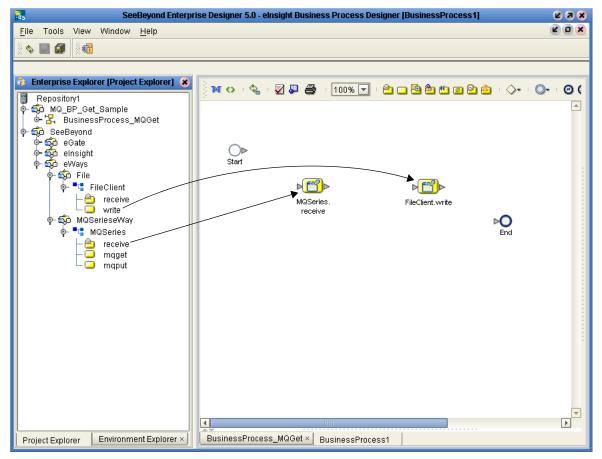
<sup>3</sup> Click twice (not double-click) on **Project1** and rename the Project (for this sample, **MQ\_BP\_Get\_Sample**).

# 4.5.2 Creating the BusinessProcess\_MQGet Business Process

Creating the Business Process Flow

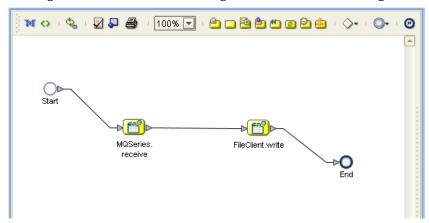
- 1 From the Enterprise Designer's Project Explorer tree, right-click MQ\_BP\_Get\_ Sample, and select New > Business Process from the shortcut menu. The eInsight Business Process Designer appears and BusinessProcess1 is added to the Project Explorer tree. Rename the Business Process to BusinessProcess\_MQGet.
- 2 From the Project Explorer tree, expand the SeeBeyond > eWays > MQSerieseWay > MQSeries nodes. In the same way, expand and SeeBeyond > eWays > File > FileClient nodes to expose the available Business Process elements.
- 3 Populate the eInsight Business Process Designer's canvas with the following elements from the Project Explorer tree, as displayed in Figure 5:
  - receive, under SeeBeyond > eWays > MQSerieseWay > MQSeries
  - write, under SeeBeyond > eWays > File > FileClient

#### Figure 5 elnsight Business Process Designer - Populate the Canvas



- 4 Link the modeling elements by clicking on the element's connector and dragging the cursor to the next element's connector, making the following links as displayed in Figure 6.
  - Start -> MQSeries.receive
  - MQSeries.receive -> FileClient.write
  - FileClient.write -> End

#### Figure 6 eInsight Business Process Designer - Link the Modeling Elements

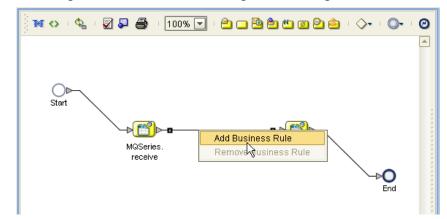


### Configuring the Modeling Elements

Business Rules, created between the Business Process elements, define the relationship between the input and output Attributes of the elements.

1 Right-click the link between the **MQSeries.receive** and **FileClient.write** Activities and select **Add Business Rules** from the shortcut menu as displayed in Figure 7.

Figure 7 eInsight Business Process Designer - Adding Business Rules



2 From the eInsight Business Process Designer toolbar, click the **Map Business Process Attributes** button. The Business Rule Designer appears at the bottom of the eInsight Business Process Designer.

- <sup>3</sup> Click on the **Business Rules** icon in the link between **MQSeries.receive** and **FileClient.write** to display the Business Rule Output and Input Attributes in the Business Rule Designer. These Attributes can now be modified.
- From the Business Rule Designer toolbar, click the Method Palette icon (see Figure 8). The Method Palette appears. From the String tab of the Method Palette, select bytes to text and click Close. The bytes to text icon is added to the toolbar.
- 5 From the Business Rule Designer toolbar, drag and drop the bytes to text icon onto the Business Rule Designer canvas. The bytes to text method box appears (see Figure 8).

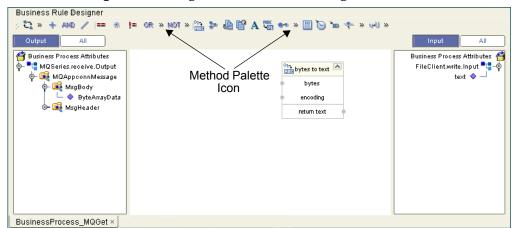


Figure 8 eInsight Business Rule Designer

- 6 Map ByteArrayData, under MQAppconnMessage > MsgBody in the Output pane of the Business Rule Designer, to the bytes input node of the bytes to text method box. This is done by clicking on ByteArrayData and dragging the cursor to the bytes input node of the bytes to text method box.
- 7 Map the return text output node of the bytes to text method box to text, under FileClient.write.input in the Input pane of the Business Rule Designer. The Business Process Designer (see Figure 9).

Business Rule Designer		
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BusinessProcess_MQGet		

Figure 9 eInsight Business Rule Designer

- 8 From the Business Process Designer toolbar, click the **Synchronize Graphical Model and Business Process Code** icon to synchronize the graphical interface to the Business Process code.
- 9 Click the Enterprise Designer's **Save All** icon to save your current changes.

# 4.5.3 Creating a Connectivity Map

The Connectivity Map provides a canvas for assembling and configuring a Project's components.

- From the Project Explorer tree, right-click the MQ\_BP\_Get\_ Sample Project and select New > Connectivity Map from the shortcut menu.
- 2 The new Connectivity Map appears and the CMap1 (Connectivity Map) node is added Project Explorer tree. Rename the CMap1 Connectivity Map to CMap\_BPEL\_MQGet.

#### Select the External Applications

In the Connectivity Map, eWays are associated with the External Applications. To create the External Applications used by the **MQ\_BP\_Get\_ Sample** Project do the following:

1 Click the **External Application** icon on the Connectivity Map toolbar (see Figure 10).

The icons in the toolbar represent the available components used to populate the Connectivity Map canvas.

#### Select the External Applications

When creating a Connectivity Map, the eWays are associated with External Systems. For example, to establish a connection to WebSphere MQ, you must first select MQSeries as an External System to use in your Connectivity Map (see Figure 10).

Figure 10 Connectivity Map - External Applications

2022	<u>ب</u>		•	24	MQSeries External Application
					File External Application
					🗆 🔯 Scheduler

To create the External Applications used by the **MQ\_BP\_Get\_ Sample** Project do the following:

- 1 Click the External Application icon on the Connectivity Map toolbar.
- 2 Select the applications needed for your Project (for this sample, the File and MQSeries External Applications). Icons representing the selected applications are added to the Connectivity Map toolbar.

# Populate the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas.

- 1 Drag the following components onto the Connectivity Map canvas as displayed in Figure 11:
  - MQSeries External Application
  - **Service** (A service is a container for Java Collaborations, Business Processes, eTL processes, and so forth) The Service may also be created by dragging the Business Process to the Connectivity Map canvas from the Project Explorer tree.
  - File External Application

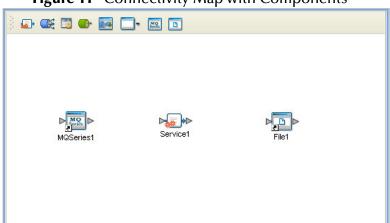


Figure 11 Connectivity Map with Components

- 2 Rename the **MQSeries1** External Application to **MQSeriesGet** by right-clicking the object, selecting **Rename** from the shortcut menu, and typing in the new name.
- 3 Rename the File1 External Application to FileOut.
- 4 Rename Service1 to BusinessProcess\_MQGet1.
- 5 Save your current changes to the Repository.

# 4.5.4. Binding the Project Components

Components are associated and the bindings are created from the Connectivity Map.

- 1 Open the **CMap\_BPEL\_MQGet** Connectivity Map.
- 2 Drag and drop the **BusinessProcess\_MQGet** Business Process from the Project Explorer tree to the **BusinessProcess\_MQGet1** service (see Figure 12 on page 28).

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- 🖆 receive - 🖵 maget		
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Project Explorer Environment Explorer ×	CMap_BPEL_MQGet ×	

Figure 12 Connectivity Map - Binding the Components

- 3 Double-click the BusinessProcess\_MQGet1 service. The BusinessProcess\_MQGet1 binding box appears with the BusinessProcess\_MQGet Rule.
- 4 From the **BusinessProcess\_MQGet1** binding box, map **MQSeriesSender** (under Implemented Services) to the **MQSeriesGet** application.
- 5 From the **BusinessProcess\_MQGet1** binding box, map **FileReceiver** (under Invoked Services) to the **FileOut** External Application (see Figure 13).

Figure 13 Connectivity Map - Binding the Components

) 🗊 😅 🗱	<b>D B</b>
MQSeriesGet	BusinessProcess_MQGet1

6 Minimize the **BusinessProcess\_MQGet1** binding box by clicking the chevrons in the upper-right corner and save your current changes to the Repository.

# 4.5.5. Creating an Environment

Environments include the external systems, logical hosts, integration servers and JMS IQ Managers used by a Project and contain the configuration information for these components. Environments are created using the Enterprise Designer's Environment Explorer and Environment Editor.

- 1 From the Enterprise Designer's Enterprise Explorer, click the **Environment Explorer** tab.
- 2 Right-click the Repository and select **New Environment**. A new Environment is added to the Environment Explorer tree.
- 3 Rename the new Environment to MQ\_BP\_Get\_Sample\_Env.
- 4 From the Project Explorer tree, right-click MQ\_BP\_Get\_Sample\_Env and select New File External System. Name this External System FileExtSysOut and select Outbound File eWay as the External System Type. The FileExtSysOut window is added to the Environment Editor.
- 5 From the Project Explorer tree, right-click MQ\_BP\_Get\_Sample\_Env and select New MQSeries External System. Name this External System MQExtSysIn and select Inbound MQSeries eWay as the External System Type. The MQExtSysIn window is added to the Environment Editor.
- 6 From the Project Explorer tree, right-click MQ\_BP\_Get\_Sample\_Env and select New Logical Host. The LogicalHost1 box is added to the Environment and LogicalHost1 is added to the Environment Editor tree.
- 7 From the Environment Explorer tree, right-click LogicalHost1 and select New SeeBeyond Integration Server. A new Integration Server (IntegrationSvr1) is added to the Environment Explorer tree under LogicalHost1.
- 8 Save changes to the Repository. The Environment Explorer and Environment Editor now appear as displayed in Figure 14.

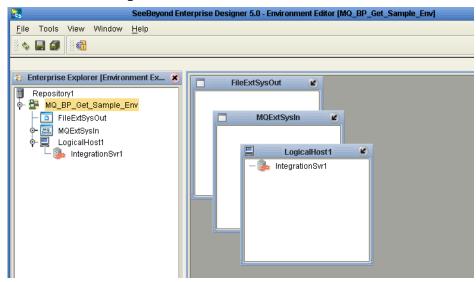
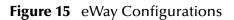


Figure 14 Environment Editor

# 4.5.6. Configuring the eWay Properties

The **MQ\_BP\_Get\_ Sample** Project contains two eWays, each represented in the Connectivity Map as a node between an External Application and a Service. eWays facilitate communication and movement of data between the external applications and the eGate system (see Figure 15).





The File eWay properties are configured from the Connectivity Map. The MQSeries eWay properties are set from both the Project Explorer's Connectivity Map and the Environment Explorer tree. To configure the eWays do the following:

# Configuring the File eWay Properties

- 1 Double-click the **Outbound File eWay**, select **Outbound File eWay** in the Templates dialog box and click **OK**.
- 2 The Properties Sheet opens to the Outbound File eWay properties. Modify the properties for your system, including the settings for the **Outbound File eWay** in Table 1, and click **OK**. The properties are saved for the eWay.

Outbound File eWay Properties				
Directory	C:/temp			
Output file name	output%.dat			

#### **Table 1**Outbound File eWay Settings

### **Configuring the MQSeries eWay Properties**

The MQSeries eWay properties must be set in both the Project Explorer and Environment Explorer. For more information on the MQSeries eWay properties and the Properties Sheet, see **Creating and Configuring the MQSeries eWay** on page 12 or see the *eGate Integrator User's Guide*.

#### Modifying the MQSeries eWay Connectivity Map Properties

- 1 From the Connectivity Map, double-click the **MQSeries** eWay. The Properties Sheet opens to the MQSeries eWay Connectivity Map properties.
- 2 Modify the **MQSeries** eWay properties for your system and click **OK**.

#### Modifying the MQSeries eWay Environment Explorer Properties

1 From the **Environment Explorer** tree, right-click the Inbound MQSeries External System (**MQSeriesExtSysIn** in this sample), and select **Properties**. The Properties Sheet opens to the MQSeries eWay environment properties. 2 Modify the **MQSeries** eWay environment properties for your system, including the settings in Table 2, and click **OK**.

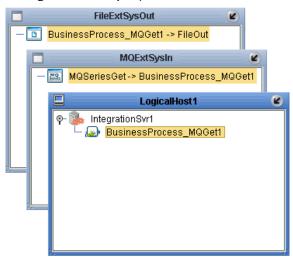
MQSeries eWay Environment Explorer Properties					
<b>MQSeries</b> Set as directed, otherwise use the default settings.					
MQ Host Name	The name of the specific Queue Manager host				
MQ Queue Manager Name	The name of the WebSphere MQ Queue Manager				
Port Number	<i>Port number to use to connect to the MQ Queue Manager. The default is 1414.</i>				

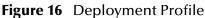
Table 2	MOSeries	Environment	Explorer eWa	v Settings
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# 4.5.7 Creating and Activating the Deployment Profile

A Deployment Profile is used to assign Business Processes and message destinations to the integration server and JMS IQ Manager. Deployment Profiles are created using the Deployment Editor.

- From the Enterprise Explorer's Project Explorer, right-click the Project (MQ\_BP\_Get\_Sample) and select New > Deployment Profile.
- 2 Enter a name for the Deployment Profile (for this sample MQ\_BP\_Get\_Sample\_DP). Make sure that the selected Environment is MQ\_BP\_Get\_Sample\_Env. Click OK.
- 3 From the left pane of the Deployment Editor, drag **BusinessProcess\_MQGet1 ->** FileOut (External Application) to the FileExtSysOut window.
- 4 From the left pane of the Deployment Editor, drag the MQSeriesGet -> BusinessProcess\_MQGet1 (External Application) to the MQExtSysIn window.
- 5 From the left pane of the Deployment Editor, drag the BusinessProcess\_MQGet1 (Business Process) to IntegrationSvr1 in the LogicalHost1 window (see Figure 16).





6 Click Activate. When activation succeeds, save the changes to the Repository.

# 4.5.8. Running the Project

The following directions assume that the Enterprise Designer was downloaded to C:\ican50. If this is not the case, replace that location in the following directions with the appropriate location.

- 1 From the Enterprise Manager Downloads tab, download Logical Host for win32.
- 2 Extract the file to the **ican50\LogicalHost1** directory. You must specify the **LogicalHost1** directory for it to be created.
- 3 Navigate to C:\ican50\LogicalHost1\bootstrap\config directory and open the logical-host.properties file using Notepad<sup>™</sup>.
- 4 Enter the following information in the appropriate fields:
  - Logical Host root directory: ican50\LogicalHost1
  - Repository URL: http://localhost:port number/repository name
  - Repository user name and password: Your user name and password
  - Logical Host Environment name: MQ\_BP\_Get\_Sample\_Env
  - Logical Host name: LogicalHost1

Save your changes to **logical-host.properties** and close the file.

- 5 Run the **bootstrap.bat** file in the ican50\LogicalHost1\bootstrap\bin directory.
- 6 Copy the sample input data file to the input directory.

For more information on running a Project that utilizes eInsight from the SeeBeyond Enterprise Designer see the *eInsight Business Process Manager User's Guide* and the *eGate Integrator User's Guide*.

## 4.5.9 Alerting and Logging

eGate provides an alerting and logging feature. This allows monitoring of messages, and captures any adverse messages in order of severity based on configured severity level and higher. To enable Logging, please see the *eGate Integrator User's Guide*.

*Note:* The alerts/status notifications for the WebSphere MQ eWay version 50 are currently limited to Started, Running, Stopping, and Stopped.

# 4.6 **The MQ\_BP\_Put\_ Sample Project**

The MQ\_BP\_Put\_ Sample Project demonstrates the following:

- 1 The inbound File eWay subscribes to an external directory. The received message is the name of an MQ Queue.
- 2 The message is concatenated with the string "**This is a message for queue**" and the message from the file.
- 3 The queueName is set to the message from the file.
- 4 The message is published by the outbound MQSeries eWay to an external directory.

The MQ\_BP\_Put\_Sample is found in the Samples file as **WebSphereMQSeries\_BPEL\_Put\_Sample.zip**. To Import the Project, see **Importing a Sample Project** on page 21.

The following pages provide step by step directions for manually creating the **MQ\_BP\_Put\_ Sample** Project components.

# 4.6.1 Creating a Project

The first step is to create and name a new Project in eGate Enterprise Designer.

- 1 Start the Enterprise Designer.
- 2 From the Enterprise Explorer's Project Explorer tab, select your Repository on the Project Explorer tree, right-click the Repository and select **New Project**. A new Project appears on the Project Explorer tree.
- 3 Click twice on **Project1** and rename the Project (for this sample, **MQ\_BP\_Put\_ Sample**).

# 4.6.2 Creating the BusinessProcess\_MQPut Business Process

#### Creating the Business Process Flow

- 1 From the Enterprise Designer's Project Explorer tree, right-click MQ\_BP\_Put\_ Sample, and select New > Business Process from the shortcut menu. The eInsight Business Process Designer appears and BusinessProcess1 is added to the Project Explorer tree. Rename the Business Process to BusinessProcess\_MQPut.
- 2 Populate the eInsight Business Process Designer's modeling canvas with the following elements from the Project Explorer tree, as displayed in Figure 17 on page 34:
  - receive, under SeeBeyond > eWays > File > FileClient
  - **mqput**, under SeeBeyond > eWays > MQSerieseWay > MQSeries

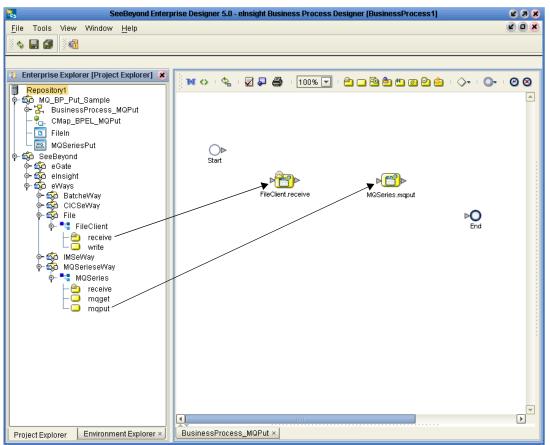
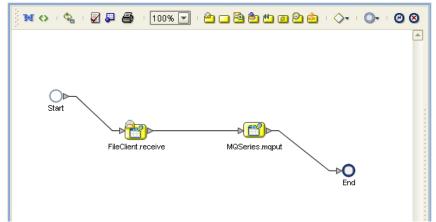


Figure 17 elnsight Business Process Designer - Populate the Canvas

- <sup>3</sup> Link the modeling elements by clicking on the element's connector and dragging the cursor to the next element's connector, making the following links as displayed in Figure 18.
  - Start -> FileClient.receive
  - FileClient.receive -> MQSeries.mqput
  - MQSeries.mqput -> End

Figure 18 eInsight Business Process Designer - Link the Modeling Elements



## **Configuring the Modeling Elements**

Business Rules, created between the Business Process elements, define the relationship between the input and output Attributes of the elements.

- 1 Right-click the link between the **FileClient.receive** and **MQSeries.mqput** Activities and select **Add Business Rule** from the shortcut menu.
- 2 From the eInsight Business Process Designer toolbar, click the **Map Business Process Attributes** button. The Business Rule Designer appears at the bottom of the eInsight Business Process Designer.
- <sup>3</sup> Click on the **Business Rules** icon in the link between **FileClient.receive** and **MQSeries.mqput** to display the Business Process Output and Input Attributes in the Business Rule Designer. These Attributes can now be modified.
- 4 From the Business Rule Designer toolbar, drag and drop the **concat** icon to the Business Rules Designer canvas. The **concat** method box appears.
- 5 From the Business Rule Designer toolbar, drag and drop the **string literal** icon to the Business Rules Designer canvas. The **string literal** method box appears.
- 6 Map **text** under FileClient.receive.Output in the Output pane of the Business Rule Designer, to the **string2** input node of the **concat** method box.
- 7 Map the **'This is a message for queue'** output node of the **string literal** method box, to the **string1** input node of the **concat** method box.
- 8 Map the return string output node of the concat method box, to QPutRequestStringPayLoad under MQSeries.mqput.Input > input in the Input pane of the Business Rule Designer (see Figure 19).

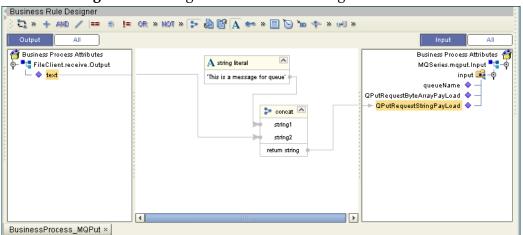


Figure 19 elnsight Business Rule Designer

9 Map text under FileClient.receive.Output in the Output pane of the Business Rule Designer, to queueName under MQSeries.mqput.Input > input in the Input pane of the Business Rule Designer (see Figure 20).

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<ul> <li>Business Rule Designer</li> </ul>				
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#### Figure 20 eInsight Business Rule Designer

- 10 From the Business Process Designer toolbar, click the **Synchronize Graphical Model and Business Process Code** icon to synchronize the graphical interface to the Business Process code.
- 11 Click the Enterprise Designer's **Save All** icon to save your current changes.

# 4.6.3 Creating a Connectivity Map

The Connectivity Map provides a canvas for configuring a Project's components.

- In Enterprise Explorer's Project Explorer, right-click the new Project (MQ\_BP\_Put\_ Sample) and select New > Connectivity Map from the shortcut menu.
- 2 The New Connectivity Map appears and a node for the Connectivity Map is added under the Project on the Project Explorer tree labeled **CMap1**. Rename the Connectivity Map **CMap\_BPEL\_MQPut**.

#### Select the External Applications

- 1 Click the External Application icon on the Connectivity Map toolbar,
- 2 Select the applications needed for your Project (for this sample, **MQSeries External Application** and **File External Application**). Icons representing the selected applications are added to the Connectivity Map toolbar.

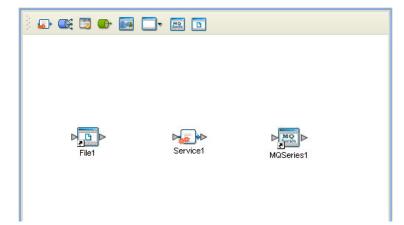
### Populate the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas.

- 1 For the MQ\_BP\_Put\_ Sample Project, drag the following components onto the Connectivity Map canvas as displayed in Figure 21:
  - Service
  - MQSeries External System

#### • File External System





- 2 Rename the **File1** External Application to **FileIn** by right-clicking the object, selecting **Rename** from the shortcut menu, and typing in the new name.
- 3 Rename the Service1 External Application to BusinessProcess\_MQPut1.
- 4 Rename MQSeries1 to MQSeriesPut.
- 5 Save your current changes to the Repository

#### 4.6.4. Binding the Project Components

The components are associated and the bindings are created in the Connectivity Map.

- 1 From the Project Explorer, double-click the Connectivity Map CMap\_BPEL\_MQPut. The Enterprise Designer canvas now displays the CMap\_BPEL\_MQPut Connectivity Map.
- 2 Drag and drop the **BusinessProcess\_MQPut** Business Process from the Project Explorer onto **BusinessProcess\_MQPut1** in the **CMap\_BPEL\_MQPut** Connectivity Map.
- 3 Double-click **BusinessProcess\_MQPut1**. The **BusinessProcess\_MQPut1** binding dialog box appears.
- 4 From the **BusinessProcess\_MQPut1** binding box, map **FileSender** (under Implemented Services) to the **FileIn** application.
- 5 From the **BusinessProcess\_MQPut1** binding box, map the **MQSeriesReceiver** (under Invoked Services) to the **MQSeriesPut** External Application.
- 6 Minimize the **BusinessProcess\_MQPut1** binding box, and save the current changes to your Repository.

#### 4.6.5. Creating an Environment

Environments include the external systems, Logical Hosts, integration servers and JMS IQ Managers used by a Project and contain the configuration information for these components.

- 1 From the Enterprise Designer's Enterprise Explorer, click the **Environment Explorer** tab.
- 2 Right-click the Repository and select **New Environment**. A new Environment is added to the Environment Explorer tree.
- 3 Rename the new Environment to MQ\_BP\_Put\_Sample\_Env.
- 4 Right-click **MQ\_BP\_Put\_Sample\_Env** and select **New MQSeries External System**. Name the External System **MQExtSysOut** and select **Outbound MQSeries eWay** as the External System Type. The **MQExtSysOut** window is added to the Environment Editor.
- 5 Right-click MQ\_BP\_Put\_Sample\_Env and select New File External System. Name this External System FileExtSysIn and select Inbound File eWay as the External System Type. The FileExtSysIn window is added to the Environment Editor.
- 6 Right-click MQ\_BP\_Put\_Sample\_Env and select New Logical Host. The LogicalHost1 box is added to the Environment and LogicalHost1 is added to the Environment Editor tree.
- 7 From the Environment Explorer tree, right-click LogicalHost1 and select New SeeBeyond Integration Server. A new Integration Server (IntegrationSvr1) is added to the Environment Explorer tree under Localhost2.
- 8 Save your current changes to the Repository.

### 4.6.6. Configuring the eWay Properties

The MQ\_BP\_Put\_ Sample Project uses two eWays, each represented in the Connectivity Map as a node between an External Application and a Service.

The File eWay properties are only configured from the Connectivity Map. The MQSeries eWay, is configured from the Project Explorer's Connectivity Map, and the Environment Explorer. To configure the eWays do the following:

#### Configuring the File eWay Properties

- 1 Double-click the **inbound File eWay**, select **inbound File eWay** in the Templates dialog box, and click **OK**.
- 2 The Properties Sheet opens to the Inbound File eWay properties. Modify the properties for your system.

#### Configuring the MQSeries eWay Properties

The WebSphere MQ (MQSeries) eWay properties must be set in both the Project Explorer and Environment Explorer. For more information on the MQSeries eWay

properties and the Properties Sheet, see **Creating and Configuring the MQSeries eWay** on page 12 or see the *eGate Integrator User's Guide*.

#### Modifying the MQSeries eWay Connectivity Map Properties

- 1 From the Connectivity Map, double-click the **MQSeries eWay**. The Properties Sheet opens to the MQSeries eWay Connectivity Map properties.
- 2 Modify the MQSeries eWay properties for your system and click **OK**.

#### Modifying the MQSeries eWay Environment Explorer Properties

- 1 From the Environment Explorer tree, right-click the Inbound MQSeries External System (**MQSeriesExtSysOut** in this sample), and select **Properties**. The Properties Sheet opens to the MQSeries eWay environment properties.
- 2 Modify the MQSeries eWay environment properties for your system and click **OK**.

## 4.6.7 Creating and Activating the Deployment Profile

A Deployment Profile is used to assign Business Processes and message destinations to the integration server and JMS IQ Manager. Deployment profiles are created using the Deployment Editor.

- From the Enterprise Explorer's Project Explorer, right-click the Project (MQ\_BP\_Put\_Sample) and select New > Deployment Profile.
- 2 Enter a name for the Deployment Profile (for this sample MQ\_BP\_Put\_Sample\_DP). Make sure that the selected Environment is MQ\_BP\_Put\_Sample\_Env. Click OK.
- 3 From the left pane of the Deployment Editor, drag FileIn -> BusinessProcess\_MQPut1 (External Application) to the FileExtSysIn window.
- 4 From the left pane of the Deployment Editor, drag the **BusinessProcess\_MQPut1 -> MQSeriesPut** (External Application) to the **MQExtSysOut** window.
- 5 From the left pane of the Deployment Editor, drag **BusinessProcess\_MQPut1** (Business Process) to **IntegrationSvr1** in the **LogicalHost1** window.
- 6 Click Activate. When activation succeeds, save the changes to the Repository.

#### 4.6.8. Running the Project

The following directions assume that the Enterprise Designer was downloaded to C:\ican50. If this is not the case, replace that location in the following directions with the appropriate location.

- 1 From the Enterprise Manager Downloads tab, click on **Logical Host for win32**.
- 2 Extract the file to the **ican50\LogicalHost2** directory. You must specify the **LogicalHost2** directory for it to be created.
- 3 Navigate to C:\ican50\LogicalHost2\bootstrap\config directory and open the logical-host.properties file using Notepad<sup>™</sup>.
- 4 Enter the following information in the appropriate fields:

- Logical Host rood directory: ican50\LogicalHost2
- Repository URL: http://localhost:port number/repository name
- Repository user name and password: Your user name and password
- Logical Host Environment name: MQ\_BP\_Put\_Sample\_Env
- Logical Host name: LogicalHost2

Save your changes to **logical-host.properties** and close the file.

- 5 Run the **bootstrap.bat** file in the **ican50\LogicalHost2\bootstrap\bin** directory.
- 6 Copy the sample input data file to the input directory.

## **Chapter 5**

# Implementing a WebSphere MQ eWay Project

This chapter provides an introduction to the MQSeries eWay components and information about how these components are created and implemented in an eGate project. It is assumed that the reader understands the basics of creating a project using the SeeBeyond Enterprise Designer. For more information on creating an eGate project see the *eGate Tutorial* and the *eGate Integrator User's Guide*.

#### **Chapter Topics**

- MQSeries eWay Components on page 41
- MQSeries eWay Sample Projects on page 42
- Importing a Sample Project on page 42

## 5.1 **MQSeries eWay Components**

This chapter presents a sample MQSeries eWay project created using the same procedures as the sample end-to-end project provided in the *eGate Tutorial*. The eWay components that are unique to the MQSeries eWay include the following:

#### **MQSeries eWay Properties file**

The Properties file for the MQSeries eWay contains the parameters necessary to connect with a specific external system. These parameters are set using the Properties dialog box. For more information about the MQSeries eWay Properties file and the Properties dialog box see **Configuring the eWay Properties** on page 12.

#### **MQSeriesETD OTD**

The MQSeriesETD OTD is provided with the eWay and contains methods and attributes used to create the Business Rules that invoke the WebSphere MQ program.

## 5.2 **MQSeries eWay Sample Projects**

Two sample projects for the MQSeries eWay using Java Collaborations, are included with the installation. This chapter also walks you through the creation of these sample Projects:

- The MQ\_JCE\_Get\_Sample Project on page 43
- The MQ\_JCE\_Put\_Sample Project on page 55

## 5.3 Importing a Sample Project

Sample eWay Projects are included as part of the installation CD-ROM package. To import a sample eWay Project to the Enterprise Designer do the following:

- 1 The sample files are uploaded with the eWay's documentation .sar file and downloaded from the Enterprise Manager's Documentation tab. Extract the samples from the Enterprise Manager to a local file.
- 2 From the Enterprise Designer's Project Explorer pane, right-click the Repository and select **Import Project** from the shortcut menu. The **Select File to Import** dialog box appears.
- 3 Browse to and select the sample file (for this sample, WebSphereMQSeries\_JCE\_Get\_Sample.zip) and click Open.
- 4 From the File Destination dialog box, select **Import to a new Project**, enter the name of the Project (for this sample, **MQ\_JCE\_Get\_Sample**), and click **OK**.
- 5 When the import has successfully completed, click the **Refresh All from Repository** icon from the Enterprise Designer toolbar.
- 6 Before an imported sample Project can be run you must do the following:
  - Install and configure a WebSphere MQ Queue on the localhost
  - Create an Environment
  - Configure the eWays properties for your specific system
  - Create a Deployment Profile

## 5.4 Create the WebSphere MQ Queue

The first step in creating the sample Project is to install and configure **IBM's WebSphere MQ Server** and **MQ Queue Manager** on the localhost.

It is assumed that the reader is experienced in the use of the WebSphere MQ Queue Manager. For more information on the MQ Queue Manager see the MQ Queue Related Commands section of the SeeBeyond Message Server Reference Guide. For the sample implementation do the following:

- 1 Open IBM WebSphere MQ Explorer.
- 2 Create a new Queue Manager.
- 3 From the WebSphere MQ Queue Manager create a new queue.

IBM WebSphere MQ Server and Queue Manager Limits and Settings

- When using MQSeries Queue Manager on UNIX, the user must be a member of the mqm group to create and start the MQ Queue Manager.
- It is essential that the WebSphere MQ Administrator regularly monitor the number of messages in the queue. Message expiration settings should be set to allow for extended storage.
- WebSphere MQ is limited in the number of messages that can be sent before a commit is executed, and the number of physical messages that can exist on the queue at any one time. This can result in exception errors when upper limits for these numbers are exceeded. Memory and performance of the specific server may also effect the results.

## 5.5 The MQ\_JCE\_Get\_Sample Project

The MQSeries eWay **MQ\_JCE\_Get\_Sample** Project demonstrates the following:

- 1 The MQSeries eWay, in receive mode, retrieves a message from an MQ Queue. The message is published to an outbound File eWay.
- 2 The File eWay published the message to an external directory.

The following pages provides step by step procedures for building the **MQ\_JCE\_Get\_Sample** sample Projects.

#### 5.5.1. Create a Project

The first step is to create and name a new Project in eGate Enterprise Designer.

- 1 From the Project Explorer tree, right-click the Repository and select **New Project**. A new Project (**Project1**) appears on the Project Explorer tree.
- 2 Click twice (not double-click) **Project1** to rename the Project (for this sample, **MQ\_JCE\_Get Sample**).

### 5.5.2 Create a Connectivity Map

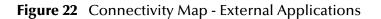
The Connectivity Map provides a canvas for assembling and configuring a Project's components.

1 In Enterprise Explorer's Project Explorer, right-click the **MQ\_JCE\_Get\_Sample** Project and select **New > Connectivity Map** from the shortcut menu. 2 The New Connectivity Map appears and a node is added under the Project on the Project Explorer tree labeled **CMap1**. From the Project Explorer tree, rename the Connectivity Map to **CMap\_JCE\_MQGet**.

#### Select the External Applications

The icons on the Connectivity Map toolbar represent the available components used to populate the Connectivity Map canvas.

eWays in the Connectivity Map are associated with External Systems. For example, to establish a connection to WebSphere MQ (MQSeries), you must first select MQSeries as an External System to use in your Connectivity Map (see Figure 22).



File External Application     G Scheduler	) 💀 🛋 🖾 🖝 💽	MQSeries External Application
G Scheduler		- ME
		Scheduler

- 1 Click the External Application icon on the Connectivity Map toolbar,
- 2 Select the external systems needed for your Project (for this sample, the **Scheduler**, and **WebSphere MQ**, and **File** External Applications). Icons representing the selected external systems are added to the Connectivity Map toolbar.

#### Populate the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas.

- 1 For this sample, drag and drop the following components onto the canvas as displayed in **Figure 23 on page 45**:
  - MQSeries External System
  - **Service** (A service is a container for Java Collaborations, Business Processes, eTL processes, and so forth)
  - File External System

#### Figure 23 Connectivity Map with Components



- 2 Rename the objects by right-clicking the object, selecting Rename from the shortcut menu, and typing in the new name. Change the names as follows:
- 3 MQSeries1 to MQSeriesGet
- 4 Service1 to Service\_JCE\_MQGet
- 5 File1 to FileOut
- 6 Click the **Save All** icon to save your current changes to the Repository.

## 5.5.3. Creating the Java Collaboration Definition

The next step in the sample is to create a Java Collaboration using the Java Collaboration Definition Wizard. Once the Collaboration Definition has been created, the Business Rules of the Collaboration are written using the Java Collaboration Editor.

#### Creating the jcd\_MQGet Java Collaboration

The jcd\_MQGet Java Collaboration defines transactions from the WebSphere MQ External Application to the outbound File External Application.

- From the Project Explorer, right-click the MQ\_JCE\_Get\_Sample Project and select New > Java Collaboration Definition from the shortcut menu. The Java Collaboration Definition Wizard appears.
- 2 Enter a Collaboration name (for this sample jcd\_MQGet) and click Next.
- 3 For Step 2 of the wizard, from the Web Services Interfaces selection window, double-click SeeBeyond > eWays > MQSerieseWay > MQSeries > receive. The File Name field now displays receive. Click Next.
- 4 For Step 3 of the wizard, double-click SeeBeyond > eWays > File > FileClient. The FileClient\_1 OTD is added to the Selected OTDs field (see Figure 24 on page 46).

#### Figure 24 Java Collaboration Definition Wizard - Select Web Service Interface

🗟 Java Collaboration Definition	Wizard 🛛 🛛 🛛
Steps	Select OTDs to be used in this Java Collaboration
<ol> <li>Enter Name and Type</li> <li>Select Web Service Operation to implement</li> <li>Select OTDs</li> </ol>	Look In: 🔹 File 💌 ি 🔊 💷 🗟 🔤
	Name: FileClient Type: Object Type Definition Add Selected OTDs
SEEBEYOND	OTD Instance Name SeeBeyond.eWays.File.FileClient FileClient_1 Remove
(	< <u>B</u> ack Next > <u>Finish</u> Cancel <u>H</u> elp

5 Click **Finish**. The Java Collaboration Editor with the new **jcd\_MQGet** Collaboration appears in the right pane of the Enterprise Designer.

### 5.5.4. Using the Java Collaboration Editor

To open the Java Collaboration Editor, from the Project Explorer tree, double-click a Collaboration (for this sample, **jcd\_MQGet**). The Java Collaboration Editor opens, in the right pane of the Enterprise Designer, to the selected Collaboration.

#### Creating the jcd\_MQGet Collaboration Business Rule

Be careful to open all nodes specified in the directions to connect to the correct item. The jcd\_MQGet Collaboration contains the Business Rule displayed in Figure 25.

Figure 25 jcd\_MQGet Collaboration Business Rules

)- 🕓	receive	
	ሩ Сор	y new java.lang.String(ByteArrayData) to Text
	ሩ File	Client_1.write
	logger	
	alerter	

To create the jcd\_MQGet Collaboration Business Rules do the following:

1 Double-click the **input**, **MQSeries\_1**, and **FileClient\_1** in the Business Rule Designer panes to expand the nodes.

- 2 To create the **Copy new java.lang.String(ByteArrayData) to Text** Business Rule do the following:
  - A From the Business Rule Designer toolbar, click the Call New Constructor icon. The Call New Constructor dialog box appears. Select String from the All Classes box, and java.lang.String(byte[] bytes) from the Constructors box. The Package value defaults to java.lang. Click OK. The java.lang.String method box appears in the Business Rule Designer canvas.
  - B Map ByteArrayData under input > MsgBody in the left pane of the Business Rule Designer, to the bytes (byte[]) input node of the java.lang.String method box. This is done by clicking on ByteArrayData and dragging the cursor to the bytes (byte[]) input node.
  - C Map the result (String) of the **java.lang.String** method box, to Text under **FileClient\_1** in the right pane of the Business Rule Designer. (see Figure 26).

Figure 26 Copy new java.lang.String(ByteArrayData) to Text Business Rule

Business Rules	g.String(ByteArrayData) to Text		
Business Rules Designer	AND NOT OR >>= >	> <= < > + * * / -	» 🐋 📾 🖗 🖦 📚 = jod_MQ≎et 🖾 T input FileClient_1 🚅 → Text ♦ –
Mapper jcd_MQGet			

- 3 To create the **FileClient\_1.write** Business Rule do the following:
  - A From the Business Rules toolbar click the **rule** button to add a new rule.
  - **B** Right-click the **FileClient\_1** node in the left pane of the Business Rule Designer, and click **Select a method to call**. The method selection menu appears.

C Select **write()** from the method selection menu. The **write** method box appears with an arrow connecting **FileClient\_1**, in the left pane of the Business Rule Designer, to the **FileApplication** input node (seeFigure 27).

Business Rules Designer								
🕴 🗟 🗛 📚 📖 🖶 🚽	🖞 卢 and not	or » ≽=	> <=	< » +	*/	= »	<del>60</del> 68	😤 🕶 » 🐎 -
⊠ ∎t≣ jcd_MQGet						Г		jcd_MQGet 🗹 🍡
🙀 input								input 尾
📗 🗕 🔷 DataLength		🗄 write 🗠						FileClient_1 属
📙 🗕 🔷 DataOffset		ileApplication						Text 🔷 —
📕 🗕 🔶 MessageLength								
🛛 💁 📑 MQAppconnMessage	1							
📗 🖗 📑 MsgBody								
📃 🧅 🔷 ByteArrayData								
💁 📑 MsgHeader	2							
📕 🗕 🔷 TotalMessageLength								
Version								
FileClient_1								
II	•							
Mapper								

Figure 27 FileClient\_1.write Business Rule

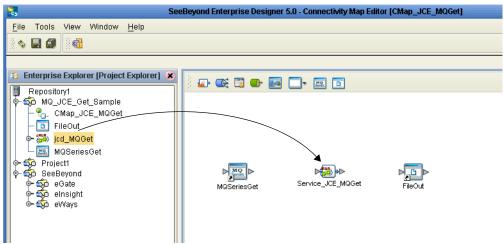
4 From the Enterprise Designer toolbar, click the **Save All** icon to save your current changes to the Repository.

For more information on how to create Business Rules using the Java Collaboration Editor see the *eGate Integrator User's Guide*.

### 5.5.5. Binding the eWay Components

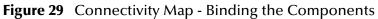
After the Collaborations have been written, the components are associated and Bindings are created in the Connectivity Map.

- 1 From the Project Explorer, double-click **CMap\_JCE\_MQGet**. The Enterprise Designer canvas now displays the Connectivity Map.
- 2 Drag and drop the jcd\_MQGet Collaboration from the Project Explorer tree onto the Service\_JCE\_MQGet service. If the Collaboration was successfully associated, the Service's "gears" icon changes from red to green (see Figure 28 on page 49).



#### Figure 28 Connectivity Map - Binding the Collaborations

- 3 Double-click Service\_JCE\_MQGet. The Service\_JCE\_MQGet Binding dialog box appears using jcd\_MQGet as the rule.
- 4 From the **Service\_JCE\_MQGet** Binding dialog box, drag **MQSeries input** (Implemented Services) to the **MQSeriesGet** External Application.
- 5 From the **Service\_JCE\_MQGet** Binding dialog box, drag **FileClient\_1 FileClient** (under Invoked Services) to the **FileOut** External Application (see Figure 29).



) 🗊 😅 🖬 🖬		
	Service_JCE_MQGet	

6 Click the chevrons in the upper-right corner of the Service\_JCE\_MQGet Binding dialog box to minimize the Service\_JCE\_MQGet.

#### 5.5.6. Creating an Environment

Environments include the external systems, Logical Hosts, integration servers and message servers used by a Project, and contain the configuration information for these

components. Environments are created using the Enterprise Designer's Environment Explorer and Environment Editor.

- 1 From the Enterprise Designer's Enterprise Explorer, click the **Environment Explorer** tab.
- 2 Right-click the Repository and select **New Environment**. A new Environment is added to the Environment Explorer tree.
- 3 Rename the new Environment to MQ\_JCE\_Get Sample\_Env.
- 4 Right-click **MQ\_JCE\_Get Sample\_Env** and select **New MQSeries External System**. Name the External System **MQExtSysIn** and select **Inbound MQSeries eWay** as the type. Click **OK**.
- 5 Right-click MQ\_JCE\_Get Sample\_Env and select New File External System. From the Create an External System dialog box, name the External System FileExtSysOut, and select Outbound File eWay as the type. Click OK.
- 6 Right-click MQ\_JCE\_Get SampleEnv and select New Logical Host. The LogicalHost1 box is added to the Environment and LogicalHost1 is added to the Environment Editor tree.
- 7 From the Environment Explorer tree, right-click the Logical Host environment, LogicalHost1, and select New SeeBeyond Integration Server. A new Integration Server, IntegrationSvr1, is added to the LogicalHost1 box (see Figure 30).

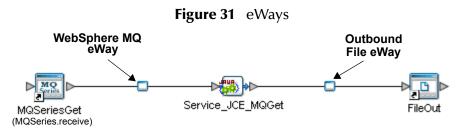
SeeBeyou	nd Enterprise Designer 5.0 - Environment Editor [MQ_JCE_Get_Sample_Env]
Eile Tools View Window Help	
Enterprise Explorer [Environment E      Repository1     MQ_JCE_Get_Sample_Env     MQExtSysIn     EleExtSysOut     FileExtSysOut     ElegialHost1     Second IntegrationSvr1	MOExtSysin

Figure 30 Environment Editor

8 Save your current changes to the Repository.

## 5.5.7. Configuring the eWays

The MQ\_JCE\_Sample Project uses two component eWays, each represented in the Connectivity Map as a node between its associated External Application and a Service (see **Figure 31 on page 51**). eWays facilitate communication and movement of data between the External Applications and the eGate system.



The File eWay properties and the Scheduler parameters are configured from the Connectivity Map. The MQSeries eWay properties are set in both the Project Explorer's Connectivity Map and the Environment Explorer. To configure the eWay properties do the following:

#### **Configuring the File eWay Properties**

- 1 from the Connectivity Map, double-click the **File** eWay. The Templates dialog box appears. Select **Outbound File eWay** and click **OK**. The Properties Sheet opens to the Outbound File eWay configuration.
- 2 Modify the parameters for your system, including the settings for the Outbound File eWay in Table 3, and click **OK**.

Outbound File eWay Properties			
Directory	C:/eGate50/data/out		
Multiple records per file	True		
Output file name	mq_out.txt		

Table 3	Outbound File eWay Settings
---------	-----------------------------

#### Configuring the WebSphere MQ (MQSeries) eWay Properties

The MQSeries eWay parameters must be set in both the Project Explorer and Environment Explorer. For more information on the MQSeries eWay properties and the Properties Sheet, see **Configuring the eWay Properties** on page 12, or see the *eGate Integrator User's Guide*.

#### Modifying the MQSeries eWay Connectivity Map Properties

- 1 From the Connectivity Map, double-click the **MQSeriesGet** eWay. The Templates dialog box appears. Select **Inbound MQSeries eWay** and click **OK**. The Properties Sheet opens to the Inbound MQSeries eWay properties.
- 2 Modify the **MQSeriesGet** eWay Connectivity Map properties for your system, including the settings in **Table 4 on page 51**, and click **OK**.

Table 4	<b>MQSeries</b> eWay	y Connectivity	Map Properties
---------	----------------------	----------------	----------------

Inbound MQSeries eWay Connectivity Map Properties		
Settings Set as directed, otherwise use the default settings		
Queue Name MQ Queue Name		

Inbound MQSeries eWay Connectivity Map Properties		
Schedule Interval	Polling Interval in milliseconds	

Modifying the MQSeries eWay Environment Explorer Properties

- 1 From the **Environment Explorer** tree, right-click the MQSeries External System (**MQExtSysIn** in this sample), and select **Properties**. The Properties dialog box opens to the MQSeries eWay Environment properties.
- 2 Modify the MQSeries eWay Environment properties for your system, including the settings in Table 5 on page 52, and click OK.

Table 5         MQSeries eWay Environment Explorer Propertie
--

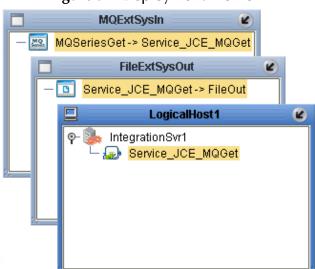
<b>MQSeries eWay Environment Explorer Properties</b>					
<b>Settings</b> Set as directed, otherwise use the default settings					
MQ Host Name	<i>The name of the host on which the Queue</i> <i>Manager resides</i>				
MQ Queue Manager Name	Name of the WebSphere MQ Queue Manager				
Password	Queue Manager Password				
Port Number	Port number on which the Queue Manager is listening				
UserID	User ID to access the Queue Manager				

3 Save your changes to the Repository when finished.

## 5.5.8 Creating and Activating the Deployment Profile

A Deployment Profile is used to assign Collaborations and message destinations to the integration server and message server. Deployment profiles are created using the Deployment Editor.

- From the Enterprise Explorer's Project Explorer, right-click the Project (MQ\_JCE\_Get Sample) and select New > Deployment Profile.
- 2 Enter a name for the Deployment Profile (for this sample MQ\_JCE\_Get Sample\_DP). Make sure that the selected Environment is MQ\_JCE\_Get Sample\_Env. Click OK.
- 3 Drag MQSeriesGet -> Service\_JCE\_MQGet (External Application) to the MQExtSysIn box.
- 4 From the left pane of the Deployment Editor, drag the Service\_JCE\_MQGet -> FileOut (External Application) to the FileExtSysOut box.
- 5 Drag the Service\_JCE\_MQGet service to IntegrationSvr1 in the Logical Host (LogicalHost1) environment box (see Figure 32 on page 53).



#### Figure 32 Deployment Profile

6 Click Activate. When activation succeeds, save the changes to the Repository.

#### 5.5.9. Running the Project

The following directions assume that the Enterprise Designer was downloaded to C:\ican50. If this is not the case, replace that location in the following directions with the appropriate location.

- 1 From the Enterprise Manager Downloads tab, download Logical Host for win32.
- 2 Extract the file to the **ican50\LogicalHost3** directory. You must specify the **LogicalHost3** directory for it to be created.
- 3 Navigate to C:\ican50\LogicalHost3\bootstrap\config directory and open the logical-host.properties file using Notepad<sup>™</sup>.
- 4 Enter the following information in the appropriate fields:
  - Logical Host root directory: ican50\LogicalHost3
  - Repository URL: http://localhost:port number/repository name
  - Repository user name and password: Your user name and password
  - Logical Host Environment name: MQ\_JCE\_Get\_Sample\_Env
  - Logical Host name: LogicalHost3

Save your changes to logical-host.properties and close the file.

- 5 Run the **bootstrap.bat** file in the ican50\LogicalHost3\bootstrap\bin directory.
- 6 Copy the sample input data file to the input directory.

For more information on running a Project that utilizes eInsight from the SeeBeyond Enterprise Designer see the *eInsight Business Process Manager User's Guide* and the *eGate Integrator User's Guide*.

## 5.5.10 Alerting and Logging

eGate provides an alerting and logging feature. This allows monitoring of messages, and captures any adverse messages in order of severity based on configured severity level and higher. To enable Logging, please see the *eGate Integrator User's Guide*.

*Note:* The alerts/status notifications for the WebSphere MQ eWay are currently limited to Started, Running, Stopping, and Stopped.

## 5.6 **The MQ\_JCE\_Put\_Sample Project**

The **MQ\_JCE\_Put\_Sample** Project demonstrates the following:

- 1 The inbound File eWay subscribes to an external directory. The received message is the name of an MQ Queue.
- 2 The message is concatenated with the string "This is a message for queue" and the message from the file.
- 3 The queueName is set to the message from the file.
- 4 The message is published by the outbound MQSeries eWay to an external directory.

The MQ\_BP\_Put\_Sample is found in the Samples file as WebSphereMQSeries\_JCE\_Put\_Sample.zip. To Import the Project, see Importing a Sample Project on page 42.

The following pages provide step by step directions for manually creating the **MQ\_JCE\_Put\_Sample** Project components.

#### 5.6.1 Create a Project

The first step is to create and name a new Project in eGate Enterprise Designer.

- 1 Start the Enterprise Designer.
- 2 From the Enterprise Explorer's Project Explorer tab, select your Repository on the Project Explorer tree, right-click the Repository and select **New Project**. A new Project appears on the Project Explorer tree.
- 3 Click twice on **Project1** and rename the Project (for this sample, **MQ\_JCE\_Put\_Sample**).

### 5.6.2 Create a Connectivity Map

The Connectivity Map provides a canvas for configuring a Project's components.

- In Enterprise Explorer's Project Explorer, right-click the new Project (MQ\_JCE\_Put\_Sample) and select New > Connectivity Map from the shortcut menu.
- 2 The New Connectivity Map appears and a node for the Connectivity Map is added under the Project on the Project Explorer tree labeled **CMap1**. Rename the Connectivity Map **CMap\_JCE\_MQPut**.

#### Select the External Applications

- 1 Click the External Application icon on the Connectivity Map toolbar,
- 2 Select the applications needed for your Project (for this sample, **MQSeries External Application** and **File External Application**). Icons representing the selected applications are added to the Connectivity Map toolbar.

#### Populate the Connectivity Map

Add the Project components to the Connectivity Map by dragging the icons from the toolbar to the canvas.

- 1 For the MQ\_JCE\_Put\_Sample Project, drag the following components onto the Connectivity Map canvas as displayed in Figure 33:
  - Service
  - MQSeries External System
  - File External System

Figure 33CMap\_JCE\_MQPut Connectivity Map with Components

) 🔜 🚭 🖾 🐅 💽	<b>_</b> • 📖 🗈	
	_	_
File1	Service1	MQSeries1
		Wasenesi

- 2 Rename the **File1** External Application to **FileIn** by right-clicking the object, selecting **Rename** from the shortcut menu, and typing in the new name.
- 3 Rename the **Service1** External Application to **Service\_JCE\_MQPut**.
- 4 Rename MQSeries1 to MQSeriesPut.
- 5 Save your current changes to the Repository

## 5.6.3. Creating the Java Collaboration Definition

The next step in the sample is to create a Java Collaboration using the Java Collaboration Definition Wizard. Once the Collaboration Definition has been created, the Business Rules of the Collaboration are written using the Java Collaboration Editor.

#### Creating the jcd\_MQPut Java Collaboration

The jcd\_MQPut Java Collaboration defines transactions from the Inbound File External Application to the WebSphere MQ External Application.

- From the Project Explorer, right-click the MQ\_JCE\_Put\_Sample Project and select New > Java Collaboration Definition from the shortcut menu. The Java Collaboration Definition Wizard appears.
- 2 Enter a Collaboration name (for this sample jcd\_MQPut) and click Next.

- 3 For Step 2 of the wizard, from the Web Services Interfaces selection window, double-click SeeBeyond > eWays > File > FileClient > receive. The File Name field now displays receive. Click Next.
- 4 For Step 3 of the wizard, double-click SeeBeyond > eWays > MQSerieseWay > MQSeries . The MQSeries OTD is added to the Selected OTDs field .
- 5 Click **Finish**. The Java Collaboration Editor with the new **jcd\_MQPut** Collaboration appears in the right pane of the Enterprise Designer.

#### 5.6.4. Using the Java Collaboration Editor

To open the Java Collaboration Editor, from the Project Explorer tree, double-click a Collaboration (for this sample, **jcd\_MQPut**). The Java Collaboration Editor opens, in the right pane of the Enterprise Designer, to the selected Collaboration.

#### Creating the jcd\_MQPut Collaboration Business Rule

Be careful to open all nodes specified in the directions to connect to the correct item. The jcd\_MQPut Collaboration contains the Business Rule displayed in Figure 34.

Figure 34 jcd\_MQPut Collaboration Business Rules

op– ≝Ss receive
— ← Copy true to MQOO_OUTPUT
— ← Queue.accessQueue(Text)
│
- 🔶 Queue.putWithOptions
└─ <> MQSeries_1.commit
— 🛄 logger
🗆 🛄 alerter

To create the jcd\_MQPut Collaboration Business Rules do the following:

- 1 Double-click the **input**, **MQSeries\_1**, and **FileClient\_1** in the Business Rule Designer panes to expand the nodes.
- 2 To create the **Copy true to MQOO\_OUTPUT** Business Rule do the following:
  - A From the Business Rule Designer toolbar, click the **Create Literal** icon. The **Create Literal** dialog box appears. Select **boolean** as the Type, and true as the Value. Click **OK**. The **Literal** method box appears in the Business Rule Designer.
  - B Map the true output node of the Literal method box, to MQOO\_OUTPUT under MQSeries\_1 > queueAccessOptions in the right pane of the Business Rule Designer. This is done by clicking on true output node, and dragging the cursor to MQOO\_OUTPUT (see Figure 35 on page 58).

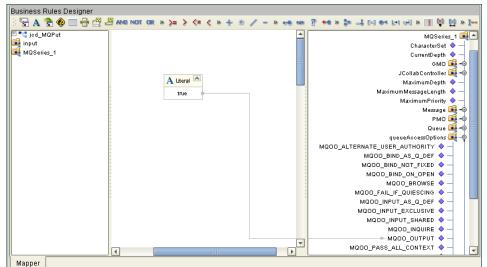


Figure 35 Copy true to MQOO\_OUTPUT Business Rule

- 3 To create the **Oueue.accessOueue(Text)** Business Rule do the following:
  - A From the Business Rules toolbar click the **rule** button to add a new rule.
  - Right-click **Queue** under MQSeries\_1 in the left pane of the Business Rule B Designer, and click **Select a method to call**. The method selection menu appears.
  - C Select accessQueue(java.lang.String arg0) from the method selection menu. The accessQueue method box.
  - **D** Map **Text** under **input** in the left pane of the Business Rule Designer, to the **arg0** input node of the **accessQueue** method box (see Figure 36).

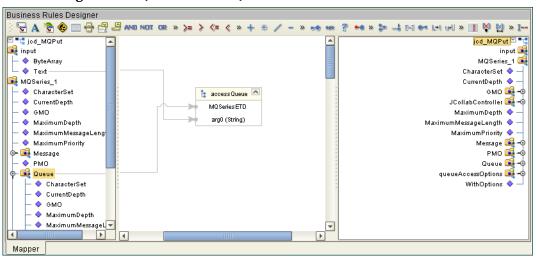


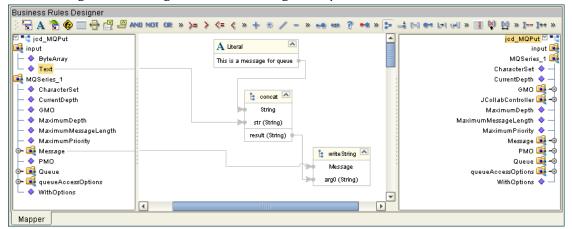
Figure 36 Queue.accessQueue(Text) Business Rule

- To create the Message.writeString("This is a message for queue ".concat(Text)) 4 Business Rule do the following:
  - A From the Business Rules toolbar click the **rule** button to add a new rule.

58

- **B** From the Business Rule Designer toolbar, drag the **concat** icon to the Business Rules Designer canvas. The **concat** method box appears.
- C From the Business Rule Designer toolbar, click the **Create Literal** icon. The Create Literal dialog box appears. Select **String** as the Type, enter **This is a message for queue** as the Value, and click **OK**. The **Literal** method box appears on the Business Rules Designer canvas.
- D Right-click the **Message** node under **MQSeries\_1** in the left pane of the Business Rule Designer, and click **Select a method to call**. The method selection menu appears.
- E Select writeString(java.lang.string arg0) from the method selection menu. The writeString method box appears.
- F Map **Text** under **input** in the left pane of the Business Rule Designer, to the **str** (**String**) input node of the **concat** method box.
- **G** Map the **This is a message for queue** output node of the **Literal** method box, to the **String** input node of the **concat** method box.
- H Map the result (String) output node of the concat method box, to the arg0 (String) input node of the writeString method box (see Figure 37).

Figure 37 Message.writeString("This is a message for queue ".concat(Text)) Business Rule



- 5 To create the **Queue.putWithOptions** Business Rule do the following:
  - A From the Business Rules toolbar click the **rule** button to add a new rule.
  - **B** Right-click the **Queue** node under **MQSeries\_1** in the left pane of the Business Rule Designer, and click **Select a method to call**. The method selection menu appears.
  - C Select **putWithOptions()** from the method selection menu. The **putWithOptions** method box appears on the Business Rules Designer canvas (see Figure 38 on page 60).

Business Rules Designer										
) 🗟 🗛 😤 🌚 📰 🖶 🛃 🖉 🗚	NO NOT OR	» >= :	> <= <	» 🕈 * 🖊	- » 🤫 🕫	• 😤 🕶	» 🔊 -	🚽 🗁 🖬 U	41 » 🔳 🕅	🕅 » I I++ »
<sup>™</sup> ■t <sup>=</sup> jod_MQPut	1									jcd_MQPut 🗹 🍡
尾 input							=			input 📑
🗕 🔶 ByteArray			[	👌 put With Options						MQSeries_1 🔀
🖵 🔷 Text									C	haracterSet 🔶 —
MQSeries_1	*			MQ Series ETD			:		c	urrentDepth 🔶 —
🗕 🔶 CharacterSet	* * *									GMO 尾 – 🏟 🛛
🗕 🔶 CurrentDepth	*								JColl.	abController 📑 🗝
📙 🔶 СМО									Ma>	(imumDepth 🔷 —
🗕 🔶 MaximumDepth	*								MaximumMes	sageLength 🔷 —
🗕 🗕 🔷 MaximumMessageLength	2								Ma×i	mumPriority 🔶 —
🗕 🗕 🔶 MaximumPriority	-						-			Message 📑 🗝
💿 📑 Message										РМО 📑 – 🎯 🛛
	2						-			Queue 📑 🗝
O- 🙀 Queue									queueAc	cessOptions 📑 🗝 🛛
💁 🔀 queueAccessOptions										WithOptions 🔷 🚽 📗
🖵 🔷 WithOptions										
	•									
Mapper										

Figure 38 Queue.putWithOptions Business Rule

- 6 To create the **MQSeries\_1.commit** Business Rule do the following:
  - A From the Business Rules toolbar click the **rule** button to add a new rule.
  - **B** Right-click **MQSeries\_1** in the left pane of the Business Rule Designer, and click **Select a method to call**. The method selection menu appears.
  - C Select **commit()** from the method selection menu. The **commit** method box appears on the Business Rules Designer canvas.
- 7 From the Enterprise Designer toolbar, click the **Save All** icon to save your current changes to the Repository.
- 8 For more information on how to create Business Rules using the Java Collaboration Editor see the *eGate Integrator User's Guide*.

#### 5.6.5. Binding the Project Components

The eWay components are associated and the bindings are created in the Connectivity Map.

- 1 From the Project Explorer, double-click **CMap\_JCE\_MQPut** to open the Connectivity Map.
- 2 Drag and drop the jcd\_MQPut Collaboration from the Project Explorer tree to Service\_JCE\_MQPut in the CMap\_JCE\_MQPut Connectivity Map.
- 3 Double-click Service\_JCE\_MQPut. The Service\_JCE\_MQPut binding dialog box opens.
- 4 From the **Service\_JCE\_MQPut** binding box, map **FileClient input** (under Implemented Services) to the **FileIn** application.
- 5 From the Service\_JCE\_MQPut binding box, map the MQSeries\_1 MQSeries (under Invoked Services) to the MQSeriesPut External Application.
- 6 Minimize the Service\_JCE\_MQPut binding box, and save the current changes to your Repository.

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## 5.6.6. Creating an Environment

Environments include the external systems, Logical Hosts, integration servers and JMS IQ Managers used by a Project and contain the configuration information for these components.

- 1 From the Enterprise Designer's Enterprise Explorer, click the **Environment Explorer** tab.
- 2 Right-click the Repository and select **New Environment**. A new Environment is added to the Environment Explorer tree.
- 3 Rename the new Environment to MQ\_JCE\_Put\_Sample\_Env.
- 4 Right-click MQ\_JCE\_Put\_Sample\_Env and select New MQSeries External System. Name the External System MQExtSysOut and select Outbound MQSeries eWay as the External System Type. The MQExtSysOut window is added to the Environment Editor.
- 5 Right-click **MQ\_JCE\_Put\_Sample\_Env** and select **New File External System**. Name this External System **FileExtSysIn** and select **Inbound File eWay** as the External System Type. The **FileExtSysIn** window is added to the Environment Editor.
- 6 Right-click MQ\_JCE\_Put\_Sample\_Env and select New Logical Host. The LogicalHost1 box is added to the Environment and LogicalHost1 is added to the Environment Editor tree.
- 7 From the Environment Explorer tree, right-click LogicalHost1 and select New SeeBeyond Integration Server. A new Integration Server (IntegrationSvr1) is added to the Environment Explorer tree under LogicalHost1.
- 8 Save your current changes to the Repository.

## 5.6.7. Configuring the eWay Properties

The MQ\_JCE\_Put\_Sample Project uses two eWays, each represented in the Connectivity Map as a node between an External Application and a Service.

The File eWay properties are only configured from the Connectivity Map. The MQSeries eWay, is configured from the Project Explorer's Connectivity Map, and the Environment Explorer. To configure the eWays do the following:

#### Configuring the File eWay Properties

- 1 Double-click the **inbound File eWay**, select **inbound File eWay** in the Templates dialog box, and click **OK**.
- 2 The Properties Sheet opens to the Inbound File eWay properties. Modify the properties for your system.

#### Configuring the MQSeries eWay Properties

The WebSphere MQ (MQSeries) eWay properties must be set in both the Project Explorer and Environment Explorer. For more information on the MQSeries eWay properties and the Properties Sheet, see **Creating and Configuring the MQSeries eWay** on page 12 or see the *eGate Integrator User's Guide*.

#### Modifying the MQSeries eWay Connectivity Map Properties

- 1 From the Connectivity Map, double-click the **MQSeries** eWay. The Properties Sheet opens to the MQSeries eWay Connectivity Map properties.
- 2 Modify the **MQSeries** eWay properties for your system and click **OK**.

#### Modifying the MQSeries eWay Environment Explorer Properties

- 1 From the **Environment Explorer** tree, right-click the Inbound MQSeries External System (**MQSeriesExtSysOut** in this sample), and select **Properties**. The Properties Sheet opens to the MQSeries eWay environment properties.
- 2 Modify the **MQSeries** eWay environment properties for your system and click **OK**.

## 5.6.8 Creating and Activating the Deployment Profile

A Deployment Profile is used to assign Collaborations and message destinations to the integration server and JMS IQ Manager. Deployment profiles are created using the Deployment Editor.

- From the Enterprise Explorer's Project Explorer, right-click the MQ\_JCE\_Put\_Sample Project and select New > Deployment Profile.
- 2 Enter a name for the Deployment Profile (for this sample MQ\_JCE\_Put\_Sample\_DP). Make sure that the selected Environment is MQ\_JCE\_Put\_Sample\_Env. Click OK.
- 3 From the left pane of the Deployment Editor, drag FileIn -> Service\_JCE\_MQPut (External Application) to the FileExtSysIn window.
- 4 From the left pane of the Deployment Editor, drag the Service\_JCE\_MQPut -> MQSeriesPut (External Application) to the MQExtSysOut window.
- 5 From the left pane of the Deployment Editor, drag **Service\_JCE\_MQPut** (Business Process) to **IntegrationSvr1** in the **LogicalHost1** window.
- 6 Click Activate. When activation succeeds, save the changes to the Repository.

#### 5.6.9. Running the Project

The following directions assume that the Enterprise Designer was downloaded to C:\ican50. If this is not the case, replace that location in the following directions with the appropriate location.

- 1 From the Enterprise Manager Downloads tab, click on **Logical Host for win32**.
- 2 Extract the file to the **ican50\LogicalHost4** directory. You must specify the **LogicalHost4** directory for it to be created.

- 3 Navigate to C:\ican50\LogicalHost4\bootstrap\config directory and open the logical-host.properties file using Notepad<sup>™</sup>.
- 4 Enter the following information in the appropriate fields:
  - Logical Host rood directory: ican50\LogicalHost4
  - Repository URL: http://localhost:port number/repository name
  - Repository user name and password: Your user name and password
  - Logical Host Environment name: MQ\_JCE\_Put\_Sample\_Env
  - Logical Host name: LogicalHost4

Save your changes to **logical-host.properties** and close the file.

- 5 Run the **bootstrap.bat** file in the **ican50\LogicalHost4\bootstrap\bin** directory.
- 6 Copy the sample input data file to the input directory.

## Chapter 6

# Java Classes and Methods for the WebSphere MQ eWay

## 6.1 MQSeries eWay Classes and Methods

The MQSeries eWay contains Java methods that are used to extend the functionality of the eWay. These methods are contained in the following classes:

- MQSeriesETD Class
- GMO Class
- PMO Class
- Message Class

#### WebSphere MQ Javadoc

The Javadoc is uploaded with the eWay's documentation file (**MQSerieseWayDocs.sar**) and downloaded from the Documentation tab of the Enterprise Manager. To access the full Javadoc, extract the Javadoc to an easily accessible folder, and double click the **index.html** file.

## Mapping WebSphere MQ Header Fields

## A.1 Mapping Between JMS Standard Header Items and WebSphere MQ Header Fields

JMS Standard header items and their equivalent WebSphere MQ header fields can be set using the Java Collaboration Rules Editor. For information on mapping between JMS header items and WebSphere MQ header fields see IBM MQSeries online documentation at:

http://www-4.ibm.com/software/ts/mqseries/library/manual01/csqzaw07/ csqzaw07tfrm.htm

Table 20, at the above Web site provides JMS header fields used to set or get MQSeries header fields (only some of which are available using this procedure). The Java Collaboration Rules Editor sets the header properties by calling **readProperty()** or **writeProperty()**.

For detailed information on creating Collaboration Rules using the Java Collaboration Rules Editor see the *eGate Integrator User's Guide*.

## **Appendix B**

## Support for WebLogic and WebSphere Application Servers

This section describes how to deploy an Enterprise Archive (EAR) file to the WebLogic<sup>TM</sup> or WebSphere<sup>TM</sup> Application Server. This includes information on installing the WebLogic or WebSphere Application Server interface and configuring the selected Application server to deploy the EAR file.

#### **Chapter Topics:**

- Uploading the Application Server Interface on page 66
- Creating an EAR File on page 67
- Deploying an EAR File on page 67
- Configuring the WebLogic Application Server on page 68
- Configuring the WebSphere Application Server on page 75

## **B.1** Uploading the Application Server Interface

To support the WebLogic or WebSphere Application Server, the following files must be uploaded to your system and installed:

#### WebLogic Application Server

- weblogic.sar
- weblogicjmsmessageserver.sar

#### WebSphere Application Server

- websphereintegserver.sar
- webspherejmsmessageserver.sar

For information on uploading and installing the selected .sar files see the *SeeBeyond ICAN Suite Installation Guide*.

## **B.2** Creating an EAR File

To create an EAR file from an eGate Project, include the following steps during the creation of the Project:

- 1 From the JMS Properties Sheet (accessed from the Connectivity Map) set the values as follows:
  - Set the Transaction Mode parameter (under JMS Client, Basic) to XA
  - Set the **USE for JMS connection** parameter (under JMS Client, Basic, Run-as principal) to **false**
- 2 During the creation of the Project Environment do the following:
  - A Create the Logical Host in the Environment.
  - B From the Environment Explorer tree, right-click the logical host and select New WebLogic (or New WebSphere) Integration Server from the shortcut menu. The integration server is added to the Logical Host box and the Environment Explorer tree.
- 3 During the creation of the Deployment Profile do the following
  - A Drag and drop the Service containing the Collaboration to the WebSphere or WebLogic Integration Server in the Logical Host box.
  - **B** Drag and drop the Topic or Queue to the WebSphere or WebLogic JMS Server in the Logical Host box.
  - C Once all of the components have been placed in the environment, click **Activate**. When prompted whether to apply the Project to the logical host immediately, click **No**.
- 4 The Project's EAR file is now available in the following location:

<ICAN>/repository/data/files/<environment name>/<logical host name>/<application server name> directory

where **<ICAN>** is the directory where the ICAN Suite is installed, **<environment name>** is the name of the Project Environment, **<logical host name>** is the name of the logical host, and **<application server name>** is the name of the selected Application Server.

*Note:* For an eGate Project EAR file to deploy to the WebLogic or WebSphere Application Server, the Project must not contain any inbound e\*Ways.

## **B.3** Deploying an EAR File

To deploy an EAR file using the WebLogic or WebSphere Application Server, you first create the following components from the Application Server's Administrative Console:

- **Topics** or **Queues**: One Topic or Queue is needed for each Topic or Queue in the eGate Project.
- **Connection Factories**: A Connection Factory enables JMS Clients to create JMS connections with predefined attributes. If the Project contains Topics, a Topic Connection Factory is required. If it contains Queues a Queue Connection Factory is needed. If the Project contains both Topics and Queues, create both a Queue and a Topic Connection Factory.

WebSphere also requires the following:

• **Listener Ports**: A listener port must be created for every MDB the Project contains. The **MDB** is represented in the Project's Connectivity Map as the connection between a **Topic** or **Queue** and a **Service** (see Figure 39).

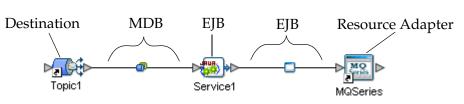


Figure 39 Project/EAR File

## **B.4** Configuring the WebLogic Application Server

To deploy an EAR file in the WebLogic Application Server do the following:

1 Start the WebLogic Server by double-clicking the following file:

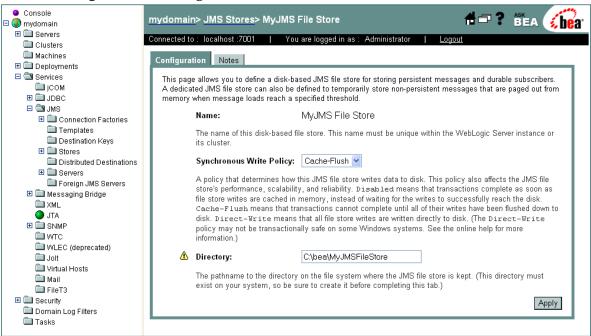
<WL\_HOME>/server/bin/startWLS.cmd

where <WL\_HOME> is the location of WebLogic directory on your system. When Prompted, enter your user name and password.

2 Start the Server Administration Console.

#### Creating a JMS File Store

- 1 From the Console tree, click **mydomain**, click **Services**, click **JMS**, and click **Stores**.
- 2 From the **Create a new JMS File Store** window enter a name for the JMS Store.
- 3 Create a new directory on your system where the JMS file store will be kept, then enter the absolute path for the directory in the **Directory** field (see Figure 40). Click **Apply**.



#### Figure 40 WebLogic Server Console - Create a JMS File Store

#### Creating a JMS Server

- 1 From the Console tree, click **mydomain**, click **Services**, click **JMS**, and click **Servers**.
- 2 From the JMS Servers window, click Configure a new JMS Server.
- <sup>3</sup> From the **MyJMS Server** window, enter a name for the JMS server (in this case, the default **MyJMS Server**) as displayed in Figure 41. Click **Create**.

#### Figure 41 WebLogic Server Console - Create a JMS Server

● Console □ 😍 mydomain	mydomain	> JMS Servers> Create	e a new JMSServer	🕂 🗖 ? 🛯 🐔 🍊 👘				
Gervers     Clusters	Connected to	: localhost :7001   Yo	u are logged in as : Administrator 🔰	Logout				
🗀 Machines	Configurat	ion Target and Deploy	Monitoring Notes					
Deployments								
Services     ICOM	General	Thresholds & Quotas						
	This page allows you to define the general configuration parameters for this JMS server. A JMS server manages connections and message requests on behalf of clients. (You must define a JMS server before you can configure any JMS destinations.)							
🛄 Templates	Δ	Name:	MyJMS Server					
Destination Keys E Destination Keys								
Distributed Destinations		The name of this JMS serve	r.					
Distributed Destinations     Distributed Destinations     Servers     Foreign JMS Servers     Messaging Bridge     XML     JTA     SNMP	Δ	Persistent Store:	(none) 🔽					
		repository for storing persist store or JDBC store using th	ile-based or JDBC-based) for this JMS se ent message data. In order to select a sto re JMS > Stores node. The selected store core used by any other JMS server.	re, first configure either a JMS file				
WTC     WLEC (deprecated)	Δ	Paging Store:	(none) 🔽					
Joit     Virtual Hosts     Mail     FileT3     Security		messages can be temporari if paging is enabled on the T dedicated "paging" JMS file	e for this JMS server, which is a dedicated ly paged when this JMS server's message hresholds & Quotas tab. In order to selec store using the JMS > Stores node. The s aging store, or the same store used by an	e load reaches a specified threshold t a paging store, first configure a selected paging store cannot be the				
Domain Log Filters	Δ	Temporary Template:	(none) 💌					
🗖 Tasks			S template to use when creating all tempo r this field allows JMS applications to crea					
		Expiration Scan Interval:	30 seconds					
		JMS server will pause betwee	n seconds (between 0 and a positive 32-bi en its cycles of scanning local destination e to 0 disables active message expiration by the server.	ns for expired messages to be				
				Create				

#### Creating a Topic or Queue

- 1 From the Console tree, click **mydomain**, click **Services**, click **JMS**, click **Servers**, click the new JMS server (in this example, **MyJMS Server**), and click **Destinations**.
- 2 From the JSM Destinations window, click either Configure a new JMS Queue or Configure a new JMS Topic.
- 3 From the Topic or Queue configuration window, enter a name for the new Topic or Queue in the Name field. Enter the same name in the JNDI Name field (see Figure 42). Click **Create**.

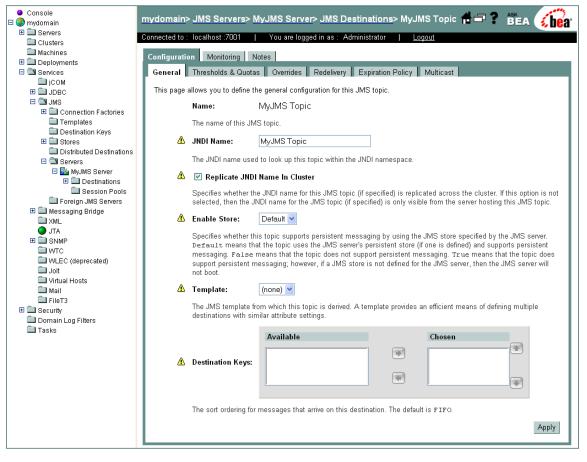


Figure 42 WebLogic Server Console - Create a JMS Topic or Queue

#### **Creating a Connection Factory**

- 1 From the Console tree, click **mydomain**, click **Services**, click **JMS**, click **Connection Factories**.
- 2 From the **JSM Connection Factories** window, click **Configure a new JMS Connection Factory**.
- 3 From the **Create a new JMSConnectionFactory** window, enter a name for the new JMS Connection Factory in the **Name** field (for this example, the default **MyJMS Connection Factory**).
- 4 Enter the Connection Factory JNDI Name in the **JNDI Name** field. The pattern for the JNDI Name is **jms/connectionfactory/**<*xa\_topic* or *xa\_queue* (*just topic* or *queue if xa is not selected as the Transaction Mode*)>/<Logical Host name>\_<JMS Message Server name (from the Environment)>.

For this example the Connection Factory JNDI name is **jms/connectionfactory/ xa\_topic/LogicalHost1\_WLMessageSvr1** (see Figure 43). Click **Create**.

● Console □ 🔇 mydomain	ydomain> JMS Connection Factories> MyJMS Connection Factory 👘 🗗 📍 🎉	A <b>he</b> a
🗄 🚞 Servers	nnected to : localhost :7001   You are logged in as : Administrator   <u>Loqout</u>	7 500
Clusters	nnected to : localhost :7001   You are logged in as : Administrator   <u>Logout</u>	
🖿 Machines	Configuration Target and Deploy Notes	
🗉 🧰 Deployments		
🖻 🖾 Services	General Transactions Flow Control	
🚞 јСОМ	This page allows you to define the general configuration of this JMS connection factory.	
I DBC	rns page allows you to deline the general conliguration of this JMS connection factory.	
JMS Similar Connection Factories	Name: MyJMS Connection Factory	
MyJMS Connection Fa	The name of this JMS connection factory.	
Destination Keys	JNDI Name:	
E Stores		
Distributed Destinations	The JNDI name used to look up this JMS connection factory within the JNDI namespace.	
E Servers		
🗀 Foreign JMS Servers	Client ID:	
🕀 🚞 Messaging Bridge	An optional client ID for a durable subscriber that uses this JMS connection factory. Configuring this value on t	ha
🗀 XML	connection factory prevents more than one JMS client from using a connection from the factory. Generally, JM	
ITA 🔵 JTA	subscriber applications set their client IDs dynamically using the javax.jms.Connection.setClientID	() call.
E SNMP		
🚞 wтс	Default Priority: 4	
WLEC (deprecated)	The default priority (between 0 and 9) used for messages when a priority is not explicitly defined.	
Jolt Virtual Hosts	The default phoney (derween 0 and 9) used for messages when a phoney is not explicitly defined.	
Mail	Default Time To Live: 0	
FileT3		
E Security	The default maximum number of milliseconds (between 0 and a positive 64-bit integer) that a message will exis	st. The
Domain Log Filters	default value of O indicates that the message has an infinite amount time to live.	
Tasks	Default Time To Deliver: 0	
	The number of milliseconds (between 0 and a positive 64-bit integer) between when a message is produced an made visible on its target destination.	d when it is
	Default Delivery Mode: Persistent 💌	
	The delivery mode assigned to all messages sent by a producer using this connection factory.	
	Default Redelivery Delay: 0	
	The number of milliseconds (between 0 and a positive 64-bit integer) before rolled back or recovered messages redelivered.	are

Figure 43 WebLogic Server Console - Create a Connection Factory

# **Deploying the Application**

- 1 From the Console tree, click **mydomain**, click **Deployments**, and click **Applications**.
- 2 From the **Applications** window, click **Deploy a new Application**.
- 3 From the **Deploy a new Application** window, location of the directory that contains the EAR file (see Figure 44).



Console     Mydomain     Servers     Clusters	mydomain> App Connected to : local		? BEA 🚺		
Machines     Mechines     Deployments     Services     icoM	Deploy an Application Select the archive for this application				
JCOM     JDBC     MJMS     Connection Factories     Templates     Destination Keys	Select the file path that represents your archive or exploded archive directory. Note: Only valid file paths are shown below. If you do not find what you are looking for, you should <u>upload</u>				
<ul> <li>Stores</li> <li>Distributed Destinations</li> <li>Servers</li> <li>Foreign JMS Servers</li> </ul>		or confirm your application contains valid descriptors.  ation: localhost \ C: \ bea \ weblogic81 \ server \ bin  applications			
<ul> <li>Hessaging Bridge</li> <li>XML</li> <li>↓ JTA</li> <li>SMMP</li> <li>WTC</li> </ul>		CheckConfig  Com2java  com2java  com2javacmd			
WLEC (deprecated) Joit Mail FileT3 Security Domain Log Filters Tasks		Conzervacino			
		<ul> <li>□ <u>ntvauth</u></li> <li>□ <u>ntvinv</u></li> <li>□ ocxhost</li> </ul>			
		□ regivm □ regivmcmd			
		□ regtb       □ setdlihost       □ win64			
			Continue		

4 Select the appropriate EAR file (see Figure 45 on page 74) and click Continue.

E Servere	mydomain> Applications> Deploy a new Application Ask Connected to : localhost :7001   You are logged in as : Administrator   Logout	<b>be</b> a
Machines Composition Composit	Deploy an Application Select the archive for this application	
<ul> <li>EJB Modules</li> <li>Web Application Modules</li> <li>Connector Modules</li> <li>Startup &amp; Shutdown</li> <li>Services</li> <li>Security</li> <li>Domain Log Filters</li> <li>Tasks</li> </ul>	Select the file path that represents your archive or exploded archive directory. Note: Only valid file paths are shown below. If you do not find what you are looking for, you should your file(s) and/or confirm your application contains valid descriptors. Location: localhost \ C: \ bea \ weblogic81 \ server \ bin \ myserver	<u>upload</u>

Figure 45 WebLogic Server Console - Deploy an Application

- 5 From the Deploy an Application window, enter the name for the selected application and click **Deploy**.
- 6 From the **Depoly** tab of the Project deployment window, view the status of the applications deployment. When the application is successfully deployed the status appears as Successful (see Figure 46).

Figure 46 WebLogic Server Console - Project Deployment Status

Connecte	nain> Applications> Proj d to : localhost :7001		loyment1 ed in as: Ad	dministrat		<b>#</b> =?	BEA <b>be</b> a
Machines     Configu	ration Targets Deploy	Notes					
Applications     This     Project1_Deployment1     indivi     Service1_jar     the b	This page allows you to view the deployment status of each module in the application, and to stop or redeploy individual modules. You may also choose to stop and redeploy all modules within the application using the buttons at the bottom of the page. (To configure additional deployment targets for this application, click the Targets tab.) <b>Deployment status for EJB Modules</b>						
⊌ Topic1_Service1.jar ■ EJB Modules ■ Web Application Modules	Module	Module Status	Target	Targe Type			
Connector Modules	Service1.jar	Active	myserver	Server	Success		
🗉 🧰 Services	Service1_File1.jar	Active	myserver	Server	Success		
⊞ Domain Log Filters     ■     Domain Log Filters     ■     ■     Domain Log Filters     ■	Topic1_Service1.jar	Active	myserver	Server	Success		
Tasks Depl	oyment Status for Connector	Modules				_	
	Module	Module Status	Target	Target Type	Status of Last Action		
	Service1_File1.rar	Active	<u>myserver</u>	Server	Success		
	Stop Application	Redepl	loy Applicatio	in			

7 Run the Client program to publish to and subscribe from the destinations respectively.

# **B.5** Configuring the WebSphere Application Server

To deploy an EAR file in the WebSphere Application Server, start the Administrative Console, and do the following:

#### Create the Topic or Queue

- 1 From the left pane of the WebSphere Administrative console, select **Resources** and click **WebSphere JMS Provider**.
- 2 From the **WebSphere JMS Provider** window, under **Additional Properties**, click **WebSphere Queue Destinations** or **WebSphere Topic Destinations**, depending on whether you are creating a topic or queue. For this example click WebSphere Topic Destinations to create a topic.
- 3 From the **WebSphere Topics Destinations** (or Queue Destinations) window click the **New** button.
- 4 From the Topic or Queue Destinations configuration window, enter a name for the new Topic or Queue in the Name field. Enter the same name in the JNDI Name field. Enter the string value used to identify the Topic in the Topic field (for this example, Topic1) as displayed in Figure 47. Click OK.

Save   Preferences   Logout   Help			
USER Message(s)			
Changes have been	nade to your local configuration. Click Save to as	only changes to the master con	ficuration
	to be restarted for these changes to take effect		gar and t
lications			
Enterprise Applications WebSphere JMS Provi	der > <u>WebSphere Topic Destinations</u> >		
Install New Application Topic1			
ources Topic destinations provid	lad for publishis theorina managing by the inter	nal MabSohara, MS providar, I	Ise WebSphere Topic Destination administrative objects to manage topic
destinations for the inter	nal WebSphere JMS provider.	nai webspriere aws provider. c	se websphere topic besiniation administrative objects to manage topic
Generic JMS Providers			
WebSphere JMS Provider Configuration			
WebSphere MQ JMS Provider Meil Providers			
Resource Environment Providers			
URL Providers Scope	<ul> <li>cells:LocalhostX260:nodes:LocalhostX</li> </ul>	K260	The scope of the configured resource. This value indicates the configuration location for the configuration
Resource Adapters			file.
urity Name	* Topic1		The required display name for the resource.
ronment JNDI Name	Topic1		The JNDI name for the resource.
tem Administration Description			An optional description for the resource.
Category			An optional category string which can be used to classify or group the resource.
Topic	* Topic1		This is the string value used to identify the Topic. It
			can be dot notation and include wildcard characters.
Persistence	APPLICATION DEFINED		Whether all messages sent to the destination are persistent, non-persistent, or have their persistence defined by the application.
Priority	APPLICATION DEFINED		Whether the message priority for this destination is defined by the application or the Specified priority property.
Specified Priority			When priority is SPECIFIED, this value specifies the priority for the topic. Valid values are in the range 0-9 with 0 as the lowest priority and 9 as the highest prior
Expiry	APPLICATION DEFINED		Whether the expiry timeout for this queue is define by the application or the Specified expiry property, or messages on the queue never expire (have an unlimit expiry timeout).
Specified Expiry	m	illiseconds	When expiry is SPECIFIED, this value contains the expiration period for the Topic in milliseconds. Valid values are any long value greater than zero.
Specified Expiry		iliseconds	When expiry is SPECIFIED, this value contre expiration period for the Topic in miliseconds.

 Figure 47
 WebSphere Server Administrative Console - Create a Topic

5 From the **WebSphere Topic Destinations** widow, click **WebSphere JMS Provider** to return to the JMS Provider window.

## **Creating a Connection Factory**

- 1 From the **WebSphere JMS Provider** window, under **Additional Properties**, click **WebSphere Topic Connection Factories** (or Queue Connection Factories if you created a Queue).
- 2 From the **WebSphere Topic Connection Factories** window, click the **New** button.
- 3 From the **WebSphere Topic Connection Factories** configuration window, enter the Topic Connection Factory name in the **Name** field (for this example, **TopicConnFact**).
- 4 Enter the Connection Factory JNDI Name in the JNDI Name field. The pattern for the JNDI Name is jms/connectionfactory/<xa\_topic or xa\_queue (just topic or queue if xa is not selected as the Transaction Mode)>/<Logical Host name>\_<JMS Message Server name (from the Environment)>.

For this example, the Connection Factory JNDI name is **jms/connectionfactory/ xa\_topic/LogicalHost1\_WLMessageSvr1** 

5 Make sure that **XA Enabled** is selected (see Figure 48). Click **OK**.

Figure 48 WebSphere Server Administrative Console - Create Connection Factory

WebSphere Application Server Adm Version 5 Home   Save   Preferences   Logout					
User ID: USER	Changes have been made to your local configuration. Click <u>Save to</u> apply changes to the master configuration.     The server may need to be restarted for these changes to take effect.				
Servers  Applications  Enterprise Applications  Install New Application  Resources  JOBC Providers	Lar the server har result of resulted for these that yes to any enext.  WebSphere JMS Provider > WebSphere Topic Connection Factories >  Topic ConnFact  A topic connection factory administrative objects to manage topic connection factories for the internal WebSphere JMS provider of JMS topic destinations, for publich/subscribe messaging. Use WebSphere Topic Connection Factory administrative objects to manage topic connection factories for the internal WebSphere JMS provider.				
Generic JMS Providers WebSphere JMS Provider	Configuration				
WebSphere MQ JMS Provider	General Properties				
Mail Providers Resource Environment Providers URL Providers	Scope	★cells:LocalhostX260:nodes:LocalhostX260	The scope of the configured resource. This value indicates the configuration location for the configuration file.		
Resource Adapters	Name	* TopicConnFact	The required display name for the resource.		
Security     Ervironment     System Administration     Troubleshooting	JNDI Name	ims/connectionfactory/xa_topic/Logic	i The JNDI name for the resource.		
	Description		An optional description for the resource.		
	Category		An optional category string which can be used to classify or group the resource.		
	Node	LocalhostX260	The WebSphere node name of the administrative node where the JMS server runs for this connection factory. Connections created by this factory connect to that JMS server.		
	Port	QUEUED 💌	[] For Topics, we need to specify which of the two ports is to be used in addition to the node (JMS Server). The GUEUED port is for full-function JMS Pub/Sub support, the ORECT port is for non-persistent, non-transactional, non-durable subscriptions only.		
	Component-managed Authentication Alias		References authentication data for component- managed signon to the resource.		
	Container-managed Authentication Alias		References authentication data for container- managed signon to the resource.		
	Clone Support	Enable clone support	Enables clone support. When true, the clientID field is required.		
	Client ID		I JMS client ID Note: Necessary for durable server side subscriptions.		
	XA Enabled	Enable XA	Attribute to indicate whether or not the JMS provider is XA enabled or not. This attribute only applies to specialized indices on MMSConnectionFactory. It is meaningless for Generic-MSConnectonFactory, as they define such feature enablements through name/value property pairs.		
	Apply OK Reset Cancel		_		

#### **Install the Application**

- 1 From the left pane of the WebSphere Administrative console, select **Applications**, and click **Install New Application**.
- 2 From the Preparing for the application installation window, select Local path or Server path and click Browse. Locate and select the appropriate EAR file (see Figure 49). Click Next.

Figure 49 WebSphere Server Administrative Console - Install New Application

Home   Save   Preferences	Logout   Help		
User ID: USER RJACOBUSGX260 ⊞ Servers		r the application installation	
Applications Enterprise Applications Install New Application Resources Security Environment		Browse the local machine or a remote server: Local path: prilib/Project1_Deployment1.ear Browse Server path:	① Choose the local path if the ear resides on the same machine as the browser. Choose the server path if the ear resides on any of the nodes in your cell context.
<ul> <li>System Administration</li> <li>Troubleshooting</li> </ul>	Context Root: U	sed only for standalone Web modules (*.war)	$\fbox{1}$ You must specify a context root if the module being installed is a WAR module.

3 From the next window select **Generate Default Bindings** (see Figure 50). Click **Next**.

Figure 50 WebSphere Server Administrative Console - Generate Default Bindings

WebSphere Application Serve Version 5	er Administrative Console	
Home   Save   Preferences	Logout   Help	80
User ID: User	Preparing for the application installation	
	You can choose to generate default bindings and mappings. 🗓	_
<ul> <li>Applications</li> <li><u>Enterprise Applications</u></li> <li>Install New Application</li> </ul>	Generate Default Bindings:	
Resources     Security     Environment     System Administration	Prefixes: <ul> <li>Do not specify unique prefix for beans</li> <li>Specify Prefix:</li> <li>ejb</li> </ul>	
Troubleshooting	Override: <ul> <li>Do not override existing bindings</li> <li>Generate default bindings for existing entries and over write them.</li> <li>Override existing bindings</li> </ul> I Generate default bindings for existing entries and over write them.	
	Specific bindings file: Browse Doptional location of pre-defined bindings file. Previous Next Cancel	

- *Note:* The following application installation steps may differ depending on the nature of the EAR file.
  - 4 From the Step 1: Provide options to perform the installation window (see Figure 51), enter a name for the application and select Deploy EJBs (seeFigure 51 on page 79). Click Next.

#### Figure 51 WebSphere Administrative Console - Provide options to perform the installation

WebSphere. Application Server Version 5	Administrative Console				
Home   Save   Preferences	Logout   Help				
User ID: User	Install New Application				
RJACOBUSGX260	Allows installation of Enterprise Applications and Module				
Servers	Allows installation of chiterprise Applications and Module				
Application Servers	→ Step 1: Provide options to perform the installation				
Enterprise Applications	Specify the various options available to prepare and install	your application.			
Install New Application I Resources	AppDeployment Options	Enable			
⊞ Security	Pre-compile JSP				
Environment	Directory to Install Application				
	Distribute Application				
E froubleshooling	Use Binary Configuration				
	Deploy EJBs				
	Application Name	Enterprise Application			
	Create MBeans for Resources				
	Enable class reloading				
	Reload Interval				
	Next Cancel				
	Step 2 Provide Listener Ports for Messaging Beans				
	Step 3 Provide JNDI Names for Beans				
	Step 4 Map EJB references to beans				
	Step 5 Map modules to application servers				
	Step 6 Ensure all unprotected 2.0 methods have the corr	rect level of protection			
	<u>Step 7</u> Summary				

- 5 No changes are necessary for **Step 2** through **Step 5**. Proceed to the **Step 6**: **Map modules to application servers** window.
- 6 From the **Step 6: Map modules to application servers** window, click the Module checkbox to select all of the modules. (seeFigure 52). Click **Next**.

#### Figure 52 WebSphere Administrative Console - Map Modules to Application Servers

WebSphere Application Server Add Version 5	ministrative Console	IBM.
Home   Save   Preferences   Logou	ut   Help	BC
User ID: USER	Install New Application	
E Servers	Allows installation of Enterprise Applications and Module	
Application Servers	Step 1 Provide options to perform the installation	
Enterprise Applications	Step 2 Provide options to perform the EJB Deploy	
Install New Application	Step 3 Provide Listener Ports for Messaging Beans	
Resources	Step 4 Provide JNDI Names for Beans	
	Step 5 Map EJB references to beans	
Environment	→ Step 6 : Map modules to application servers	
System Administration		
Troubleshooting	Specify the application server where you want to install modules contained in your application. Modules can be installed on the same server dispersed among several servers.	' or
	WebSphere:cell=LocalhostX260.node=LocalhostX260.server=server1	
	Clusters and Servers: Apply	
	V Module URI Server	
	Service1.jar Service1.jar/META-INF/ejb-jar.xml WebSphere.cell=LocalhostX260,node=LocalhostX260,server=serve	er1
	Service1_File1_jar Service1_File1_jar,META-INF/ejb-jar.xml WebSphere:cell=LocalhostX260,node=LocalhostX260,server=server	er1
	Topic1_Service1.jar Topic1_Service1.jar,META-INF/ejb-jar.xml WebSphere:cell=LocalhostX260,node=LocalhostX260,server=serve	er1
	Service1_File1_rar Service1_File1_rar_META-INF/ra_xml WebSphere:cell=LocalhostX260,node=LocalhostX260,server=serve	er1
	Previous Next Cancel	
	Step 7 Ensure all unprotected 2.0 methods have the correct level of protection	
	Step 8 Summary	

- 7 From the Step 7: Ensure all unprotected 2.0 methods have the correct level of protection window, click the Module checkbox to select all of the modules. Click Next
- 8 From the Step 8: Summary window, review the selected values and click Finish.
- 9 WebSphere begins installing the application. This may take several minutes. When the application installs successfully, click **Save to Master Configuration**.
- 10 To review the application's status or start or stop the application, from the right pane of the Administrative Console, click **Applications**, and click **Enterprise Applications** (see Figure 53).

#### Figure 53 WebSphere Administrative Console - Enterprise Applications

WebSphere. Application Server Version 5	Administrative Console				
Home   Save   Preferences   Lo	Home   Save   Preferences   Logout   Help				
User ID: USER RJACOBUSGX260 Servers Applications	Enterprise Applications A list of installed applications. A single application can be deployed onto m	nultiple servers. []			
Enterprise Applications Install New Application Resources JDBC Providers	Total 9 Filter Preferences				
Generic JMS Providers WebSphere JMS Provider WebSphere MG JMS Provider Mail Providers	Start Stop Install Uninstall Update Export Uninstall Update Contemport DefaultApplication.	Export DDL Status ♀,☆ ♥			
Resource Environment Providers URL Providers Resource Adapters	Enterprise Application.  MDBSamples.  PlantsBW/ebSphere.	+>           +>			
<ul> <li>Security</li> <li>Environment</li> <li>System Administration</li> </ul>	SamplesGallery TechnologySamples	•           •			
Troubleshooting     Troubleshooting	adminconsole  tvAce	•           •			
		•			

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