BEA WebLogic Adapter for MQSeries

Installation and Configuration Guide for WebLogic Integration 7.0

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BEA WebLogic Adapter for MQSeries
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N/A	June 2003

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About This Document

This document explains how to install the BEA WebLogic Adapter for MQSeries for WebLogic Integration 7.0, which is used to develop client-server interfaces between MQSeries and other Web applications. It is organized as follows:

The BEA WebLogic Adapter for MQSeries supports IBM MQSeries 5.2.

Chapter 1, “Installing the BEA WebLogic Adapter for MQSeries,” provides the information you need before installing the BEA WebLogic Adapter for MQSeries, and describes how to install the adapter with WebLogic Integration 7.0.

What You Need to Know

This document is written for system integrators who develop client interfaces between MQSeries and other Web applications. It describes how to install the BEA WebLogic Adapter for MQSeries to develop application environments with a special focus on message integration.

It is assumed that you know Web technologies and have a general understanding of MQSeries, Microsoft Windows, and UNIX systems.

e-docs Web Site

BEA product documentation is available on the BEA corporate Web site. From the BEA Home page, click on Product Documentation or go directly to the e-docs product documentation page at http://e-docs.bea.com.

Related Information

The following WebLogic Integration documents contain information that is relevant to using this product:

- *BEA WebLogic Adapter for MQSeries User Guide* at http://edocs.bea.com/wladapters/mq/docs71/index.html
- *BEA WebLogic Adapter for MQSeries Release Notes* at http://edocs.bea.com/wladapters/mq/docs71/index.html
- BEA WebLogic Platform 7.0 installation and user documentation, which is available at the following URL: http://edocs.bea.com/platform/docs70/index.html

Contact Us!

Your feedback on the BEA WebLogic Adapter for MQSeries documentation is important to us. Send us e-mail at docsupport@bea.com if you have questions or comments. Your comments will be reviewed directly by the BEA professionals who create and update the BEA WebLogic Adapter for MQSeries documentation.

In your e-mail message, please indicate that you are using the documentation for the BEA WebLogic Adapter for MQSeries 7.1 release.

If you have any questions about this version of BEA WebLogic Adapter for MQSeries, or if you have problems installing and running the product, contact BEA Customer Support through BEA WebSupport at www.bea.com. You can also contact Customer Support by using the contact information provided on the Customer Support Card, which is included in the product package.

When contacting Customer Support, be prepared to provide the following information:

- Your name, e-mail address, phone number, and fax number
- Your company name and company address

- Your machine type and authorization codes
- The name and version of the product you are using
- A description of the problem and the content of pertinent error messages

Documentation Conventions

The following documentation conventions are used throughout this document.

Convention	Item
boldface text	Indicates terms defined in the glossary.
Ctrl+Tab	Indicates that you must press two or more keys simultaneously.
italics	Indicates emphasis or book titles.

`monospace text`	Indicates code samples, commands and their options, data structures and their members, data types, directories, and filenames and their extensions.
	Examples:
	`#include <iostream.h> void main ( ) the pointer psz`
	`chmod u+w *`
	`\tux\data\ap`
	`.doc`
	`tux.doc`
	`BITMAP`
	`float`

`monospace boldface text`	Identifies significant words in code. *Example*: `void` **`commit`** `( )`
`monospace italic text`	Identifies variables in code. *Example*: `String` *`expr`*

Convention	Item
UPPERCASE TEXT	Indicates device names, environment variables, and logical operators. *Example*s: LPT1 SIGNON OR
{ }	Indicates a set of choices in a syntax line. The braces themselves should never be typed.
[]	Indicates optional items in a syntax line. The brackets themselves should never be typed. *Example*: `buildobjclient [-v] [-o name] [-f file-list]... [-l file-list]...`
|	Separates mutually exclusive choices in a syntax line. The symbol itself should never be typed.
. . .	Indicates one of the following in a command line: ■ That an argument can be repeated several times in a command line ■ That the statement omits additional optional arguments ■ That you can enter additional parameters, values, or other information The ellipsis itself should never be typed. *Example*: `buildobjclient [-v] [-o name] [-f file-list]... [-l file-list]...`
. . .	Indicates the omission of items from a code example or from a syntax line. The vertical ellipsis itself should never be typed.

1 Installing the BEA WebLogic Adapter for MQSeries

This section provide instructions for installing the BEA WebLogic Adapter for MQSeries with WebLogic Integration 7.0. It includes the following topics:

- Before Installing the Adapter for MQSeries
- Understanding the Representation of Paths
- Installing the Adapter for MQSeries with WebLogic Integration
- Next Steps

Note: The BEA WebLogic Adapter for MQSeries supports IBM MQSeries 5.2.

Before Installing the Adapter for MQSeries

This section includes preliminary actions you must perform before installing the adapter. It includes the following topics:

- Review Release Notes
- Install MQSeries Client

Review Release Notes

Before you install the BEA WebLogic Adapter for MQSeries, you must review the *BEA WebLogic Adapter for MQSeries Release Notes* to ensure that you have the prerequisite software installed. The *BEA WebLogic Adapter for MQSeries Release Notes* is available at the following URL:

http://edocs.bea.com/wladapters/mq/docs71/index.html

Install MQSeries Client

To interact with IBM MQSeries (now known as WebSphere MQ), you must first install MQSeries Client for Java on the relevant platform, on which the BEA WebLogic Adapter for MQSeries will be installed. If you require a Local Bindings type of MQ Connection, it is mandatory to install IBM MQSeries Server on the same machine where the Adapter for MQSeries is installed.

Additionally, you must install the classes required to develop MQSeries applications in Java through the following Java-based APIs:

- MQSeries classes for Java
- MQSeries classes for Java Message Service (JMS)

If you are using MQSeries 5.1 or 5.2, the required classes are provided in the ma88 SupportPac, which is available at the following URL:

http://www-3.ibm.com/software/ts/mqseries/txppacs/ma88.html

If you are using WebSphere MQ 5.3, the MQSeries classes for Java and JMS are installed in the `java/lib` (`java\lib` for Windows) directory when you select the JAVA Messaging Component during installation.

Understanding the Representation of Paths

The location of files in the WebLogic Integration environment depends on options you select during installation and configuration. Therefore, the following conventions are used throughout to represent paths:

- *BEA_HOME* represents the BEA Home directory specified for your WebLogic installation.

  For example, if you install the product in the default location on a Windows system, *BEA_HOME* represents `C:\bea`.

- *WLI_HOME* represents the root of your WebLogic Integration installation.

  For example, if you install WebLogic Integration 7.0 in the default location on a Windows system, *WLI_HOME* represents `C:\bea\weblogic700\integration`.

- *domain* is used to indicate the name of a domain.

  In WebLogic Integration 7.0, the Configuration Wizard is used to create custom user domains. When you use the Configuration Wizard to set up the domain configuration stored on the administration server, you are prompted to assign a domain name, *domain*, and to specify the location to which the *domain* directory will be installed. The files required by the administration server are installed in the domain directory under the specified location.

  For additional information, see *Using the Configuration Wizard* which is available at the following URL:

  http://edocs.bea.com/platform/docs70/confgwiz/index.html

  For example, if you accept the Configuration Wizard default location, *BEA_HOME*`\user_projects`, the files required by the administration server are installed in the following directory:

  BEA_HOME`\user_projects\`*domain*

- *DOMAIN_HOME* represents the complete path to the root of a domain.

  For example, if you use the WebLogic Integration 7.0 Configuration Wizard to create a domain in the default location on a Windows system, *DOMAIN_HOME* represents `C:\bea\user_projects\domain`.

Notes:

- *WLI_HOME* and *BEA_HOME* also represent the corresponding Windows and UNIX environment variables. For example, the literal interpretation of *WLI_HOME* is `%WLI_HOME%` for Windows and `$WLI_HOME` for UNIX.
- Unlike *WLI_HOME* and *BEA_HOME*, *DOMAIN_HOME* is not an environment variable that is set by default in the WebLogic Integration environment.
- *localhost* represents the IP address of the machine running the WebLogic Server.

Installing the Adapter for MQSeries with WebLogic Integration

The installation procedure includes the following steps:

- Step 1. Obtain the Adapter for MQSeries
- Step 2. Configure the WebLogic Integration Database for the Domain
- Step 3. Obtain JAR Files and Set the CLASSPATH
- Step 4. Update the BEA License
- Step 5. Deploy the Adapter for MQSeries Using the WebLogic Server Console
- Step 6. Create or Update an Adapter Group

Step 1. Obtain the Adapter for MQSeries

The BEA WebLogic Adapter for MQSeries is packaged as an `EAR` file (`BEA_MQSERIES_7_1.ear`). You can obtain the software on CD or download it from the BEA website.

Step 2. Configure the WebLogic Integration Database for the Domain

The adapter can only be deployed in a domain that includes support for Application Integration functionality. If you have not already done so, use the Configuration Wizard to create the domain, and select one of the following domain templates:

- Enterprise Application Integration (EAI) domain template
- WebLogic Integration domain template
- Platform domain template

For information on configuring a fully functional domain based on the template, see the appropriate section of the *ConfigurationWizard Template Reference*:

- For the EAI domain template, see the following URL:
  http://edocs.bea.com/platform/docs70/template/eaidomain.html
- For the WebLogic Integration domain template, see the following URL:
  http://edocs.bea.com/platform/docs70/template/wlidomain.html
- For the platform domain template, see the following URL:
  http://edocs.bea.com/platform/docs70/template/platjar.html

For general information about using the Configuration Wizard, see *Using the Configuration Wizard* at the following URL:

http://edocs.bea.com/platform/docs70/confgwiz/index.html

When you use the Configuration Wizard to create a domain that includes support for Application Integration, a domain-specific version of the Database Wizard is installed in the *DOMAIN_HOME* directory. You must run the Database Wizard for the domain to initialize the database repository with the required tables and system data. For additional information, see "Configuring the Database for a Domain" in *Starting, Stopping, and Customizing BEA WebLogic Integration*, at the following URL:

http://edocs.bea.com/wli/docs70/config/index.htm

Step 3. Obtain JAR Files and Set the CLASSPATH

To use the Adapter for MQSeries, you need the following `JAR` and `dll` files:

- `com.ibm.mq.jar` - This file is available with the installation of MQ Client for Java.
- `mqjbnd04.dll` - This file is available with the MQ Client for Java installation, and is required for Local Bindings Connection. This is specific to Windows. For non-Windows platforms, find the equivalent of this `dll` and set the `PATH` as required.

To set the `CLASSPATH` and `PATH`, do the following:

1. Go to the root directory for your domain:
   `cd` *`DOMAIN_HOME`*

   Note: You must choose a WebLogic Integration domain that supports Application Integration functionality.

2. Do one of the following:
   - On Windows, find `startWeblogic.cmd` file.
   - On UNIX, find `startWeblogic` file.

3. Update the `CLASSPATH` and `PATH` to add the required `JAR` and `dll` files to the environment, by adding the following line:
   - On Windows:

     ```
     set SVRCP=%SVRCP%;C:\Program
     files\IBM\MQSeries\Java\lib\com.ibm.mq.jar
     ```

     Note: The path given here is an example. It may vary depending upon the location where you install the IBM MQSeries Client or Server.

     set system `PATH` for the `mqjbnd04.dll`

   - On UNIX:

     ```
     SVRCP=$SVRCP:/ProgramFiles/IBM/MQSeries/Java/lib/com.ibm.mq.
     jar
     ```

     Note: The path given here is an example. It may vary depending upon the location where you install the IBM MQSeries Client or Server.

4. Extract the `xmltoolkit.jar`, `wlai-ejb-server.jar`, `wlaiplugin-ejb.jar` and `CR095687.jar` from `CR095687_AvalancheSP22.zip` file. Add the `xmltoolkit.jar`, `wlai-ejb-server.jar`, and `wlaiplugin-ejb.jar` files to the directory `WLI_HOME/lib`.

   Note: If these files are already present in `lib` directory, rename them and copy the extracted files to the `lib` directory.

5. Copy the file `CR095687.jar` into the folder `WLI_HOME/adapter` and set the `CLASSPATH` for the following files:

   - For Windows:

     ```
     set SVRCP=%WLI_HOME%\lib\xmltoolkit.jar:%SVRCP%
     set SVRCP=%WLI_HOME\adapters\CR095687.jar:%SVRCP%
     ```

   - For UNIX:

     ```
     SVRCP=$WLI_HOME/lib/xmltoolkit.jar:$SVRCP
     SVRCP=$WLI_HOME/adapters/CR095687.jar:$SVRCP
     ```

6. Save the file and close it.

Step 4. Update the BEA License

The BEA WebLogic Adapter for MQSeries cannot be used without a valid software license. If you have downloaded the adapter for evaluation, you must obtain an evaluation license as described on the adapter download page. If you have purchased a license for the adapter, the license file is typically sent to you as an e-mail attachment.

When you have obtained a valid license for the adapter, update your `license.bea` file by completing the following steps:

1. Save the license file that you obtained with a name other than `license.bea`, in the *`BEA_HOME`* directory. For example, save the file as `mqseries_adapter_license.bea`. Use this file as the *`license_update_file`* in step 4. of this procedure.

   Warning: Do not overwrite or change the name of the existing `license.bea` file.

2. Perform the step appropriate for your platform:

   - On a Windows system, open an MS-DOS session and go to the *`BEA_HOME`* directory.

- On a UNIX system, go to the *BEA_HOME* directory.

3. If it is not already included, add the JDK to your PATH variable by executing the command appropriate to your system:
   - On a Windows system:
     set PATH=*BEA_HOME*\jdk131_06\bin:%PATH% for WebLogic Integration 7.0SP2.
   - On a UNIX system:
     PATH=BEA_HOME/jdk131_06/bin:$PATH for WebLogic Integration 7.0SP2
     export PATH
4. Update your existing license by executing the command appropriate to your system:
   - On a Windows system:
     UpdateLicense *license_update_file*
   - On a UNIX system:
     sh UpdateLicense.sh *license_update_file*

   Here, *license_update_file* is the name which you saved the license update file in step 1.
5. Save a copy of your updated license.bea file in a safe place outside the WebLogic Integration and application installation directories.

Step 5. Deploy the Adapter for MQSeries Using the WebLogic Server Console

After the BEA WebLogic Adapter for MQSeries is installed, it must be deployed to your domain (for example, wlidomain), on WebLogic Integration. To configure and deploy an adapter using the WebLogic Server Administration Console, complete the following steps:

1. Start WebLogic Server.
2. Start the WebLogic Server Administration Console in a browser using the following URL:
   http://*localhost:port*/console/

Here, *localhost* represents the machine on which WebLogic Server is running and *port* represents the listening port.

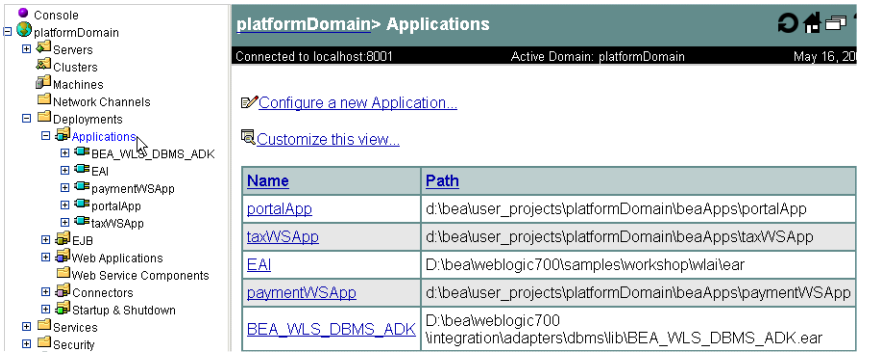
For example, `http://localhost:7001/console/`

3. Enter the user name and password for the server. The WebLogic Server Console appears.

Figure 1-1 WebLogic Server Console

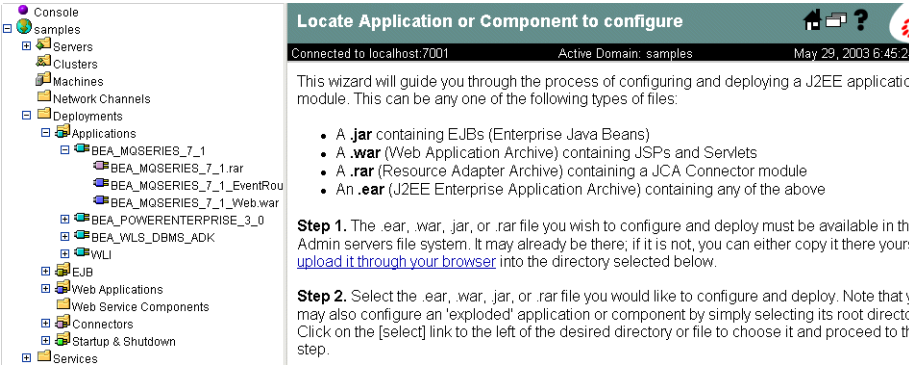
4. In the left pane, choose Deployments→Applications. The console displays the Applications page.

Figure 1-2 Applications



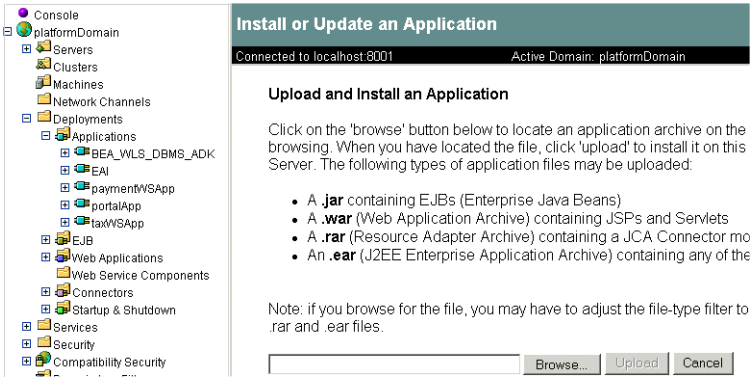
5. Click the Configure a new Application link. The console displays the Locate Application or Component to configure page.

Figure 1-3 Locate Application or Component to configure



6. Click the upload it through your browser link. The Install or Update an Application page appears.

Figure 1-4 Install or Update an Application



7. Click Browse to locate the application archive you selected during installation (`BEA_MQSERIES_7_1.ear`).

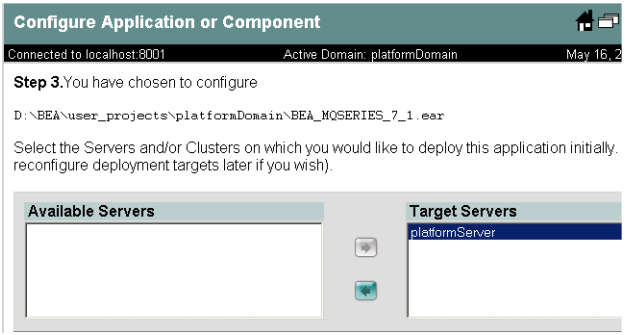
8. Click Upload to upload the `BEA_MQSERIES_7_1.ear` file. On the Locate Application or Component to configure page, the console displays the application files currently installed and adds `BEA_MQSERIES_7_1.ear` to the existing list, as shown in the following figure.

Figure 1-5 Listing of Uploaded Files

9. Click the [select] link to the left of the adapter `BEA_MQSERIES_7.1.ear` file. The console displays the Configure Application or Component page.

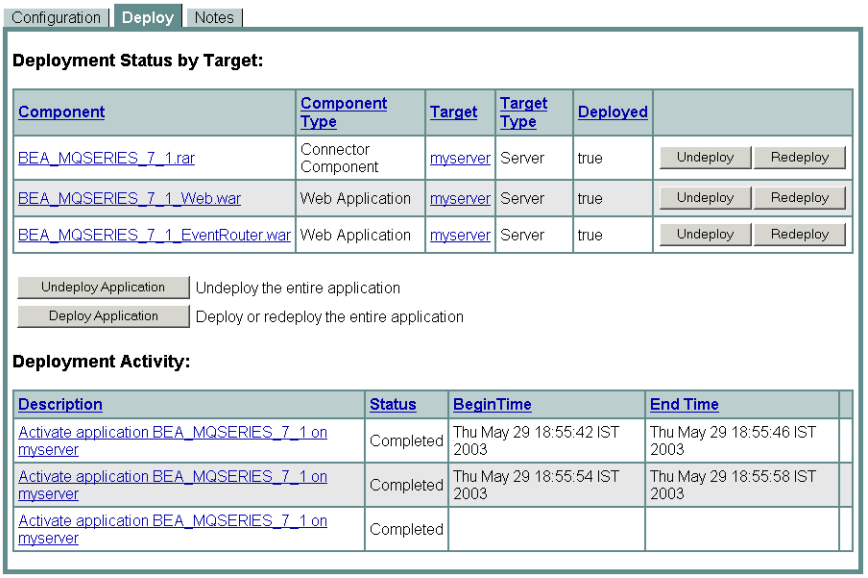
10. Select the servers or clusters on which to deploy the adapter. You can do this by moving entries from the available servers to the target servers using the arrow buttons, as shown in the following figure.

Figure 1-6 Configure Application or Component



11. Click Configure and Deploy. The console displays the deployment status followed by a description of activity, status, begin time, and end time for the deployed adapter. You can also undeploy or redeploy the adapter from this page.

Figure 1-7 Deployment Status



Step 6. Create or Update an Adapter Group

Before you create an application view that uses the events or services supported by an adapter, do the following:

- Create an Administrative Server User Name
- Add the User Name to the Adapter Group
- Create the Adapter Group and Add the User Name

The action required to complete the configuration depends on which domain template you selected when you created the domain. See the following table for guidelines.

Table 1-1 Configuration Requirements

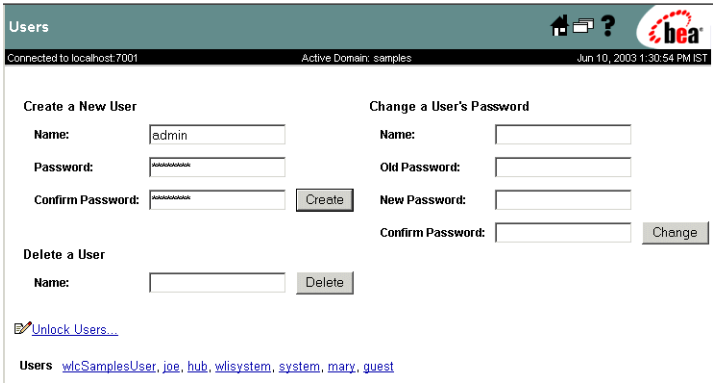
For a domain based on...	And this administrative server user name...	Do this...
Platform template domain	Any value	Create the `adapter` group and add the administrative user name to it. For details, see section "Create the Adapter Group and Add the User Name" on page 1-15.
WLI or EAI domain template	`system` or `admin`	The `adapter` group is already defined. This group includes the `system` user name by default. No further configuration is required.
WLI or EAI domain template	A value other than `system` or `admin`	The `adapter` group is already defined. Add the user name to the group. For details, see section "Add the User Name to the Adapter Group" on page 1-14.

Create an Administrative Server User Name

To create the administrative server user name, complete the following steps:

1. In the left pane of the WebLogic Server Administration Console, choose Compatibility Security→Users from the navigation tree.

Figure 1-8 Users



2. Enter Name, Password, and Confirm Password. Click Create. The newly created user is added to the Users list at the bottom of the page.

Add the User Name to the Adapter Group

To add the administrative server user name to the `adapter` group, do the following:

1. In the left pane of the WebLogic Server Administration Console, choose Compatibility Security→Groups.
2. Locate and click the link for the `adapter` group to display the group definition.

Figure 1-9 Group Definition

3. Enter the User name in the Add Users field. If you do not know the name, click the Users link to view the name in the list of existing users.

   Note: You should have already created the user name.

4. Click Apply to add the user name to the group. The name is added to the Members list.

Create the Adapter Group and Add the User Name

To create the `adapter` group and add the administrative server user name to it simultaneously, do the following:

1. In the left pane of the WebLogic Server Administration Console, choose Compatibility Security→Groups.
2. Click the Create a New Group link to display the Groups page

Figure 1-10 Group

3. Enter `adapter` in the Name field.
4. Enter the administrative server user name in the Add Users field.

   Note: You should already have created the administrative server user name.

5. Click Apply. The Group page is updated as shown in the following figure.

Figure 1-11 Group Updated

Next Steps

After you have successfully installed and deployed the adapter, you can log on to the WebLogic Integration Application View Console to create application views that employ events and services supported by the BEA WebLogic Adapter for MQSeries.

For more information, see the *BEA WebLogic Adapter for MQSeries User Guide* at http://edocs.bea.com/wladapters/mq/docs71/index.html.

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