

WebSphere Event Broker



# Migration

*Version 6 Release 0*



WebSphere Event Broker



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**Note**

Before using this information and the product it supports, read the information in the Notices appendix.

This edition applies to version 6, release 0, modification 0, fix pack 4 of IBM® WebSphere® Event Broker, with Message Brokers Toolkit version 6, release 0, modification 2, and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About this topic collection

This PDF has been created from the WebSphere Event Broker Version 6.0 (Fix Pack 4 update, March 2007) information center topics. Always refer to the WebSphere Event Broker online information center to access the most current information. The information center is periodically updated on the document update site and this PDF and others that you can download from that Web site might not contain the most current information.

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## Migrating and upgrading

This section describes how to migrate a broker domain from WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0.

If you have applied CSD02, CSD03, CSD04, or CSD05 to Version 2.1, you must apply an additional APAR (IY45459) in order for migration to be successful. APAR IY45459 is included in CSD06.

The instructions apply to all operating systems supported by WebSphere MQ Event Broker Version 2.1 and WebSphere Business Integration Event Broker Version 5.0.

### Upgrading

This section also shows you how to upgrade a broker domain from WebSphere Event Broker Version 6.0.

If you are already using WebSphere MQ Publish/Subscribe, migrate your applications to use the publish/subscribe functions provided by WebSphere Event Broker.

This section contains the following topics:

#### Concept topics

- “Coexistence with previous versions and other products”

#### Task topics

- “Migrating from WebSphere MQ Event Broker Version 2.1 to WebSphere Event Broker Version 6.0” on page 12
- “Migrating from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0” on page 17
- “Restoring migrated components to previous versions” on page 35
- “Migrating publish/subscribe applications” on page 40

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## Coexistence with previous versions and other products

The topics in this section explain the extent to which WebSphere Event Broker Version 6.0 can coexist with previous versions and other products. This topic contains advice for the following scenarios:

- “Coexistence with previous versions of the product installed on the same computer” on page 4
- “Coexistence of Version 6.0 components with components from previous versions” on page 5
- “Coexistence with other products” on page 6

## Coexistence with previous versions of the product installed on the same computer

WebSphere Event Broker Version 6.0 can coexist with either WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 on the same computer.

You cannot install both WebSphere MQ Event Broker Version 2.1 and WebSphere Business Integration Event Broker Version 5.0 on the same computer, and you cannot install several instances of either WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 on a single computer.

When you migrate from WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0, you do not need to uninstall WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 before installing Version 6.0. You can install WebSphere Event Broker Version 6.0 in a different location on the same computer, migrate your components and resources to Version 6.0, and uninstall WebSphere MQ Event Broker Version 2.1 or WebSphere Business Integration Event Broker Version 5.0 later, when you are sure that you no longer need it.

The following table shows which Version 2.1 and Version 5.0 components can exist on the same computer as Version 6.0 components:

Can the components exist together on the same computer?	Version 6.0 Message Brokers Toolkit	Version 6.0 Configuration Manager	Version 6.0 broker	Version 6.0 User Name Server
Version 2.1 Control Center	Yes	Yes	Yes	Yes
Version 2.1 Configuration Manager	Yes	Yes	Yes	Yes
Version 2.1 broker	Yes	Yes	Yes	Yes
Version 2.1 User Name Server	Yes	Yes	Yes	Yes <sup>1</sup>
Version 5.0 or Version 5.1 Message Brokers Toolkit	Yes	Yes	Yes	Yes
Version 5.0 Configuration Manager	Yes	Yes	Yes	Yes
Version 5.0 broker	Yes	Yes	Yes	Yes
Version 5.0 User Name Server	Yes	Yes	Yes	Yes

### Restriction:

1. On distributed systems, only one User Name Server can exist on a single computer. If you need another User Name Server, start one on a remote system.

## Coexistence of Version 6.0 components with components from previous versions

With some restrictions, all WebSphere Business Integration Event Broker Version 5.0 components can participate in a WebSphere Event Broker Version 6.0 broker domain, and all WebSphere Event Broker Version 6.0 components can participate in a WebSphere Business Integration Event Broker Version 5.0 broker domain. WebSphere MQ Event Broker Version 2.1 components cannot operate with WebSphere Event Broker Version 6.0 components at all.

If you are migrating from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0, coexistence of the components means that you do not have to migrate all of your components at the same time. Instead migrate components in stages.

The following table shows which Version 2.1 and Version 5.0 components can operate with Version 6.0 components, and shows when restrictions apply:

Can the components operate together in a domain?	Version 6.0 Message Brokers Toolkit	Version 6.0 Configuration Manager	Version 6.0 broker	Version 6.0 User Name Server
Version 2.1 Control Center	No	No	No	No
Version 2.1 Configuration Manager	No	(Not applicable)	No	No
Version 2.1 broker	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Version 2.1 User Name Server	(Not applicable)	No	No	(Not applicable)
Version 5.0 or Version 5.1 Message Brokers Toolkit	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes	Yes
Version 5.0 Configuration Manager	Yes	(Not applicable)	Yes <sup>4</sup>	Yes
Version 5.0 broker	Yes <sup>5</sup>	Yes	Yes	Yes
Version 5.0 User Name Server	(Not applicable)	Yes	Yes	(Not applicable)

### Restrictions:

1. There are restrictions on how a Version 2.1 broker can participate in a Version 6.0 domain. For full details, see Conditions for a Version 2.1 broker participating in a Version 6.0 broker domain.
2. There are restrictions on sharing resources between Message Brokers Toolkit Version 6.0 and Message Brokers Toolkit Version

5.0 or Version 5.1. For full details, see “Conditions for using migrated resources with previous versions of the Message Brokers Toolkit”

3. You cannot use a Version 5.0 or Version 5.1 Message Brokers Toolkit to connect to a Version 6.0 Configuration Manager with a domain user ID.
4. If you deploy through a Version 5.0 Configuration Manager, only message flows and dictionaries are extracted from the broker archive file. If you are using a Version 5.0 Configuration Manager to deploy to a Version 6.0 broker, any .XSL, .XML, and .JAR resources that are required by the Java Compute and XML Transformation nodes are not deployed automatically.
5. If you want to use a Version 6.0 Message Brokers Toolkit and a Version 5.0 Configuration Manager to deploy to a Version 5.0 broker that is part of a WebSphere Business Integration Event Broker Version 5.0 installation at service level Fix Pack 3 or earlier, apply Fix Pack 5 to the WebSphere Business Integration Event Broker Version 5.0 installation of which the Version 5.0 Configuration Manager is part.

## Coexistence with other products

You can create and operate a heterogeneous network of WebSphere MQ Publish/Subscribe brokers and WebSphere Event Broker brokers. You can also migrate WebSphere MQ Publish/Subscribe brokers to WebSphere Event Broker brokers. Follow the instructions in “Migrating publish/subscribe applications” on page 40.

You cannot install WebSphere Event Broker and WebSphere Message Broker as separate products on the same computer. WebSphere Message Broker, however, can perform all of the functions of WebSphere Event Broker.

## Conditions for using migrated resources with previous versions of the Message Brokers Toolkit

WebSphere Event Broker Version 6.0 can coexist with previous versions and other products. This topic explains the conditions that apply when you use migrated resources with previous versions of the Message Brokers Toolkit.

Except for user-defined extensions, you do not need to perform any tasks to migrate your Version 5.0 development and deployment resources, such as message flow files and broker archive files. You can start using your Version 5.0 resources with WebSphere Message Broker Version 6.0 immediately.

When you migrate from Version 2.1, you must also migrate your message flows, and user-defined extensions using the **mqsimidratemsgflows** command.

However, after you start using your resources in the Version 6.0 Message Brokers Toolkit, there are restrictions on using these same resources again with the Version 5.0 or Version 5.1 Message Brokers Toolkit. These are described in the following sections.

### Development resources

When you use the Version 6.0 Message Brokers Toolkit to save development resources (such as message flow files) that were originally

created in the Version 5.0 or Version 5.1 Message Brokers Toolkit, the resources are saved in Version 6.0 format.

After you have saved resources in the Version 6.0 format, you can no longer use them in the Version 5.0 or Version 5.1 Message Brokers Toolkit. This means that you cannot share development resources between the Version 6.0 Message Brokers Toolkit and previous versions of the Message Brokers Toolkit.

Files in the Version 5.0, Version 5.1, and Version 6.0 formats can coexist in the Version 6.0 workspace. Resources remain in the Version 5.0 or Version 5.1 format until you save them using the Version 6.0 Message Brokers Toolkit.

### **Deployment resources**

You can deploy broker archive (bar) files created in the Version 5.0 or Version 5.1 Message Brokers Toolkit using the Version 6.0 Message Brokers Toolkit.

You can deploy bar files that are created in the Version 6.0 Message Brokers Toolkit using the Version 5.0 or Version 5.1 Message Brokers Toolkit, provided that the development resources referenced in the bar file do not make use of any new features that are available only in WebSphere Event Broker Version 6.0.

You can create a Version 6.0 bar file that contains Version 5.0 or Version 5.1 compiled message flows.

The Version 6.0 Message Brokers Toolkit can coexist with either the Version 5.0 or Version 5.1 Message Brokers Toolkit on the same computer. However, because you cannot share development resources between the Version 6.0 Message Brokers Toolkit and previous versions of the Message Brokers Toolkit, it is recommended that the Version 6.0 Message Brokers Toolkit uses a different workspace to either the Version 5.0 or Version 5.1 Message Brokers Toolkit.

The Version 5.0 and Version 5.1 Message Brokers Toolkit cannot coexist on the same computer.

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## **Migrating from Version 2.1 products**

This section describes how to migrate to WebSphere Event Broker Version 6.0 or WebSphere Message Broker with Rules and Formatter Extension Version 6.0 from the following products:

- WebSphere MQ Event Broker Version 2.1
- WebSphere MQ Integrator Broker Version 2.1 (CSD02 or later)<sup>1</sup>
- WebSphere MQ Integrator Version 2.1 (CSD02 or later)<sup>1</sup>

### **Note:**

1. If you have applied CSD02, CSD03, CSD04, or CSD05 to Version 2.1, you must apply an additional APAR (IY45459) in order for migration to be successful. APAR IY45459 is included in CSD06.

If you are already using WebSphere MQ Publish/Subscribe, migrate your applications to use the publish/subscribe functions provided by WebSphere Event Broker. Follow the instructions in “Migrating publish/subscribe applications” on page 40.

The instructions apply to all platforms supported by the Version 2.1 products. This section contains the following topics:

- “Planning and pre-migration tasks”
- “Migrating from WebSphere MQ Event Broker Version 2.1 to WebSphere Event Broker Version 6.0” on page 12
- “Post-migration tasks” on page 16

## Planning and pre-migration tasks

The following topics describe what to do before migrating from Version 2.1 to Version 6.0:

- “Differences between Version 2.1 and Version 6.0 products”
- “Planning for migration from Version 2.1” on page 10
- “Backing up Version 2.1 resources” on page 11

## Differences between Version 2.1 and Version 6.0 products

The following table outlines the main differences between the Version 2.1 and Version 6.0 products:

Version 2.1	Version 6.0	Why has this changed?
<b>Installing the product</b>		
In Version 2.1, there can be only one copy of the product installed on the computer.	You can install the Version 6.0 product alongside the Version 2.1 product and the two products can run side-by-side. The new <b>mqsimigratecomponents</b> command allows you to migrate components from Version 2.1 to Version 6.0.	Permitting Version 6.0 to coexist with Version 2.1 allows for easier migration.
<b>Entering commands on Windows</b>		
You enter Version 2.1 commands in a command window.	You enter Version 6.0 commands in the Command Console, which is in the <b>Start</b> menu: <b>Start</b> → <b>Programs</b> → <b>IBM WebSphere Message Brokers 6.0</b> → <b>Command Console</b> .	Multiple versions of the product can now coexist. The Command Console ensures that the commands that you enter are directed to the correct version.
<b>Configuration Manager Database Requirements</b>		



Version 2.1	Version 6.0	Why has this changed?
<p>You must specify two data sources when creating a Version 2.1 Configuration Manager: a configuration database for message flow source and domain information, and an MRM database for message dictionary source.</p> <p>When deleting a Configuration Manager, there are flags to remove the contents of these repositories (<b>-n</b> and <b>-m</b> for the configuration and MRM sources respectively).</p>	<p>There are no database requirements on the Configuration Manager.</p> <p>Source data for both message flows and dictionaries is now stored inside the Eclipse workspace. Domain information is stored in an internal configuration repository in the file system on the Configuration Manager computer, and there are commands to back up and restore this repository (<b>mqsibackupconfigmgr</b> and <b>mqsirestoreconfigmgr</b>).</p> <p>When you delete a Configuration Manager, the <b>-n</b> parameter now removes the contents of the internal repository and the <b>-m</b> parameter is ignored.</p>	<p>Removing the requirements on an external database simplifies the setup and administration of a Configuration Manager.</p>
<b>Starting the Control Center</b>		
<p>When you start the Control Center, a prompt opens for the connection details of the Configuration Manager.</p>	<p>The Control Center is now called the Message Brokers Toolkit and is based on the Eclipse framework.</p> <p>To connect the Configuration Manager, you must create a connection file by clicking <b>File</b> → <b>New</b> → <b>Other</b> → <b>Broker Administration</b> → <b>Domain</b>.</p>	<p>Each set of Configuration Manager connection parameters is a file stored within the Eclipse workspace.</p> <p>This allows you to share connection details more easily among multiple users, and allows you to manage multiple domains from a single Message Brokers Toolkit.</p>
<b>Displaying information in the Control Center</b>		
<p>The Version 2.1 Control Center contains a set of tabs that determine the type of information that is shown (for example, assignments, topology, topics, subscriptions).</p>	<p>In Version 6.0, there are two main screens of information (called perspectives):</p> <ul style="list-style-type: none"> <li>• <b>Broker Application Development perspective</b>, which allows you to create and edit message flows.</li> <li>• <b>Broker Administration perspective</b>, which shows you the state of the domain, as reported by the Configuration Manager, and allows you to manipulate it.</li> </ul> <p>It is possible to switch perspectives using the <b>Window</b> menu.</p>	<p>The concept of perspectives is inherited from the Eclipse framework and allows you to switch easily to the information set that is most relevant to what you are doing.</p>

Version 2.1	Version 6.0	Why has this changed?
<b>Modifying message flows</b>		
In Version 2.1, message flows under development are stored in the Configuration Manager. In order to modify them, you must check them out, make your changes and then check them back in.	In Version 6.0, message flows are created and modified in an Eclipse workspace; by default, this is on the file system on which the Message Brokers Toolkit is installed.	Storing development objects in an Eclipse workspace allows you to manage them more effectively. Plug in third-party change-management tools into the Eclipse framework to provide better change control.
<b>Assigning and deploying message flows</b>		
In Version 2.1, message flows were assigned to execution groups. When this is done, the deploy action causes the Configuration Manager to send the assigned message flows to the correct execution group.	In Version 6.0, message flows are packaged in broker archives (bar files). These archives use a zipped file format to envelop a set of deployable objects.  To deploy a bar file to an execution group, use the Broker Administration perspective to drag and drop the bar file to the required execution group.	Bar files provide a transferable package of deployment, so that the same message flow logic can be applied to multiple brokers and domains.  Similar deployment concepts are used in other products.
<b>Monitoring message flows</b>		
In Version 2.1, traffic lights show the run state of message flows.	In Version 6.0, the Broker Administration perspective has an Alerts view that identifies any broker, execution group or message flow that is not running.	The use of the Alerts view is consistent with other tools in the Eclipse framework and provides an accessible way of notifying you if anything is not processing messages as expected.
<b>User roles</b>		
In Version 2.1, several Windows user groups in the Configuration Manager are used to describe the typical role, and domain access, that each user has (for example, <b>mqrbrks</b> , <b>mqrbrps</b> , <b>mqrbrtpic</b> , <b>mqrbrasn</b> ).	Membership of the <b>mqrbrks</b> group is still required for administration of the broker component, but the <b>mqsicreateaclentry</b> command is now used to define specific user or group access control lists (ACLs) for each component (such as brokers and execution groups).	Access control lists (ACLs) in the Configuration Manager allow administrators to control access to the domain at a much finer level of granularity.

## Planning for migration from Version 2.1

### Before you start:

Before you carry out any migration tasks, back up Version 2.1 resources and read “Coexistence with previous versions and other products” on page 3.

This section explains the different ways in which to migrate from Version 2.1 to Version 6.0. Before carrying out any migration tasks, you should make the following decisions:

1. Decide how you want to migrate the product components:
  - a. Find out what is new in Version 6.0. These new and changed functions might affect how you want to use your migrated components in the future.
  - b. Decide where you want to migrate the product components. Migrate your components to the same computer or to a second computer. For example, you might want to migrate components to another location to maintain availability during the migration.
  - c. Decide when you want to migrate the product components. You might want to preserve some components at the Version 2.1 level of code temporarily, and migrate them later.
  - d. Decide the order in which you want to migrate your components. You can migrate components in any order, but your specific circumstances might mean that you need to migrate components in a particular order.

See “Coexistence with previous versions and other products” on page 3 for information about how Version 6.0 can coexist on the same computer with Version 2.1, and how Version 6.0 components can operate with Version 2.1 components.

2. Decide how you want to use your existing resources with WebSphere Event Broker Version 6.0.

You migrate your Version 2.1 message flows, and user-defined extensions using the **mqsimigratemsgflows** command. The tooling part of any Version 2.1 user-defined extensions that you have migrated needs to be rewritten in Version 6.0. Decide which user-defined extensions you want to use in Version 6.0 and re-create them in the Version 6.0 tooling.

When you start using your resources in the Version 6.0 Message Brokers Toolkit, there are restrictions to using these same resources again with the Version 5.0 or Version 5.1 Message Brokers Toolkit. For more information, see “Conditions for using migrated resources with previous versions of the Message Brokers Toolkit” on page 6

3. Decide whether you need to carry out any testing to ensure a successful migration.

Migrating your development and test domains before migrating your production domain allows you to identify problems and develop a strategy for dealing with further problems.

4. When you are ready to migrate, run the **mqsimigratecomponents** command with the **-c** parameter. This performs a pre-migration check against the Version 2.1 components to ensure that they can be migrated. The pre-migration check identifies potential problems and allows you to correct them before proceeding with migration.

You do not need to change the configuration of a queue manager that is preserved during migration.

### **Backing up Version 2.1 resources**

Before you carry out any migration tasks, back up your Version 2.1 resources:

1. Back up the configuration repository.
2. Back up your broker database tables.
3. Stop any debug sessions and back up your broker application logic (message flow files).

For detailed instructions on how to back up the configuration repository and broker database tables, see your Version 2.1 documentation.

Now that you have backed up your resources, you are ready to perform migration. Go to the appropriate topic for your product:

- Migrating from WebSphere MQ Event Broker

## Migrating from WebSphere MQ Event Broker Version 2.1 to WebSphere Event Broker Version 6.0

### Before you start

Complete the following task:

- “Preparing to migrate from WebSphere MQ Event Broker Version 2.1” on page 13

and find out more about “Coexistence with previous versions and other products” on page 3.

To migrate a broker domain from WebSphere MQ Event Broker Version 2.1 to WebSphere Event Broker Version 6.0:

1. Close all Control Center sessions.
2. On each system where one or more brokers are running, perform the following steps for each broker:
  - a. Stop the broker by issuing the **wmqpsstop** command with the name of the broker.
  - b. Delete the broker by issuing the **wmqpsdeletebroker** command with the name of the broker.
3. Drop the database tables that were used by the brokers that you have just deleted. If a set of broker database tables are in a database by themselves and you do not intend to use the database after migration, drop the whole database. The broker database tables are listed in the *WebSphere MQ Event Broker Version 2.1 Administration Guide*.
4. On the system where the Configuration Manager is running:
  - a. Stop the Configuration Manager by issuing the **wmqpsstop** command for the component ConfigMgr.
  - b. Delete the Configuration Manager by issuing the **wmqpsdeleteconfigmgr** command with the **-n** parameter. Using this parameter causes the configuration repository to be deleted.
5. On a system where a User Name Server is running:
  - a. Stop the User Name Server by issuing the **wmqpsstop** command for the component UserNameServer.
  - b. Delete the User Name Server by issuing the **wmqpsdeleteusernameserver** command.
6. On each system, uninstall WebSphere MQ Event Broker. Follow the instructions in the appropriate book for your operating system:
  - *WebSphere MQ Event Broker for AIX Version 2.1 Installation Guide*
  - *WebSphere MQ Event Broker for HP-UX Version 2.1 Installation Guide*
  - *WebSphere MQ Event Broker for Solaris Version 2.1 Installation Guide*
  - *WebSphere MQ Event Broker for Windows NT and Windows 2000 Version 2.1 Installation Guide*

#### Windows

On a Windows system, select the option to uninstall including data.

7. On each system, install the components of WebSphere Event Broker that you require. For detailed instructions on how to perform this task, see the Installation Guide.
8. Re-create your broker domain. As part of this task, perform the following steps, using the information that you recorded previously, where appropriate:
  - a. Import the message flows that you want to migrate by issuing the **mqsimigratemsgflows** command.
  - b. Using WebSphere Event Broker commands, re-create and start the Configuration Manager, a User Name Server, and the brokers that you want to migrate.
  - c. Using the workbench, add each broker to the broker domain and re-create the execution groups that were originally within the broker. Re-create only the execution groups that you want to preserve.
  - d. Using the workbench, enter and deploy the assignments, topology, and topics configuration data that you want to preserve.  
Deploy migrated message flows to a test environment first. When you are sure that they are working correctly, deploy them to a production environment.

The migration is now complete and the broker domain is ready for use. Delete any queue managers that you no longer need.

Note that the migration does not preserve the subscriptions and retained publications at the brokers. To re-create this information after migration, subscribers must renew their subscriptions and publishers must republish.

## Preparing to migrate from WebSphere MQ Event Broker Version 2.1

This topic describes what you must do before you start to migrate a WebSphere MQ Event Broker Version 2.1 broker domain in any of the following tasks:

You must complete the steps in this topic before you perform the task “Migrating from WebSphere MQ Event Broker Version 2.1 to WebSphere Event Broker Version 6.0” on page 12.

1. Make sure that Control Center users have checked in all WebSphere MQ Event Broker resources.
2. Back up all configuration repository and broker database tables.
3. Decide which message flows you want to migrate and use in the WebSphere Event Broker Version 6.0 broker domain. Using a Control Center session, in which all the required message flows are visible in the workspace, export the message flows. Save the export files in a directory other than the one in which WebSphere MQ Event Broker is installed.
4. Decide which brokers you want to migrate, and which assignments, topology, and topics configuration data you want to preserve.

For each broker that you want to migrate, and for the associated assignments configuration data that you want to preserve, record the following information (view this information in a Control Center session and record it manually):

- The name of the broker
- The name of each execution group within the broker
- For each execution group within the broker, the name of each message flow that is assigned to the execution group

- For each message flow assigned to an execution group, the following properties:
  - Additional instances
  - Commit count
  - Commit interval
  - Coordinated transaction

For the topology configuration data that you want to preserve, record the following information:

- The name of each collective and the names of the brokers that are in the collective
- All direct connections between brokers

For the topics configuration data that you want to preserve, record the following information:

- The hierarchy of topics, including the name of each topic
- The access control list for each topic

5. Decide which databases and queue managers you want to preserve.

When you migrate, you delete all the components of WebSphere MQ Event Broker and drop all the database tables used by the Configuration Manager and the brokers. However, to simplify the task of configuring the new broker domain, preserve the databases and queue managers used by the brokers that you want to migrate. If you are migrating a single broker domain from WebSphere MQ Event Broker to WebSphere Event Broker, also preserve the database and queue manager used by the Configuration Manager, and the queue manager used by a User Name Server.

You do not need to change the configuration of a queue manager that is preserved during migration. You might, however, need to ensure that the WebSphere MQ product code is at the required release and service level to support WebSphere Event Broker. At the same time, ensure that you have installed the other software prerequisites.

6. Decide where you are going to store the development data that is created and maintained in the workbench. Store the data in the local file system, on a shared drive, or in a shared repository that is supported by Eclipse. The instructions for the individual migration tasks assume that you are using the local file system or a shared drive.
7. When you are ready to migrate, run the **mqsimigratecomponents** command with the **-c** parameter. This performs a pre-migration check against the Version 2.1 components to ensure that they can be migrated. The pre-migration check identifies potential problems and allows you to correct them before proceeding with migration.

## Migrating a message flow

You can migrate the message flows that you have created in WebSphere MQ Event Broker Version 2.1 and use them in WebSphere Event Broker Version 6.0.

You might want to change the message flows that you migrate to take advantage of the new nodes and features that are available in Version 6.0.

You can migrate more than one message flow at one time if you want them to be defined in the same message flow project. You must migrate subflows with the message flows in which they are included to ensure consistent references.



If you have defined more than one message flow with the same name, or the message flow has been exported into more than one export file, the migration task overwrites, without warning, any existing message flow with the next flow that it finds of the same name. Therefore, be careful to avoid conflicts, and to ensure that the most recent version of a message flow that has been defined more than once is the last one that you migrate.

If you have multiple versions of the same message flow, which you use as a subflow in other flows in the same migration directory, the results of the import process are unpredictable.

To migrate a message flow:

1. Before you uninstall Version 2.1, export the message flow or flows from the Control Center using the Version 2.1 tools (see the Version 2.1 documentation for detailed information).  
The migration process is most efficient when all referenced subflows are included in the same export file, therefore export all message flows that you want to migrate to a single message flow project into a single export file.
2. Transfer the export file or files to the new system on which you are running the workbench.
  - Check that the directory in which you store these files does not contain any other files.
  - Store the files that you intend to import into a single message flow project in a separate directory and migrate each directory separately.
  - Make sure that you do not store any files in subdirectories of the project directory, because these files are ignored by the migrate command.
3. If a workbench session is active, close it. You cannot run the migrate command if the workbench is running.
4. At a command prompt, invoke the `mqsimigratemsgflows` command, specifying the new project name and the directory in which you stored the export files. When the command has completed:
  - The message flows that are contained in the export files in the specified directory are imported into the specified message flow project. If the project already exists, the additional message flows are included with current content, if any. If the project does not exist before you invoke the command, it is created for you. The command is more effective if it creates the message flow project for you.
  - Message flows and subflows are created and their definitions are stored in files named `flow_name.msgflow`.  
After you have imported them, if you want to rename any of these message flows or nodes to conform to your local naming conventions, use only the facilities that are provided by the workbench, in order to preserve consistency and integrity of all references. Do not rename any files within the file system.
5. Check the report file `mqsimigratemsgflows.report.txt`, which is written to the directory from which you invoked the command. The command provides the following information:
  - The name of each message flow and subflow that has been migrated. If any of these resources had a name that is incompatible with Version 6.0, the command updates the name and all references to that name to ensure consistency. (If you migrate a resource with an invalid name more than once, the correction that is made to the name is always the same.)

- The success or failure of each resource that is migrated.
- An indication of a subflow that cannot be located (its definition is not contained in any of the export files, but it is included in one or more of the migrated message flows). If this problem occurs, find the missing subflow and import it into the appropriate project. If you cannot retrieve the missing subflow for any reason, re-create it with the original name. All affected flows can then link correctly to the new subflow.

You do not need to repeat the whole export and import process.

6. Start the workbench and switch to the Broker Application Development perspective.
7. Open the message flow project that was created or updated by the migrate command.

If the project is already open, right-click it and click **Refresh**, then **Rebuild Project** to ensure that the Broker Development view reflects the new content. Rebuild also performs a validation of the message flow project contents.

When you have migrated your resources, see the Version 2.1 post-migration tasks for information about tasks that you might want to perform after migration.

## Post-migration tasks

The following topics describe what to do after migrating from Version 2.1 to Version 6.0:

- “Issuing commands from a program after migration”
- “Setting up a command environment” on page 17

### Issuing commands from a program after migration

If you have programs that issue WebSphere MQ Event Broker Version 2.1 commands, this topic describes how to run these programs unchanged after you have migrated to WebSphere Event Broker Version 6.0.

#### UNIX systems:

The names of WebSphere MQ Event Broker Version 2.1 commands start with the prefix “wmqps”, not “mqsi”. In addition, WebSphere MQ Event Broker commands are stored in a different directory to where WebSphere Event Broker commands are stored. If you have programs, such as shell scripts, that issue WebSphere MQ Event Broker commands, continue to use these programs unchanged after migration by running the shell script migration.sh, which is supplied with WebSphere Event Broker. migration.sh creates the required symbolic links to the WebSphere Event Broker commands.

The following table displays the fully qualified path name of migration.sh for each operating system:

Operating system	Fully qualified path name of migration.sh
AIX	/usr/opt/mqsi/sample/migration/migration.sh
HP-UX Solaris	/opt/mqsi/sample/migration/migration.sh



migration.sh works by creating symbolic links, so you do not need to run it again after applying a maintenance update to WebSphere Event Broker.

#### **Windows systems:**

The names of WebSphere MQ Event Broker Version 2.1 commands start with the prefix “wmqps”, not “mqsi”. If you have programs, such as batch programs (or batch files), that issue WebSphere MQ Event Broker commands, continue to use these programs unchanged after migration by running the batch program migration.bat, which is supplied with WebSphere Event Broker. migration.bat makes a copy of each WebSphere Event Broker command that has an equivalent WebSphere MQ Event Broker command and gives the copied command its WebSphere MQ Event Broker name.

migration.bat is in the directory `WBIEB\sample\migration`, where `WBIEB` is the fully qualified path name of the directory where you have installed WebSphere Event Broker. You must run migration.bat from this directory.

migration.bat works by copying commands, so you must run it again after every maintenance update you apply to WebSphere Event Broker.

#### **Setting up a command environment**

After you have installed the product on any of the distributed systems, you must initialize the environment before you can use any runtime component or command. A profile is provided for this purpose.

If appropriate, you can extend the initialization performed by this profile; for example, for broker or user databases, or other products that you want to use within the broker. For example, you might want to configure your broker to run with Java 5 instead of the default version Java 1.4.2.

You *must* ensure that you run this profile each time you run one of the administrative commands, or start a component; for example, a broker.

For information on setting up your command and runtime environment on a Windows system, see [Command environment: Windows platforms](#)

For information on setting up your command and runtime environment on Linux and UNIX systems, see [Command environment: Linux and UNIX systems](#)

---

## **Migrating from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0**

This topic describes how to migrate from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0.

#### **Before you start**

Before you start migration:

- ensure that your installation of WebSphere Business Integration Event Broker Version 5.0 is at service level Fix Pack 4 or later
- read about coexistence with previous versions and other products
- plan your migration
- back up your Version 5.0 resources

Each of the tasks listed at the end of this topic explains how to migrate a component. Each task also tells you at which point during the migration of that component you need to install WebSphere Event Broker Version 6.0.

To migrate a single component, complete the task for that component. To migrate all components, complete all of the tasks listed, but plan your migration so that you apply the tasks as required by your situation. For example, because each task includes steps for installing WebSphere Event Broker Version 6.0, you might want to carry out the tasks in parallel, rather than by completing one task before starting the next task.

The order in which you migrate components does not matter, so complete the tasks in any order. The following list of tasks are presented in a typical order of migration:

- Migrating the Message Brokers Toolkit
- Migrating a Configuration Manager
- Migrating a broker
- Migrating a User Name Server

After you have completed the migration, see the post-migration tasks for information about tasks that you might want to perform after migration.

## Planning and pre-migration tasks

The following topics describe what to do before migrating from Version 5.0 to Version 6.0:

- “Planning for migration from Version 5.0”
- “Backing up WebSphere Business Integration Event Broker Version 5.0 resources” on page 22

### Planning for migration from Version 5.0

This section explains how to plan your migration. Complete the following steps:

1. Decide how you want to migrate the product components:
  - a. Find out what is new in Version 6.0 and learn about new and changed function. These changes might affect how you want to use your migrated components in the future.
  - b. Decide where you want to migrate the product components. Migrate them to a different location on the same computer or to a second computer. For example, you might want to migrate components to another location to maintain availability during the migration.

The following topics describe different migration scenarios:

- “Planning to migrate a small domain” on page 19
  - “Planning to migrate a large domain” on page 20
  - “Planning to migrate multiple domains” on page 20
  - “Planning to migrate a high-availability domain” on page 21
- c. Decide when you want to migrate the product components. You might want to preserve some components at the Version 5.0 level for now, and migrate them later.
  - d. Decide the order in which you want to migrate your components. You can migrate components in any order, but your specific circumstances might mean that you need to migrate components in a particular order.

“Coexistence with previous versions and other products” on page 3 shows you how WebSphere Event Broker Version 6.0 can coexist on the same computer with previous versions of the product, and how Version 6.0 components can operate with components from previous versions.

2. Decide how you want to use your existing resources with WebSphere Event Broker Version 6.0.

Except for user-defined extensions, you do not need to perform any tasks to migrate your development and deployment resources, such as message flow files and broker archive files. You can start using these resources with WebSphere Message Broker Version 6.0 immediately.

All Version 5.0 and Version 5.1 user-defined node projects must be upgraded to work with the Version 6.0 Message Brokers Toolkit. Upgrade a project by cleaning it: click **Project** → **Clean**. When you clean a project, the extension point that is required by Version 6.0 to compile the ESQL files contained in the user-defined extension is created in the project plugin.xml file.

After you start using your current resources in the Version 6.0 Message Brokers Toolkit, there are then restrictions on reusing these same resources with the Version 5.0 or Version 5.1 Message Brokers Toolkit. For more information, see “Conditions for using migrated resources with previous versions of the Message Brokers Toolkit” on page 6

3. Decide whether you need to carry out any testing to ensure a successful migration.

The purpose of testing your migration is to identify any problems that might arise during migration. For example, if problems arise you might need to restore some migrated resources to the Version 5.0 level that you backed up before you started the migration, and any post-migration changes to these resources would be lost. Migrating your development and test domains before migrating your production domain allows you to identify problems like this and develop a strategy for dealing with further problems.

4. Optional: When you are ready to migrate, run the **mqsिमigratecomponents** command with the **-c** parameter. This performs a pre-migration check against the Version 5.0 components to ensure that they can be migrated. The pre-migration check identifies potential problems and allows you to correct them before proceeding with migration.

After you have planned your migration, back up your resources.

### Planning to migrate a small domain:

This topic explains how to plan to migrate a small domain.

It is likely that on a small domain, many or all components are installed on a single computer. In this situation, the simplest approach is to migrate all the components on that single computer at the same time. If this is not possible, install WebSphere Event Broker Version 6.0 at a different location on the same computer, or on a second computer, and migrate each component separately, because Version 5.0 components can coexist with Version 6.0 components within a single domain. See “Coexistence with previous versions and other products” on page 3 for more information.

Migrate components in the order that best suits your environment. For example, a typical order in which to migrate the three major components might be as follows:

1. Instances of the Message Brokers Toolkit
2. Configuration Manager

### 3. Brokers

If you migrate instances of the Message Brokers Toolkit first, you can begin to develop message flows that use features that are new in WebSphere Event Broker Version 6.0. If you migrate the Configuration Manager, administrators can prepare your Version 6.0 broker domain for deployment. Finally, when you migrate the brokers, you can run your new message flows.

Depending on the goals of migration, the order in which you migrate components can be different. For example, if the primary reason for migration is to make use of new broker functions, you might want to migrate the brokers first. Or, for example, if you plan to move your Configuration Manager to a new operating system, you might want to migrate the Configuration Manager first to discover any operating system or environment issues early on.

Before you start to perform migration, back up your resources.

#### **Planning to migrate a large domain:**

This topic explains how to plan to migrate a large domain.

If you are using the Version 5.1 Message Brokers Toolkit, replace all references in this topic to "Version 5.0" with "Version 5.1".

On a large domain, it might not be possible to migrate all components at the same time. In this situation, the migration of the components might need to be split up. For example, the order of migration might be:

1. Migrate a test Message Brokers Toolkit and a test Configuration Manager
2. Migrate a test broker
3. Migrate more instances of the Message Brokers Toolkit
4. Migrate more brokers
5. Migrate remaining components

The migration order is flexible because Version 6.0 components can coexist with Version 5.0 components within a single domain. However, there are restrictions on coexistence. In particular, these will affect you if you plan to stagger the migration of several instances of the Message Brokers Toolkit, as some files cannot be read using the Version 5.0 Message Brokers Toolkit after they have been saved using the Version 6.0 Message Brokers Toolkit. See "Coexistence with previous versions and other products" on page 3 for more information.

Before you start to perform migration, back up your resources.

#### **Planning to migrate multiple domains:**

This topic explains how to plan to migrate multiple domains.

A typical configuration for WebSphere Event Broker is to use a set of three or more domains, consisting of development, test, and production domains.

##### **Development domain**

In a development domain, message flow developers create message flows and unit test them in a sandbox environment. The brokers in the domain are not responsible for handling business-critical data.

##### **Test domain**

Message flows in the development domain are eventually promoted to a

test domain, where message flows are tested against recent, but not live, production data in a realistic broker configuration.

### **Production domain**

When message flows in the test domain are deemed to be robust enough, they are promoted to the production domain. This is the domain that is responsible for performing actual business transactions, and message flows in the domain work with live data. Non-critical updates to production flows usually take place only at predefined service intervals.

Development and test domains must be migrated before production domains. Migrating the development domain first minimizes potential downtime associated with any migration. In addition, development domains are likely to require access to new broker functions before test and production domains. As message flows that make use of new functions are developed, the test and production domains must be migrated before the new message flows are promoted to them.

As each Message Brokers Toolkit can administer multiple domains, be careful when migrating instances of the Message Brokers Toolkit not to affect any domains that have not been migrated yet.

A Version 6.0 Message Brokers Toolkit can administer Version 5.0 domains and vice versa.

Before you start to perform migration, back up your resources.

### **Planning to migrate a high-availability domain:**

This topic explains how to plan to migrate a high-availability domain.

*High availability* is the requirement for a system to be running all, or for a very high proportion of, the time. Providing a high-availability environment involves having multiple brokers so that some brokers can be used for backup purposes. The entire production domain might be duplicated so that the backup system can be switched on in the event of a problem.

Migrating in a high-availability environment presents a problem because there is a vulnerable period between stopping the previous version of the product and installing and starting WebSphere Event Broker Version 6.0. One solution is to install and configure WebSphere Event Broker Version 6.0 while the previous version of the product is running in parallel, and then switch to WebSphere Event Broker Version 6.0. Install WebSphere Event Broker Version 6.0 on either the same computers that are running the previous version of the product, or on a different set of computers.

The following sections of this topic provide a general framework for how you might want to migrate your high-availability domain. You might need to adjust these instructions to suit your specific circumstances. Refer to the product-specific migration topics for detailed migration instructions.

#### *Preparing to migrate a high-availability domain:*

To achieve high-availability migration, your environment must be configured correctly. Complete the following tasks (production and test domains are described in “Planning to migrate multiple domains” on page 20):

1. Ensure that the production domain that is to be migrated is configured for high availability. You must have at least three brokers supporting the executing

applications, so that when broker 1 is being migrated, brokers 2 and 3 can provide backup support for each other. This is a standard setup for a high-availability domain at all times, and is not specific to migration.

2. Ensure that the test domain is identical to the production domain. This means that you can identify any problems during the migration of the test domain and resolve them before you migrate the production domain.

*Preparing to migrate the test domain:*

By migrating the test domain, you can ensure that operation is successful after migration and solve any problems before migrating the production domain. In message flow development, each developer is often responsible for a particular area of functionality. Test the migration of your resources to WebSphere Event Broker Version 6.0 for each functional area in turn. The following steps describe one way in which to migrate the test domain to minimize disruption. Refer to the product-specific migration topics for detailed migration instructions.

1. After you have backed up your resources and installed Version 6.0, create a Version 6.0 Configuration Manager and broker on as many computers as needed to mirror the production domain.
2. Move one functional area to Version 6.0 by migrating the Message Brokers Toolkit and the resources that are used by the developer who is responsible for that area. Test that the migrated resources work as required by deploying them and checking the results. Resolve any problems, then migrate the remaining functional areas. Migrating the functional areas one by one means that existing development can continue on the previous version of the product.
3. In the same way that you migrate the functional areas individually, migrate the previous version's brokers individually to Version 6.0. When you have migrated one broker, test that your resources still work as required by deploying the migrated resources for which this broker is responsible. Resolve any problems and repeat for the remaining brokers. Migrating the brokers one at a time means that only small changes are made at each stage. If problems occur, other brokers that have not been migrated yet can process requests while the migration problems are resolved.

*Preparing to migrate the production domain:*

After you have migrated the test domain and resolved any problems, prepare to migrate the production domain. Before you migrate your resources, configure an administration system with the Version 6.0 Message Brokers Toolkit. This allows you to administer the new Version 6.0 components. Refer to the product-specific migration topics for detailed migration instructions.

When you are ready to perform migration, back up your resources.

## **Backing up WebSphere Business Integration Event Broker Version 5.0 resources**

This topic describes how to back up your resources before migration.

### **Before you start:**

Read the following planning topics:

- "Planning to migrate a small domain" on page 19
- "Planning to migrate a large domain" on page 20
- "Planning to migrate multiple domains" on page 20
- "Planning to migrate a high-availability domain" on page 21



Before you carry out any migration tasks, back up your WebSphere Business Integration Event Broker Version 5.0 resources by completing the following steps:

1. Back up the configuration repository.
2. Back up the broker database tables.
3. Back up other resources, such as message flow files and broker archive (bar) files.
4. Back up your Message Brokers Toolkit resources by copying your workspace directory to a different location.

For detailed instructions on how to back up these resources, see the WebSphere Business Integration Event Broker Version 5.0 information center.

After you have backed up your WebSphere Business Integration Event Broker Version 5.0 resources, proceed to one of the following topics:

- “Migrating from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0” on page 17

## **Migrating the Message Brokers Toolkit from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0**

If you are using the Version 5.1 Message Brokers Toolkit, follow the instructions in this topic, replacing all references to “Version 5.0 Message Brokers Toolkit” with “Version 5.1 Message Brokers Toolkit”.

When you start using your resources in the Version 6.0 Message Brokers Toolkit, there are restrictions to using these same resources again with the Version 5.0 or Version 5.1 Message Brokers Toolkit. For more information, see “Conditions for using migrated resources with previous versions of the Message Brokers Toolkit” on page 6.

To migrate the Version 5.0 Message Brokers Toolkit to Version 6.0, complete the following steps:

1. Install WebSphere Event Broker Version 6.0 in a different location from WebSphere Business Integration Event Broker Version 5.0.
2. When you start the Version 6.0 Message Brokers Toolkit for the first time, you are prompted to enter a workspace location. Enter the directory where the Version 5.0 or Version 5.1 Message Brokers Toolkit workspace that you want to migrate is located. In Version 5.0, the default location is <BrokersInstallPath>/eclipse/workspace.
  - Version 5.0 message flows are converted to the Version 6.0 format automatically when you save them for the first time. The Version 5.0 Message Brokers Toolkit cannot read message flows that have been saved in Version 6.0 format.
  - If your message flows use MQe nodes, follow the instructions in “Migrating a message flow that contains WebSphere MQ Everyplace nodes” on page 63.
3. Clean and rebuild your workspace.
4. To migrate user-defined nodes from Version 5.0 or Version 5.1, import the user-defined node project into the Version 6.0 workbench and rebuild the project. If you are migrating user-defined nodes from Version 5.0, perform the following additional steps:

- a. Modify the <requires> element in the plugin.xml file in the user-defined node project root to match the following example. Ensure that you delete all extraneous entries from the Version 5.0 or Version 5.1 plugin.xml file so that it matches the following example exactly:

```
<requires>
  <import match="greaterOrEqual" plugin="com.ibm.etools.mft.api" version="6.0.0"/>
</requires>
```

- b. Modify the "org.eclipse.help.contexts" extension in the same plugin.xml file to match the following example:

```
<extension point="org.eclipse.help.contexts">
  <contexts file="HelpContexts.xml"/>
</extension>
```

- c. Restart the Message Brokers Toolkit using the **-clean** option.

If you have configured MCA users on the WebSphere MQ channels to the Configuration Manager, you might encounter problems when you try to connect to the migrated Configuration Manager from the Version 6.0 Message Brokers Toolkit. To resolve this, configure access control lists (ACLs) for users who are running the Version 6.0 Message Brokers Toolkit. Follow the instructions in *Considering security for the workbench*.

When you have migrated the Message Brokers Toolkit, ensure that you have migrated the rest of the components:

- Migrate the Configuration Manager
- Migrate the broker
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.

## **Migrating a Configuration Manager from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0**

In WebSphere Event Broker Version 6.0, the Configuration Manager no longer uses an external database to store the domain configuration but uses an internal repository instead. The Configuration Manager is also now available on more operating systems than in WebSphere Business Integration Event Broker Version 5.0.

From the following list of topics in this section, select the topic that is appropriate to your environment.

- Migrating to a different computer that has DB2 installed
- Migrating to a different computer that does not have DB2 installed
- Migrating on the same computer

### **Migrating a Version 5.0 Configuration Manager to Version 6.0 on the same computer**

This topic describes one of three ways to migrate a Version 5.0 Configuration Manager to Version 6.0.

#### **Before you start**

Read about "Coexistence with previous versions and other products" on page 3.



The following steps describe how to replace the Version 5.0 Configuration Manager with a Version 6.0 Configuration Manager:

1. Install WebSphere Event Broker Version 6.0 in a location other than where WebSphere Business Integration Event Broker Version 5.0 is installed.
2. Stop the Version 5.0 Configuration Manager.
3. Use the **mqsimigratecomponents** command to migrate your Version 5.0 Configuration Manager.
4. Start the Version 6.0 Configuration Manager.

If you do not have additional hardware available but want to confirm the successful migration of the Configuration Manager before replacing the Version 5.0 Configuration Manager, migrate the Configuration Manager to a different location on the same computer. If you use this method, you can also change the name of the Configuration Manager. Complete the following steps:

1. Install WebSphere Event Broker Version 6.0 in a location other than where WebSphere Business Integration Event Broker Version 5.0 is installed.
2. Stop the Version 5.0 Configuration Manager.
3. Create a Version 6.0 Configuration Manager using the **mqsicreateconfigmgr** command. Make sure that the Version 6.0 Configuration Manager has a different name and a different queue manager name to the Version 5.0 Configuration Manager. Use the **-n** parameter of the **mqsicreateconfigmgr** command to specify the Version 5.0 Configuration Manager's database.
4. Configure WebSphere MQ to allow the Version 6.0 Configuration Manager to communicate with the broker network. For example, you might need to configure channels and transmission queue definitions.
5. Start the Version 6.0 Configuration Manager.
6. In order to associate all brokers in the domain with the new Configuration Manager, so that the brokers publish their status messages to the correct queue manager, a complete topology deploy of the new Configuration Manager is required. Deploy the topology using either the Message Brokers Toolkit or the command-line interface. When the topology deploy has completed re-subscribing to the brokers in the domain, the brokers are managed by the new Configuration Manager; do not use the previous Configuration Manager. You can now delete the previous Configuration Manager.

If you have configured MCA users on the WebSphere MQ channels to the Configuration Manager, you might encounter problems when you try to connect to the migrated Configuration Manager from the Version 6.0 Message Brokers Toolkit. To resolve this, configure access control lists (ACLs) for users who are running the Version 6.0 Message Brokers Toolkit. Follow the instructions in Considering security for the workbench.

Before you migrate your brokers, or make any configuration changes, ensure that your Configuration Manager has been migrated correctly by performing the following checks:

1. Start the migrated Configuration Manager.
2. Start the Message Brokers Toolkit and connect it to the Configuration Manager's domain.
3. Check the list of domain components and see if any errors are produced.
4. Check the list of alerts for the domain and see if anything has stopped.
5. Check that you can open the Event Log.

6. Optional: If you have a broker running, stop and start a message flow, and check for a successful response; check that the Alerts view is updated when the message flow is stopped, and clear when the message flow is started.

If these steps are successful, your Configuration Manager has been migrated successfully. If they are unsuccessful, resolve any problems before you migrate further components or make configuration changes.

When you have migrated the Configuration Manager, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the broker
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.

### **Migrating a Version 5.0 Configuration Manager to Version 6.0: to a different computer that has DB2 installed**

This topic describes one of three ways to migrate a Version 5.0 Configuration Manager to Version 6.0.

#### **Before you start**

Read about “Coexistence with previous versions and other products” on page 3.

An existing Windows Configuration Manager can be migrated to a Version 6.0 Configuration Manager on any of the supported operating systems via a JDBC Type 4 Universal DB2 connection.

To migrate a Configuration Manager to a different computer that has a JDBC Type 4 Universal DB2 connection installed, complete the following steps:

1. Install WebSphere Event Broker Version 6.0 on the computer to which you are migrating your Version 5.0 Configuration Manager.
2. Add the following files to the environment in which you are going to create the new Configuration Manager. On z/OS, update the BIPC\_PROF file and submit the BIPGEN job. On all other operating systems, update the local environment.
  - a. Add the following files to the CLASSPATH:

```
db2 install/jcc/classes/sqlj.zip
db2 install/jcc/classes/db2jcc.jar
db2 install/jcc/classes/db2jcc_javax.jar
db2 install/jcc/classes/db2jcc_license_cisuz.jar
```

- b. Add to the computer specific environment variable for libraries (for example LIBPATH on z/OS):

```
db2 install/jcc/lib
```

- c. Add to The PATH:

```
db2 install/jcc/bin
```

where *db2 install* is where DB2 is installed at your location (for example /usr/lpp/db2710/db2710).

3. Stop the Version 5.0 Configuration Manager.
4. Create a Version 6.0 Configuration Manager on the second computer by issuing the **mqsicreateconfigmgr** command (or the BIPCRCM job on z/OS), specifying

the database name, user name, and password required to access the Version 5.0 Configuration Manager database. For example:

**-u (userid)**

The database userid on the Windows computer for the Configuration Manager

**-p (password)**

The database password on the Windows computer for the Configuration Manager

**-n (database name)**

*//server:port/database name*

where:

- *//server* is the IP address of the Windows computer (for example *//9.20.235.197*)
- *:port* is the port number of DB2 on Windows
- */database name* is the name of the Windows Configuration Manager database (for example */MQSICMDB*)

For example: *//9.20.235.197:50000/MQSICMDB*

Use different queue manager names for the two Configuration Managers to maintain uniqueness in the WebSphere MQ network.

When you create the Version 6.0 Configuration Manager, domain information from the Version 5.0 Configuration Manager database is copied automatically to the Version 6.0 Configuration Manager internal repository so it might take a few minutes to migrate the database.

5. On the second computer, configure WebSphere MQ to allow the Version 6.0 Configuration Manager to communicate with the broker network. For example, you might need to configure channels, transmission queues, and remote queue manager definitions.
6. Start the Version 6.0 Configuration Manager.
7. In order to associate all brokers in the domain with the new Configuration Manager, so that the brokers publish their status messages to the correct queue manager, a complete topology deploy is required on the second computer. Deploy the topology using either the Message Brokers Toolkit or the command-line interface.

When the topology deploy has completed re-subscribing to the brokers in the domain, the brokers are managed by the new Configuration Manager on the new system; do not use the previous Configuration Manager.

8. If necessary, uninstall DB2 and the Version 5.0 broker.

Before you migrate your brokers, or make any configuration changes, ensure that your Configuration Manager has been migrated correctly by performing the following checks:

1. Start the migrated Configuration Manager.
2. Start the Message Brokers Toolkit and connect it to the Configuration Manager's domain.
3. Check the list of domain components and see if any errors are produced.
4. Check the list of alerts for the domain and see if anything has stopped.
5. Check that you can open the Event Log.
6. Optional: If you have a broker running, stop and start a message flow, and check for a successful response; check that the Alerts view is updated when the message flow is stopped, and clear when the message flow is started.

If these steps are successful, your Configuration Manager has been migrated successfully. If they are unsuccessful, resolve any problems before you migrate further components or make configuration changes.

When you have migrated the Configuration Manager, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the broker
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.

### **Migrating a Version 5.0 Configuration Manager to Version 6.0: to a different computer that does not have DB2 installed**

This topic describes one of three ways to migrate a Version 5.0 Configuration Manager to Version 6.0.

#### **Before you start**

Read about “Coexistence with previous versions and other products” on page 3.

To migrate a Configuration Manager to a different computer that does not have DB2 or a JDBC client for DB2 installed, complete the following steps:

1. Migrate the Version 5.0 Configuration Manager to Version 6.0 on the same computer by completing the following steps:
  - a. Install WebSphere Event Broker Version 6.0 in a location other than where WebSphere Business Integration Event Broker Version 5.0 is installed.
  - b. Stop the Version 5.0 Configuration Manager.
  - c. Launch a Version 6.0 Command Console and enter the **mqsimigratecomponents** command to migrate your Version 5.0 Configuration Manager.
  - d. Start the Version 6.0 Configuration Manager.

When you start the Version 6.0 Configuration Manager for the first time, it automatically detects domain information in the DB2 database of the Version 5.0 Configuration Manager, and migrates it into the internal repository of the Version 6.0 Configuration Manager. You do not need to do anything, and the DB2 database is not modified.
2. Stop the Version 6.0 Configuration Manager, and make a copy of its internal repository using the **mqsibackupconfigmgr** command.
3. Install WebSphere Event Broker Version 6.0 on the second computer.
4. On the second computer, create a Version 6.0 Configuration Manager by issuing the **mqsicreateconfigmgr** command (or the BIPCRCM job on z/OS).

You must maintain unique queue manager names in your WebSphere MQ network. When you create the new Configuration Manager, choose a new queue manager name.
5. On the second computer, configure WebSphere MQ to allow the Version 6.0 Configuration Manager to communicate with the broker network. For example, you might need to configure channels, transmission queues, and remote queue manager definitions.

6. On the second computer, issue the **mqsirestoreconfigmgr** command (or the BIPRSCM job on z/OS) to overwrite the contents of the empty Version 6.0 Configuration Manager repository with the repository that you backed up from the original computer.
7. On the second computer, start the Version 6.0 Configuration Manager.
8. In order to associate all brokers in the domain with the new Configuration Manager, so that the brokers publish their status messages to the correct queue manager, a complete topology deploy is required on the second computer. Deploy the topology using either the Message Brokers Toolkit or the command-line interface.

When the topology deploy has completed re-subscribing to the brokers in the domain, the brokers are managed by the new Configuration Manager on the new system; do not use the previous Configuration Manager.

Before you migrate your brokers, or make any configuration changes, ensure that your Configuration Manager has been migrated correctly by performing the following checks:

1. Start the migrated Configuration Manager.
2. Start the Message Brokers Toolkit and connect it to the Configuration Manager's domain.
3. Check the list of domain components and see if any errors are produced.
4. Check the list of alerts for the domain and see if anything has stopped.
5. Check that you can open the Event Log.
6. Optional: If you have a broker running, stop and start a message flow, and check for a successful response; check that the Alerts view is updated when the message flow is stopped, and clear when the message flow is started.

If these steps are successful, your Configuration Manager has been migrated successfully. If they are unsuccessful, resolve any problems before you migrate further components or make configuration changes.

When you have migrated the Configuration Manager, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the broker
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.

## **Migrating a broker from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0**

To migrate a broker from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0, see the appropriate topic for your operating system:

- Distributed systems
- z/OS

## Migrating a Version 5.0 broker to Version 6.0 on distributed operating systems

You can migrate a Version 5.0 broker directly to Version 6.0. However, if the lack of availability of a broker during migration is an issue, move the Version 5.0 broker's application logic onto a Version 6.0 broker. Select the topic that is appropriate to your environment.

If you are using the Version 5.1 Message Brokers Toolkit, replace all references to "Version 5.0" with "Version 5.1".

- "Migrating a Version 5.0 broker to Version 6.0"
- "Migrating a Version 5.0 broker's application logic to another installation"

### Migrating a Version 5.0 broker to Version 6.0:

To migrate a Version 5.0 broker on distributed operating systems to Version 6.0 at the same location, complete the following steps:

1. Install WebSphere Event Broker Version 6.0 in the same location as WebSphere Business Integration Event Broker Version 5.0.
2. Stop the Version 5.0 broker.
3. Stop any channels to the Version 5.0 broker.
4. Update the .odbc.ini file to Version 6.0 format by following the instructions in "Updating your ODBC definitions when migrating" on page 31.
5. Launch a Version 6.0 Command Console and enter the **mqsimigratecomponents** command to migrate your Version 5.0 components.
6. Start the Version 6.0 broker.

### Migrating a Version 5.0 broker's application logic to another installation:

#### Before you start

To complete this task you must have either a Version 5.0 or a Version 6.0 Message Brokers Toolkit available.

To migrate a Version 5.0 broker on distributed operating systems to Version 6.0 at a different location on the same computer, or to a different computer, complete the following steps:

1. Install WebSphere Event Broker Version 6.0 either as a new instance on the computer where WebSphere Business Integration Event Broker Version 5.0 is installed, or on a different computer. For detailed instructions, see the Installation Guide.
2. Update the .odbc.ini file to Version 6.0 format by following the instructions in "Updating your ODBC definitions when migrating" on page 31.
3. Create a Version 6.0 broker and start it. Ensure that the Version 6.0 broker's name is different from the name of the Version 5.0 broker.  
Brokers cannot share queue managers. You cannot migrate a broker to a queue manager that is already being used by an existing broker.
4. Add the new broker to the domain by completing the following tasks:
  - a. Create a Configuration Manager on Windows
  - b. Create a domain connection
  - c. Connect to the broker domain
  - d. Add a broker to a broker domain



5. Write a list of the execution groups that you have on the Version 5.0 broker, and create these same execution groups on the new broker. Use either the Version 5.0 or Version 6.0 Message Brokers Toolkit to do this.
6. Deploy the message flows of the Version 5.0 broker to the Version 6.0 broker. Use either the Version 5.0 or Version 6.0 Message Brokers Toolkit to do this.
7. Configure any other relevant properties of the Version 5.0 broker on the Version 6.0 broker. For example, you might need to configure properties that you set using the **mqsichangeproperties** command, or as a result of using certain nodes, such as Publication or SCADA nodes.
8. Stop the Version 5.0 broker.
9. Remove the Version 5.0 broker from the workbench.
10. Redeploy the topology.
11. Delete the Version 5.0 broker.

When you have migrated the broker, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the Configuration Manager
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.

### **Updating your ODBC definitions when migrating:**

As part of migrating a broker, you must create ODBC definitions for broker and user databases, with database drivers that are appropriate for the new product version. You must do this before you run the **mqsigratecomponents** command. The way that you do this depends on your operating system:

#### **Windows**

ODBC definitions are stored by the operating system. There is only one repository of ODBC data source names. You do not need to change DB2 and SQL Server data source definitions. Change Oracle and Sybase data source definitions according to the instructions in Changing the 32-bit ODBC connection and XA resource manager definitions for a migrated broker.

#### **Linux and UNIX**

ODBC definitions are stored in a text file. For previous versions of the product, this file was located in `/var/mqsi/odbc/.odbc.ini`. When working with Version 6.0, create a new text file under this directory, but do not replace the existing file. This means that you do not affect existing brokers. Set the environment variable `ODBCINI` to point to the new file; perform this step as part of the setup for a Version 6.0 Command Console.

In your new Version 6.0 ODBC configuration file, ensure that you list all of the data sources that will be used by brokers that you want to migrate. For information on how to create a new ODBC.INI file, see Connecting to a database from Linux and UNIX systems. If you are using XA to enable coordinated transactions, you must also update your `qm.ini` file for WebSphere MQ, as described in Changing the 32-bit ODBC connection and XA resource manager definitions for a migrated broker.

If you revert to a previous version of WebSphere Event Broker, you must reverse the changes that you make to the ODBC definitions.

- On UNIX, reset the ODBCINI environment variable to point to the previous version of the `odbc.ini` file.
- On Windows, use the Control Panel to adjust the ODBC settings.

Update the `odbc.ini` after you have run the `mqsigratecomponents` command, but before you restart the broker.

## Migrating a Version 5.0 broker to Version 6.0 on z/OS

To migrate a Version 5.0 broker to Version 6.0 on z/OS, complete the following steps:

1. Stop the Version 5.0 broker.
2. Back up the broker database tables.
3. Create a new broker PDSE.
4. Copy all broker JCL from the Version 6.0 installed SBIPPROC and SBIPSAMP PDSEs to the new broker PDSE and customize them all. See Customizing the broker JCL for more information.

When you customize the new Version 6.0 JCL for this migration, do not make the `++HOME++` JCL variable the same value as the existing Version 5.0 component directory, otherwise the previous `ENVFILE` will be overwritten when you submit the BIPGEN job. Set the `++HOME++` variable to the Started Task user ID home directory (for example, `/u/mq01brk`).

- a. Customize the BIPEDIT file using values that are defined in the broker's Version 5.0 `mqsicompcif` file. "Equivalent customization variables in `mqsicompcif` and BIPEDIT" on page 70 lists the customization variables that are used in the Version 5.0 `mqsicompcif` file, and the equivalent variables in the Version 6.0 BIPEDIT file.
  - b. Copy any additional changes that you have made to the environment file, `ENVFILE`, and the ODBC initialization file, `dsnao.ini`, to BIPBPROF and BIPDSNAO in the component data set. Submit the BIPGEN job to create the environment file `ENVFILE`.
  - c. Customize and submit the BIPMGCMP job. This migrates the registry, queues and broker database. As part of the database migration, database tables are created, or deleted, and dropped, so you must have the correct DB2 privileges. These privileges would be the same as those required for running the `mqsicreatebroker` command.
5. Copy the started task JCL (BIPBRKP) to the procedures library. When you copy the started task, keep a second copy of the original in a safe place for backup purposes.
  6. The verification program will run when you start the Version 6.0 broker.

When you have migrated the broker, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the Configuration Manager
- Migrate the User Name Server

then see the post-migration tasks for information about tasks that you might want to perform after migration.



## Migrating a User Name Server from Version 5.0 to Version 6.0

To migrate a User Name Server from WebSphere Business Integration Event Broker Version 5.0 to WebSphere Event Broker Version 6.0, see the appropriate topic for your operating system:

- Distributed systems
- z/OS

### Migrating a Version 5.0 User Name Server to Version 6.0 on distributed systems

If the lack of availability of a User Name Server during migration is an issue, migrate your User Name Server to a different location on the same computer or on a second computer.

1. Install WebSphere Event Broker Version 6.0 either as a new instance on the computer where WebSphere Business Integration Event Broker Version 5.0 is installed, or on a different computer.
2. Stop the Version 5.0 User Name Server.
3. Launch a Version 6.0 Command Console and enter the **mqsimigratecomponents** command to migrate the User Name Server.
4. Start the Version 6.0 User Name Server.

When you have migrated the User Name Server, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the Configuration Manager
- Migrate the broker

then see the post-migration tasks for information about tasks that you might want to perform after migration.

### Migrating a Version 5.0 User Name Server to Version 6.0 on z/OS

To migrate a Version 5.0 User Name Server to Version 6.0 on z/OS, complete the following steps:

1. Stop the Version 5.0 User Name Server.
2. Create a new User Name Server PDSE.
3. Copy all User Name Server JCL from the Version 6.0 installed SBIPPROC and SBIPSAMP PDSEs to the new User Name Server PDSE and customize them all.

When you customize the new Version 6.0 JCL for this migration, do not make the `++HOME++` JCL variable the same value as the existing Version 5.0 component directory, otherwise the previous ENVFILE will be overwritten when you submit the BIPGEN job. Set the `++HOME++` variable to the Started Task user ID home directory (for example, `/u/mq01uns`).

- a. Customize the BIPEDIT file using values that are defined in the User Name Server's Version 5.0 `mqsicompcaf` file. "Equivalent customization variables in `mqsicompcaf` and BIPEDIT" on page 70 lists the customization variables that are used in the Version 5.0 `mqsicompcaf` file, and the equivalent variables in the Version 6.0 BIPEDIT file.
- b. Copy any additional changes that you have made to the environment file, ENVFILE, to BIPUPROF in the component data set. Submit the BIPGEN job to create the environment file, ENVFILE.
- c. Customize and submit the BIPMGCOMP job.

4. Copy the started task JCL (BIPUNSP) to the procedures library. When you copy the started task, keep a second copy of the original in a safe place for backup purposes.
5. The verification program runs when you start the Version 6.0 User Name Server.

When you have migrated the User Name Server, ensure that you have migrated the rest of the components:

- Migrate the Message Brokers Toolkit
- Migrate the Configuration Manager
- Migrate the broker

then see the post-migration tasks for information about tasks that you might want to perform after migration.

## Post-migration tasks

The following topics describe what to do after migrating from Version 5.0 to Version 6.0:

- “Removing unwanted files and database tables after migration”
- “Setting up a command environment” on page 17

### Removing unwanted files and database tables after migration

#### Before you start

Before you start this task, make sure that the migration was successful and that you no longer need to retain the flexibility to use WebSphere Business Integration Event Broker Version 5.0 code and resources.

To remove unwanted files and database tables after migration, complete the following steps:

1. If it is no longer required, remove WebSphere Business Integration Event Broker Version 5.0 from the computer. Refer to the WebSphere Business Integration Event Broker Version 5.0 information center for instructions about uninstalling the product.
2. If they are no longer required for use with Version 6.0, also remove the prerequisite software products used by Version 5.0, such as DB2 and WebSphere MQ. For instructions, refer to the documentation for those products.
3. If you did not remove DB2, you might want to remove the Configuration Manager DB2 database tables used by Version 5.0.

In Version 6.0, the Configuration Manager no longer uses an external database to store the domain configuration but uses an internal repository instead. This means that you cannot use your Version 5.0 Configuration Manager DB2 database tables with the Version 6.0 Configuration Manager.

To remove the Configuration Manager DB2 database tables, drop the following database tables by using the DB2 **DROP TABLE** command. If the Configuration Manager tables are in a DB2 database by themselves, drop the whole database by using the DB2 **DROP DATABASE** command.

- CACLGROUPS
- CBROKER
- CBROKERCEG
- CCOLLECTIVE

- CCOLLECTIVECBROKER
- CDELETE
- CEG
- CEGCMSGFLOW
- CEGCMSGPROJECT
- CLOG
- CMSGFLOW
- CMSGPROJECT
- CNEIGHBOURS
- COUTSTANDING
- CPROXY
- CPROXYCRESOURCE
- CSUBSCRIBE
- CTOPIC
- CTOPICCTOPIC
- CTOPOLOGY
- CTRACE
- CUUIDLOCKS

### Setting up a command environment

After you have installed the product on any of the distributed systems, you must initialize the environment before you can use any runtime component or command. A profile is provided for this purpose.

If appropriate, you can extend the initialization performed by this profile; for example, for broker or user databases, or other products that you want to use within the broker. For example, you might want to configure your broker to run with Java 5 instead of the default version Java 1.4.2.

You *must* ensure that you run this profile each time you run one of the administrative commands, or start a component; for example, a broker.

For information on setting up your command and runtime environment on a Windows system, see [Command environment: Windows platforms](#)

For information on setting up your command and runtime environment on Linux and UNIX systems, see [Command environment: Linux and UNIX systems](#)

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## Restoring migrated components to previous versions

You can restore or revert migrated components to previous versions of WebSphere Event Broker. For some components, you restore them to the previous version and their original state; for other components, you revert them to the previous version, but keep any changes that you have made to them, such as deployed message flows.

You might want to restore or revert components if you encounter a problem after you have migrated your broker domain to Version 6.0. By restoring or reverting components to the previous level, you can fix the problem with Version 6.0. There is no need to revert the entire domain; revert only those components that are

causing a problem. For example, if a message flow does not work as expected in Version 6.0, revert that broker until you can resolve the problem.

You can revert components to a previous version only if they were migrated from that version originally. You cannot create a new Version 6.0 broker, then revert it to a previous level. Nor can you create a Version 2.1 broker, migrate it to Version 6.0, then revert it to Version 5.0.

The topics in this section explain how to restore or revert components and resources that you have migrated from Version 5.0 or Version 2.1 products back to their original state:

- “Restoring components and resources to Version 5.0”
- “Restoring components and resources to Version 2.1” on page 38

## Restoring components and resources to Version 5.0

This topic explains how to restore components and resources that you have migrated from Version 5.0 products back to their original state.

### Restrictions

When you revert a broker from Version 6.0 to Version 5.0, message sets are deleted, so you must redeploy them. You are reminded to do this by warning message BIP8688, which appears when you run the **mqsimigratecomponents** command.

After migration to Version 6.0, if you have deployed any message flows that use new Version 6.0 functions, such as new nodes or new ESQL syntax, those message flows will not start if your broker is reverted to Version 5.0. Other message flows in your broker that do not use new Version 6.0 functions will continue to run.

Version 5.0 and Version 5.1 Message Brokers Toolkit source files use a new format in the Version 6.0 Message Brokers Toolkit. The files are migrated to the new format when you save them using the Version 6.0 Message Brokers Toolkit. After this, you can no longer use the files with the Version 5.0 or Version 5.1 Message Brokers Toolkit. If you have created message flows in Version 6.0, you cannot revert them to Version 5.0. For detailed information, see “Conditions for using migrated resources with previous versions of the Message Brokers Toolkit” on page 6.

### Migrating resources back to Version 5.0

The following sections describe how to restore the Message Brokers Toolkit and your runtime components to Version 5.0.

#### Restoring the Message Brokers Toolkit to Version 5.0

To restore the Message Brokers Toolkit to Version 5.0, perform the following steps:

1. Stop the Version 6.0 Message Brokers Toolkit.
2. Restore the Version 5.0 workspace from the backup that you took before migration.
3. Restart the Version 5.0 Message Brokers Toolkit.

Any changes that you made in the Version 6.0 Message Brokers Toolkit cannot be used in the Version 5.0 Message Brokers Toolkit.

#### Restoring runtime components to Version 5.0

Use the **-s** and **-t** parameters of the **mqsigratecomponents** command to migrate components from Version 6.0 to Version 5.0. Specify Version 6.0 for the source version parameter (**-s**) and Version 5.0 for the target version parameter (**-t**). See the **mqsigratecomponents** command topic for detailed information about these parameters and the format to use when specifying version numbers.

To revert z/OS runtime components to Version 5.0, perform the following steps:

1. Submit the BIPMGCMF job to call the **mqsigratecomponents** command, specifying the **-s** and **-t** parameters as described above.
2. Replace the started task JCL in USER.PROCLIB with the Version 5.0 copy that you backed up.

### Reverting a broker to Version 5.0

To revert a migrated broker to its Version 5.0 state, perform the following steps:

1. Stop the Version 6.0 broker.
2. Revert the broker to Version 5.0 using the **mqsigratecomponents** command, as shown in the following example:

```
mqsigratecomponents Broker -t 5.0.0.4
```

Warning message BIP8688 might be displayed, warning you to redeploy your message sets.

3. Reverse the changes that you made to the ODBC definitions when you migrated to Version 6.0.
  - On UNIX, reset the ODBCINI environment variable to point to the previous version of the `odbc.ini` file.
  - On Windows, use the Control Panel to adjust the ODBC settings.
4. Restart the broker using a Version 5.0 command window.

### Reverting a User Name Server to Version 5.0

There are no functional changes in the User Name Server between WebSphere Business Integration Event Broker Version 5.0 and WebSphere Event Broker Version 6.0. To revert a User Name Server to Version 5.0, issue the **mqsigratecomponents** command, as shown in the following example:

```
mqsigratecomponents UserNameServer -t 5.0.0.4
```

### Restoring a Configuration Manager to Version 5.0

When you migrate a Configuration Manager from Version 5.0 to Version 6.0, the DB2 database is neither changed nor deleted. Version 6.0 does not use DB2 to store data. If you migrate from Version 6.0 back to Version 5.0, the original DB2 database is used again, and if you made any changes after migration to Version 6.0, these changes are not reverted to Version 5.0. As a result, you will lose any domain changes that you made after migration to Version 6.0.

If you deployed any broker configuration changes after migration to Version 6.0, these are lost when you restore the Configuration Manager to Version 5.0. You must rebuild your brokers by deleting them and redeploying them in order to maintain a consistent state. Check carefully

that your Configuration Manager works correctly before deploying for the first time after migration to Version 6.0.

If you changed the Configuration Manager's queue manager during migration to Version 6.0, you must keep the new queue manager if you restore using the **mqsigratecomponents** command. If the new queue manager is on an operating system other than Windows, you cannot use the **mqsigratecomponents** command to restore; instead, you must restore from a backup.

Here is an example of the command to restore the Configuration Manager to Version 5.0 state:

```
mqsigratecomponents ConfigMgr -t 5.0.0.4
```

## Restoring components and resources to Version 2.1

This topic explains how to restore components and resources that you have migrated from Version 2.1 products back to their original state.

### Restrictions

You can restore resources to Version 2.1 only on operating systems that were supported by Version 2.1. You cannot restore resources to Version 2.1 state on the following operating systems:

- Linux Intel
- Linux s390
- Linux PPC
- Solaris x86\_64

If you have used the following features in Version 6.0, restoring resources to Version 2.1 will result in loss of data:

- Multicast
- MQe nodes
- Quality of Protection (QOP)

When you revert a broker from Version 6.0 to Version 2.1, message sets are deleted, so you must redeploy them. You are reminded to do this by warning message BIP8688, which appears when you run the **mqsigratecomponents** command.

When you revert a broker from Version 6.0 to Version 2.1 on z/OS, retained publications are deleted.

After migration to Version 6.0, if you have deployed any message flows that use new Version 6.0 functions, such as new nodes or new ESQL syntax, those message flows will not start if your broker is reverted to Version 2.1. Other message flows in your broker that do not use new Version 6.0 functions will continue to run.

Due to coexistence requirements, you can restore the Configuration Manager to Version 2.1 only if you have not migrated any brokers to Version 6.0. If you restore the Configuration Manager to Version 2.1, you must also restore the Message Brokers Toolkit to Version 2.1.

### Restoring resources to Version 2.1

The following sections describe how to restore the Message Brokers Toolkit and runtime components to Version 2.1.

### Restoring the Message Brokers Toolkit to Version 2.1

If you restore the Message Brokers Toolkit to Version 2.1, you must also restore the Configuration Manager to Version 2.1 at the same time. Any changes that you made after migration to Version 6.0 will be lost.

1. Migrate the Configuration Manager back to Version 2.1.
2. Restart the Version 2.1 Message Brokers Toolkit.

### Restoring runtime components to Version 2.1

Use the **-s** and **-t** parameters of the **mqsigratecomponents** command to migrate components from Version 6.0 to Version 2.1. Specify Version 6.0 for the source version parameter (**-s**) and Version 2.1.0.8 for the target version parameter (**-t**). See the **mqsigratecomponents** command topic for detailed information about these parameters and the format to use when specifying version numbers.

To revert z/OS runtime components to Version 2.1, perform the following steps:

1. Submit the BIPMGCMF job to call the **mqsigratecomponents** command, specifying the **-s** and **-t** parameters as described above.
2. Replace the started task JCL in USER.PROCLIB with the Version 2.1 copy that you backed up.

### Reverting a broker to Version 2.1

To revert a migrated broker to its Version 2.1 state, perform the following steps:

1. Stop the Version 6.0 broker.
2. Revert the broker to Version 2.1 using the **mqsigratecomponents** command, as shown in the following example:

```
mqsigratecomponents Broker -t 2.1.0.8
```

Warning message BIP8688 might be displayed, warning you to redeploy your message sets.

3. Reverse the changes that you made to the ODBC definitions when you migrated to Version 6.0.
  - On UNIX, reset the ODBCINI environment variable to point to the previous version of the `odbc.ini` file.
  - On Windows, use the Control Panel to adjust the ODBC settings.
4. Restart the broker.

### Reverting a User Name Server to Version 2.1

There are no functional changes in the User Name Server between WebSphere MQ Event Broker Version 2.1 and WebSphere Event Broker Version 6.0. To revert a User Name Server to Version 2.1, issue the **mqsigratecomponents** command, as shown in the following example:

```
mqsigratecomponents UserNameServer -t 2.1.0.8
```

### Restoring a Configuration Manager to Version 2.1



If you restore the Configuration Manager to Version 2.1, you must also restore the Message Brokers Toolkit and any brokers to Version 2.1.

The Version 6.0 Configuration Manager does not use the DB2 database that was used by the Version 2.1 Configuration Manager; if you restore to Version 2.1, the original database is used again. This means that any configuration changes that you made after you migrated the Configuration Manager to Version 6.0 will be lost. This can leave your domain in an inconsistent state, forcing you to rebuild and redeploy all of your brokers in order to regain a consistent state. After you have migrated your Configuration Manager to Version 6.0, check carefully that the Message Brokers Toolkit and Configuration Manager are working correctly before you attempt any further configuration changes or before you migrate any brokers.

If you have moved the Configuration Manager's queue manager during migration, you must keep the new queue manager when you restore, unless you restore your entire domain from a backup. If you have moved the Configuration Manager onto an operating system other than Windows, you cannot restore it to Version 2.1 unless you restore your domain from a backup.

Given these warnings, you can restore a Version 6.0 Configuration Manager to Version 2.1 using the command in the following example:

```
mqsimigratecomponents ConfigMgr -t 2.1.0.8
```

Your Version 6.0 Message Brokers Toolkit will no longer work; you must use a Version 2.1 Message Brokers Toolkit instead.

---

## Migrating publish/subscribe applications

If you are already using WebSphere MQ Publish/Subscribe, you can migrate your applications to use the publish/subscribe functions provided by WebSphere Event Broker.

For more information, refer to the following topics:

- "Planning for migration"
- "Running two independent broker networks" on page 41
- "Creating and operating a heterogeneous network" on page 42
- "Migrating WebSphere MQ brokers" on page 48
- "Migrating a WebSphere MQ broker network" on page 51

## Planning for migration

If you are already using WebSphere MQ Publish/Subscribe, you can migrate your applications to use the publish/subscribe functions provided by WebSphere Event Broker.

You can also migrate individual WebSphere MQ Publish/Subscribe brokers to create replacement WebSphere Event Broker brokers, with support for their client applications remaining intact.

These two possibilities offer you a number of advantages:



- Publications from within the WebSphere MQ Publish/Subscribe network can be targeted by WebSphere Event Broker subscribers. This includes messages originating in environments not yet supported by WebSphere Event Broker.
- Message flows can be created and deployed on WebSphere Event Broker brokers to:
  - Analyze the information that is flowing around your enterprise.
  - Create and execute additional business logic dependent upon the content of the publications.
  - Consolidate the information within your enterprise in the form of new publications, that can then be republished as a series of additional topics available to both WebSphere Event Broker and WebSphere MQ Publish/Subscribe clients.

There are three possible scenarios for exploiting the two networks:

1. You can choose to have two independent broker networks, and therefore have two separate broker domains for publish/subscribe applications. See “Running two independent broker networks.”
2. You can connect the two networks to allow publications and subscriptions to flow throughout the integrated network. Further details are provided in “Creating and operating a heterogeneous network” on page 42.
3. You can selectively and gradually migrate individual brokers from WebSphere MQ Publish/Subscribe to WebSphere Event Broker. For more guidance on this option, see “Migrating WebSphere MQ brokers” on page 48 and “Migrating a WebSphere MQ broker network” on page 51.

Before you can make this choice, and create your migration plan, you must be aware of the differences between the two products. These differences are described in WebSphere MQ Publish/Subscribe.

## Running two independent broker networks

If you already have an WebSphere MQ Publish/Subscribe broker network, you can continue to use this network unchanged. The introduction of WebSphere Event Broker Version 6.0 to your environment, and the creation of brokers in that broker domain, does not affect your WebSphere MQ Publish/Subscribe broker domain until you take specific action to connect the two networks.

If you want to run in this mode with two separate, independent networks, you do not have to take any specific actions. You can retain your existing WebSphere MQ Publish/Subscribe network, and install and configure a WebSphere Event Broker Version 6.0 network, without any interaction.

Your existing applications can continue to work unchanged. However, there can be no interchange of publications in this scenario.

You must be aware that a single queue manager cannot support both a WebSphere MQ Publish/Subscribe broker and a WebSphere Event Broker Version 6.0 broker. If you have brokers of both types on the same system, each broker must have its own dedicated queue manager.

You can implement this scenario while you assess the new product and the extra functions contained within the publish/subscribe support. It also lets you plan for the extent of integration or migration, or both, that you require, without affecting your current environment.

However, you must ensure that you have the required level of WebSphere MQ for your WebSphere MQ Publish/Subscribe system. WebSphere Event Broker Version 6.0 requires WebSphere MQ to be at least Version 5.3.

## Creating and operating a heterogeneous network

You can integrate your existing WebSphere MQ Publish/Subscribe broker network with a WebSphere Event Broker broker network to create a mixed, heterogeneous network. This enables publications and subscriptions to be propagated through one logical network, made up of two or more physical networks. As a result, subscribers to the WebSphere MQ Publish/Subscribe brokers can target information being published to the WebSphere Event Broker broker network, and subscribers to the WebSphere Event Broker brokers can target information being published to the WebSphere MQ Publish/Subscribe broker network.

In a heterogeneous network, any new stream that is created for a WebSphere MQ Publish/Subscribe broker is supported by any WebSphere MQ Publish/Subscribe brokers that are connected to it. However, the new stream is not supported by WebSphere MQ Publish/Subscribe brokers that are separated by a WebSphere Event Broker broker from the WebSphere MQ Publish/Subscribe broker where the new stream was created.

WebSphere MQ Publish/Subscribe brokers and WebSphere Event Broker brokers can be running on Windows or other platforms.

There are two ways in which a WebSphere Event Broker broker can be joined to the WebSphere MQ Publish/Subscribe network; it can be joined either as a leaf node (that is, as a child of an existing WebSphere MQ Publish/Subscribe broker) or as a parent node (that is, as the parent of an existing WebSphere MQ Publish/Subscribe broker).

Every WebSphere Event Broker broker that you integrate into an WebSphere MQ Publish/Subscribe network must have a minimum of two queues available:

- `SYSTEM.BROKER.DEFAULT.STREAM`  
This queue supports the default publication stream. You must create this queue on every broker. You must also create and deploy a message flow that services this stream queue.
- `SYSTEM.BROKER.INTER.BROKER.COMMUNICATIONS`  
This queue is used by the broker to communicate with neighboring WebSphere MQ Publish/Subscribe brokers. You must create this queue on every broker, however the message flow for this queue is created internally by the broker.

### Adding a broker as a leaf node

The steps described in this topic assume that you are joining:

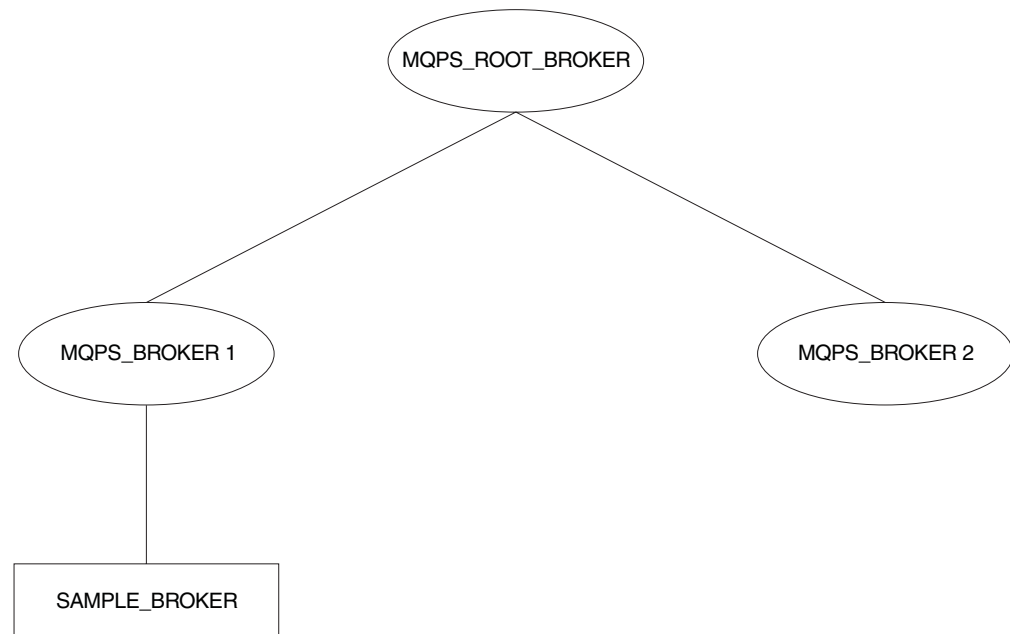
- A WebSphere Event Broker broker named `WBRK_BROKER`. When this broker was created, the same name was specified for the queue manager.
- A WebSphere MQ Publish/Subscribe broker network with a root broker `MQPS_ROOT_BROKER`, and two leaf brokers `MQPS_BROKER1` and `MQPS_BROKER2`.

Substitute the names of your brokers for these examples wherever they are used.

All commands shown must be issued on the system on which the appropriate resource is defined. WebSphere MQ commands (for example, the command to define a queue) are shown in MQSC format. For more information about WebSphere MQ commands, refer to your WebSphere MQ documentation.

The following steps describe what you should do to add, as a leaf node within your WebSphere MQ Publish/Subscribe broker network, a WebSphere Event Broker broker that you have already created.

This is shown in the following diagram. WebSphere Event Broker broker **WBRK\_BROKER** is joined to the WebSphere MQ Publish/Subscribe network, with broker **MQPS\_BROKER1** as its parent broker.



1. Ensure that the WebSphere Event Broker broker's default execution group is successfully deployed. This execution group is deployed the first time you deploy a newly created WebSphere Event Broker broker. You can check the status of both the execution group and the broker from the topology view in the workbench.
2. Define the queue required to support interbroker communications with WebSphere MQ Publish/Subscribe neighbors on the WebSphere Event Broker broker's queue manager:  

```
define qlocal(SYSTEM.BROKER.INTER.BROKER.COMMUNICATIONS) noshare
```
3. Stop the WebSphere Event Broker broker:  

```
mqsisstop WBRK_BROKER
```
4. Restart the WebSphere Event Broker broker:  

```
mqsisstart WBRK_BROKER
```

When the WebSphere Event Broker broker is restarted, the presence of the interbroker queue (defined above) enables the broker to receive and process messages on this queue.
5. Create the resources required on the WebSphere Event Broker broker to support the default WebSphere MQ Publish/Subscribe stream:
  - a. Create the default stream queue:

```
define qlocal(SYSTEM.BROKER.DEFAULT.STREAM) noshare
```

- b. Create a message flow based on the supplied publish/subscribe message flow:

- 1) Start up the workbench and select the designer view.
- 2) If you have not already imported and saved the default message flows supplied, import these now. This enables you to reuse the default publish/subscribe flow here. Click **File** → **Import** and open the file, called `SamplesWorkspaceForImport`, in the `examples` subdirectory within the WebSphere Event Broker home directory. This might take a few minutes to complete.

If you prefer, you can create your own message flow.

- 3) Make a copy of the supplied message flow and rename it.
- 4) Check the properties of the nodes in the message flow. You must set the appropriate input (stream) queue property for the MQInput node. Check that the other properties of the nodes are set correctly for your requirements.
- 5) Finally, check in your changes and deploy the message flow to the default execution group of the broker `WBRK_BROKER`.

You can find full details of how to complete these steps in the online help for the workbench.

6. If you are using additional streams in the WebSphere MQ Publish/Subscribe network, you must also enable these on the WebSphere Event Broker broker. Although the WebSphere Event Broker broker is able to support all the streams of its WebSphere MQ Publish/Subscribe neighbors, you need only define queues, and define and deploy message flows, for those streams requested by WebSphere Event Broker subscriber clients.

- a. Create a local queue on the WebSphere Event Broker broker's queue manager for each stream on which messages are to be processed. For example:

```
define qlocal(STREAM.X) noshare
```

- b. Create and deploy a message flow to read and process the WebSphere MQ Publish/Subscribe messages that are sent to each stream (publication) queue.

You can use the supplied publish/subscribe message flow as the basis for each new message flow. Each MQInput node representing a non-default stream must have the property *implicitStreamNaming* set (this is the default setting).

7. Ensure that the WebSphere MQ Publish/Subscribe broker is running. If it is not, you can start it using the start command:

```
strmqbrk MQPS_BROKER1
```

8. Ensure that the WebSphere MQ connection between the two brokers is enabled; you must start the listeners for the receiver channels, and you must then start the sender channels.
9. Join the WebSphere Event Broker broker to the WebSphere MQ Publish/Subscribe network as a child of the WebSphere MQ Publish/Subscribe broker:

```
mqsijoinmqpubsub WBRK_BROKER -p MQPS_BROKER1
```

10. Verify the success of the join command to ensure that the WebSphere MQ Publish/Subscribe broker is an active neighbor:

```
mqsilistmqpubsub WBRK_BROKER
```

If the join command has completed successfully, you see a response to the list command that is similar to:

```
BIP8090I: WebSphere MQ Publish/Subscribe neighbor WBRK_BROKER
        is active

BIP8091I: Common stream      SYSTEM.BROKER.DEFAULT.STREAM
BIP8091I: Common stream      STREAM.X
```

## Adding a broker as a parent node

The steps described in this topic assume that you are joining:

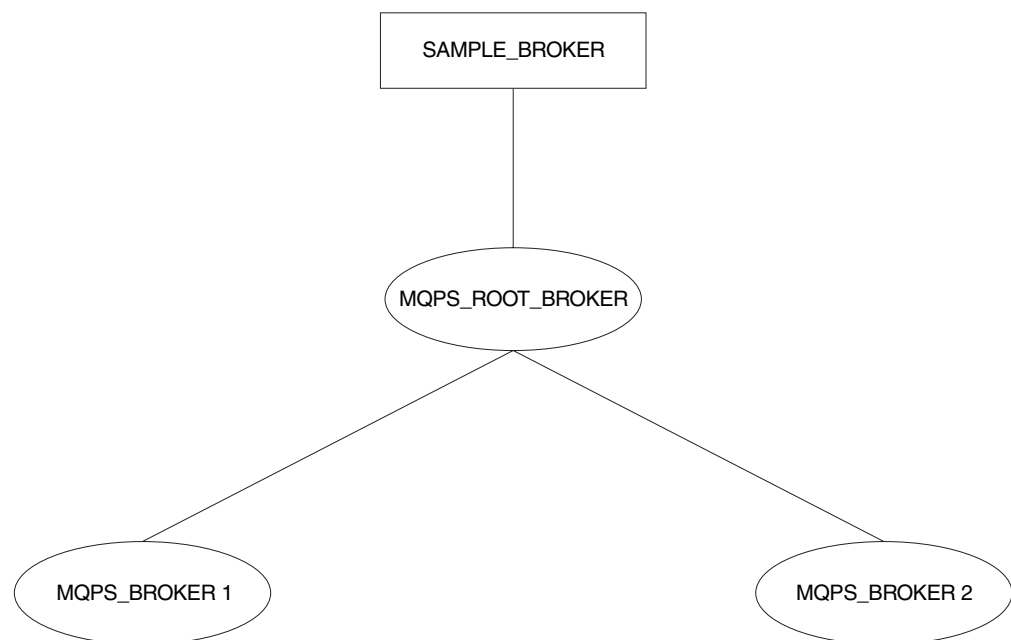
- A WebSphere Event Broker broker named WBRK\_BROKER. When this broker was created, the same name was specified for the queue manager.
- A WebSphere MQ Publish/Subscribe broker network with a root broker MQPS\_ROOT\_BROKER, and two leaf brokers MQPS\_BROKER1 and MQPS\_BROKER2.

Substitute the names of your brokers for these examples wherever they are used.

All commands shown must be issued on the system on which the appropriate resource is defined. WebSphere MQ commands (for example, the command to define a queue) are shown in MQSC format. For more information about WebSphere MQ commands, refer to your WebSphere MQ documentation.

The following steps describe what you should do to add, as a parent node within your WebSphere MQ Publish/Subscribe broker network, a WebSphere Event Broker broker that you have already created.

This is shown in the following diagram. WebSphere Event Broker broker **SAMPLE\_BROKER** is joined to the WebSphere MQ Publish/Subscribe network as the new parent node (that is, as the parent of the original parent node **MQPS\_ROOT\_BROKER**).



1. Ensure that the WebSphere Event Broker broker's default execution group is successfully deployed. This execution group is deployed the first time you

deploy a newly created WebSphere Event Broker broker. You can check the status of both the execution group and the broker from the topology view in the workbench.

2. Define the queue required to support interbroker communications with WebSphere MQ Publish/Subscribe neighbors on the WebSphere Event Broker broker's queue manager:

```
define qlocal(SYSTEM.BROKER.INTER.BROKER.COMMUNICATIONS) noshare
```

3. Stop the WebSphere Event Broker broker:

```
mqsistop SAMPLE_BROKER
```

4. Restart the WebSphere Event Broker broker:

```
mqsistart SAMPLE_BROKER
```

When the WebSphere Event Broker broker is restarted, it is enabled to receive and process messages on the interbroker queue.

5. Create the resources required on the WebSphere Event Broker broker to support the default WebSphere MQ Publish/Subscribe stream:

- a. Create the default stream queue:

```
define qlocal(SYSTEM.BROKER.DEFAULT.STREAM) noshare
```

- b. Create a message flow for publish/subscribe, either your own, or one based on the supplied publish/subscribe message flow:

- 1) Start up the workbench and select the designer view.
- 2) Make a copy of the supplied message flow and rename it; you must import this default message flow before you can access and use it.
- 3) Check the properties of the nodes in the message flow. You must set the appropriate input (stream) queue property for the MQInput node. Check that the other properties of the nodes are set correctly for your requirements.
- 4) Finally, deploy the message flow to the default execution group of the broker SAMPLE\_BROKER.

You can find full details of how to complete these steps in the online help for the workbench.

6. If you are using additional streams in the WebSphere MQ Publish/Subscribe network, you must also enable these on the WebSphere Event Broker broker. Although the WebSphere Event Broker broker is able to support all the streams of its WebSphere MQ Publish/Subscribe neighbors, you need only define queues, and define and deploy message flows, for those streams requested by WebSphere Event Broker subscriber clients.

- a. Create a local queue on the WebSphere Event Broker broker's queue manager for each stream on which messages are to be processed. For example:

```
define qlocal(STREAM.X) noshare
```

- b. Create and deploy a message flow to read and process the WebSphere MQ Publish/Subscribe messages that are sent to each stream (publication) queue.

You can use the supplied publish/subscribe message flow as the basis for each new message flow. Each MQInput node representing a non-default stream must have the property *implicitStreamNaming* set.

7. Enter the following WebSphere MQ Publish/Subscribe command against the broker that is the current WebSphere MQ Publish/Subscribe parent broker, to terminate its activities:

```
endmqbrk -c -m MQPS_ROOT_BROKER
```

This requests a controlled shutdown (-c). When the shutdown has completed, the broker can be restarted. You can request an immediate shutdown, by specifying -i instead of -c, if you need to force this shutdown to complete.

8. Ensure that the WebSphere MQ connection between the two brokers is active; you must start the listeners for the receiver channels, and then start the sender channels.

9. Enter the following WebSphere MQ Publish/Subscribe command against the current WebSphere MQ Publish/Subscribe parent broker to restart it:

```
strmqbrk -m MQPS_ROOT_BROKER -p SAMPLE_BROKER
```

If the queue manager associated with the WebSphere Event Broker broker SAMPLE\_BROKER has not been created with the same name as the broker, you must specify the queue manager name here after the -p flag, not the broker name.

10. Verify the success of the integration:

```
mqsilistmqpubsub SAMPLE_BROKER
```

If the WebSphere Event Broker broker has been integrated into the WebSphere MQ Publish/Subscribe network successfully, you see a response that is like the following:

```
BIP8090I: WebSphere MQ Publish/Subscribe neighbor SAMPLE_BROKER  
is active
```

```
BIP8091I: Common stream SYSTEM.BROKER.DEFAULT.STREAM  
BIP8091I: Common stream STREAM.X
```

## Deleting brokers

If you have a mixed broker network, you must take particular care to maintain the integrity of the network if you need to remove or delete a broker from the network:

- When you issue the mqsideletebroker command to delete a WebSphere Event Broker broker, the WebSphere MQ Publish/Subscribe brokers that are neighbors of this WebSphere Event Broker broker are not automatically informed of its deletion. Remove the WebSphere Event Broker broker from the network using the clear commands mqsiclearmqpubsub (at the WebSphere Event Broker broker) and clrmqbrk (at its WebSphere MQ Publish/Subscribe neighbors) before you delete it.

- If you delete a WebSphere Event Broker broker before you remove it from the network, and it has a parent WebSphere MQ Publish/Subscribe broker, the parent broker continues to attempt to send publication and subscription messages to it. You can correct this behavior by issuing the clrmqbrk command at the parent. For example, if you issue:

```
mqsideletebroker -m WBRK_CHILD_BROKER
```

while the WebSphere Event Broker broker is still known to its parent WebSphere MQ Publish/Subscribe broker, you can then issue the command

```
clrmqbrk -m MQPS_PARENT_BROKER -c WBRK_CHILD_BROKER
```

to the parent broker to clean up the network.

- When you issue the dlrmqbrk command to delete an WebSphere MQ Publish/Subscribe broker that is a child of a WebSphere Event Broker broker, the WebSphere Event Broker broker receives notification of the deletion.

Therefore you do not have to issue the mqsiclearmqpubsub command to remove knowledge of the deleted child at the WebSphere Event Broker parent broker.

For example, if you want to delete the child broker MQPS\_CHILD\_BROKER you must issue the following single command:

```
dlrmqbrk -m MQPS_CHILD_BROKER
```



You are prevented from deleting a WebSphere MQ Publish/Subscribe broker that is a parent of any broker; the `dltmqbrk` command fails.

## Migrating WebSphere MQ brokers

### Migrating WebSphere MQ brokers

When you plan the migration of one or more WebSphere MQ brokers, you must take account of the differences between WebSphere MQ Publish/Subscribe and WebSphere Event Broker. This might mean that you have to make some changes to your applications, your topics, or both, before you start migration.

The information here tells you the steps you must take to migrate a single broker. “Migrating a WebSphere MQ broker network” on page 51 tells you how to migrate a WebSphere MQ broker network.

These steps result in the replacement of the WebSphere MQ brokers by WebSphere Event Broker brokers.

Each replacement WebSphere Event Broker broker must be created on the same queue manager as the WebSphere MQ broker that it replaces. Because the WebSphere MQ broker shares the same name as the queue manager that supports it, you must specify the WebSphere MQ broker name as the queue manager parameter on the `mqsicreatebroker` command (the `-q` flag).

Migration involves the transfer of the following state information from the WebSphere MQ broker to the WebSphere Event Broker broker:

- Subscriptions.  
All client subscriptions are exported from all streams except `SYSTEM.BROKER.ADMIN.STREAM`.
- Retained publications.  
All retained publications in `MQRFH` format are exported from all streams except `SYSTEM.BROKER.ADMIN.STREAM`.
- Local publishers.  
Registrations for all publishers that are producing local publications are exported from all streams except `SYSTEM.BROKER.ADMIN.STREAM`.
- Related brokers.  
If the broker is part of a multi-broker hierarchy, details of all its relations are exported. This includes the names of all streams that the broker to be migrated has in common with the relation.
- Streams.  
On WebSphere MQ Publish/Subscribe, streams are the queues from which publications are read by a broker.

This information is exported as a series of messages that are sent from the WebSphere MQ broker to its replacement. When migration is complete, the WebSphere MQ broker is deleted automatically, and cannot be recreated.

### The workbench and migration

If you are migrating a WebSphere MQ broker, you cannot fully deploy it in your WebSphere Event Broker broker domain until migration has completed



successfully. You should not deploy additional execution groups or message flows until after you have successfully migrated the WebSphere MQ Publish/Subscribe broker.

Use the *Broker Topology* editor to define the WebSphere Event Broker broker, and deploy the topology. Create an empty .bar file and drag it onto the default execution group. You are now ready to start the migration.

If migration fails, and you want to revert to your WebSphere MQ broker, you must delete the WebSphere Event Broker. See *Deleting a broker*.

## Migrating a single broker

When you migrate a WebSphere MQ broker that is not part of a network, you are replacing it in the network and assigning all the function that was previously supported by that broker to a WebSphere Event Broker broker.

You must shutdown the WebSphere MQ broker before you start migration, and ensure that all applications that use the broker are also quiesced.

## Preparing for the migration

Before you can migrate a broker, you need to do some preparation.

1. Identify the WebSphere MQ broker that you are going to migrate.  
The steps used here assume you have chosen the name WBRK\_BROKER for your new WebSphere Event Broker broker, and that the WebSphere MQ broker you are migrating is currently hosted by the queue manager MQPS\_BROKER1.
2. Back up the queue manager hosting the WebSphere MQ broker.  
Ensure that this backup is complete backup before you start the migration process. This allows you to retrieve the old WebSphere MQ broker after successful migration, if you should need to do so for any reason. The *WebSphere MQ System Administration* book describes this backup process.
3. Quiesce any applications that are registered with the broker.  
Any messages generated during the migration exercise are queued and could cause performance or capacity problems. Quiescing the applications as well as the broker ensures that publish/subscribe traffic is only generated when there is a broker ready to process it.
4. End your WebSphere MQ broker operation:  

```
endmqbrk MQPS_BROKER1
```

## Preparing the replacement broker

You are now ready to work with the new broker.

1. Create a WebSphere Event Broker broker.  
You must create the new broker on the system on which the queue manager MQPS\_BROKER1 is defined. You must select the migration option (flag -m) on the command.  

```
mqsicreatebroker WBRK_BROKER -q MQPS_BROKER1  
-i mqbroker -a sample -n WBRKBKDB -m
```
2. Start the new WebSphere Event Broker broker:  

```
mqsistart WBRK_BROKER
```
3. Configure the broker in the workbench.

Create the new broker in the broker domain topology from the *Topology* view in the workbench. Save and deploy the topology. Create a default execution group and drag an empty .bar file onto the default execution group.

## Migrating the WebSphere MQ broker

The new WebSphere Event Broker broker is ready to receive migration data for the WebSphere MQ broker that it replaces.

1. Migrate the WebSphere MQ broker function to the replacement WebSphere Event Broker broker by issuing the following command:

```
migmqbrk -m MQPS_BROKER1
```

This command is supplied as part of the WebSphere MQ Publish/Subscribe package on the Web. You must ensure you have the latest level of this command, and the *WebSphere MQ Publish/Subscribe User's Guide* that describes its use.

The command retrieves the persistent information (subscriptions and retained publications) from the WebSphere MQ broker, and sends it in specially constructed messages to the queue SYSTEM.BROKER.INTERBROKER.QUEUE on the new WebSphere Event Broker broker.

The message flow that services this queue (deployed when you deployed the broker and its default execution group) receives these messages and records the information. When all the messages have been processed, the message flow is terminated and cannot be re-initialized.

The migration command can only be re-invoked if the whole process of migration has not completed successfully. If any error occurs, for any reason, the WebSphere MQ broker is recoverable and can be restarted. You can then continue to use it. The WebSphere Event Broker broker also exists, but has not recorded any migration information. You can delete and create this broker to restart the migration process.

If the whole process succeeds, the WebSphere MQ broker no longer exists and cannot be recovered.

You receive the following message on successful completion of migration:

```
WebSphere MQ broker has been successfully migrated
```

When you have successfully migrated all the WebSphere MQ brokers that you plan to migrate, delete or rename the file `strmqbrk.exe`. This prevents any WebSphere MQ brokers from starting accidentally.

## Deploying the stream queues

The new WebSphere Event Broker broker is now set up to take over from the WebSphere MQ broker. You must create and deploy the message flows that it needs to activate the streams; you do not need to define the stream queues, because these are already defined to the queue manager. The queue definitions are not deleted when the migration takes place, and the same queue manager is used by the WebSphere MQ broker and the WebSphere Event Broker broker that has replaced it.

You can create the message flows you need by following these steps:

1. Start the workbench and select the message flow view.
2. For each stream, including the default stream:
  - a. Build a basic publish/subscribe message flow by copying and renaming the supplied publish/subscribe message flow.
  - b. Check the properties of the nodes in each message flow that you create.

You must set the input queue name (the stream queue) property in the input node. You must also set the `implicitStreamNaming` property for every non-default stream queue input node.

- c. Finally, assign the message flow to an execution group of the broker `WBRK_BROKER`, check in your changes, and deploy the broker.

## Migrating a WebSphere MQ broker network

The procedure that you must follow to migrate a WebSphere MQ broker that is part of a multi-broker network is basically the same as that needed to migrate a single broker.

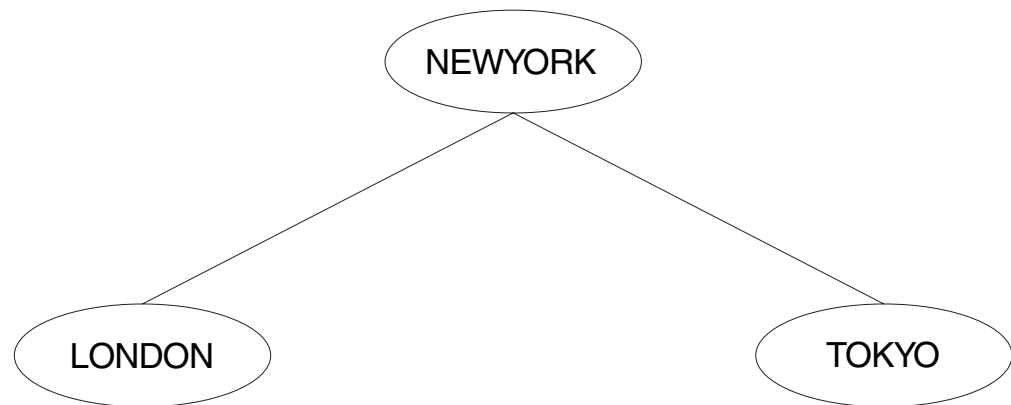
Before you start the migration, you must consider:

- The order in which you migrate the brokers.
- The place of each broker in the network, and the relationships it has with its neighbors.
- The use of collectives in the WebSphere Event Broker network.

Refer to “Planning for migration” on page 40 for more information.

The following sequence of figures illustrates the migration of a network of three brokers. The actions taken to migrate the network assumes that the three brokers are migrated one at a time, and that all three are to be grouped in a single collective in the WebSphere Event Broker broker domain.

The WebSphere MQ broker network that is to be migrated has three brokers, the root (NEWYORK) and two children (LONDON and TOKYO).



These brokers do not have to be migrated in any particular order. This example shows the migration being done in the following order:

1. LONDON
2. NEWYORK
3. TOKYO

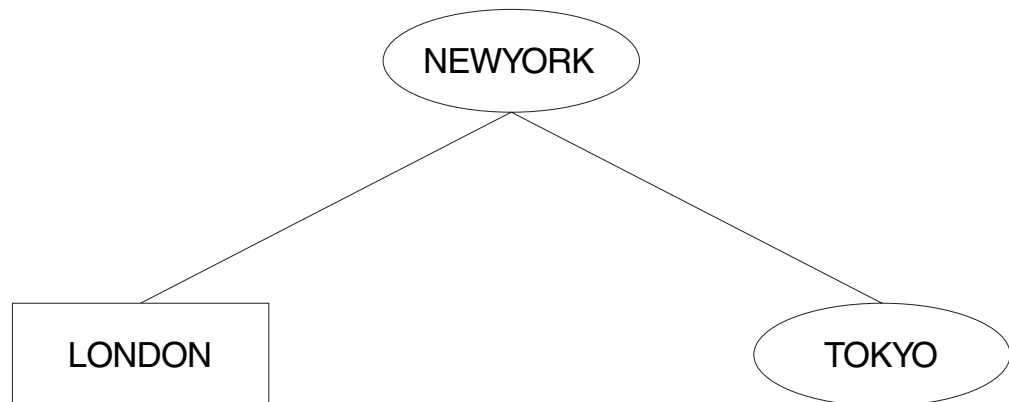
The migration is completed in a number of separate steps. Each step is best taken when network traffic is low (for example, at weekends). The whole migration is planned in three stages:

## Stage 1: migration of the LONDON broker

The steps that you need to take to migrating a single broker within a network are exactly the same as those that you need to take to migrate a standalone WebSphere MQ broker. See “Migrating WebSphere MQ brokers” on page 48.

1. Quiesce all client applications at both the LONDON and NEWYORK brokers. This ensures that no publications are missed by any subscribers while the topology is being changed.
2. Quiesce all other brokers in the network (in this example, the TOKYO broker). This guarantees that no publications are delivered while the topology is being changed.

After the migration of the LONDON broker you have a mixed network, consisting of two WebSphere MQ brokers (NEWYORK and TOKYO) and one WebSphere Event Broker broker:



The connection between the LONDON and NEWYORK brokers is a WebSphere MQ connection. The workbench only recognizes WebSphere Event Broker brokers, and therefore only LONDON has been defined to it. A WebSphere Event Broker connection cannot be created at this stage.

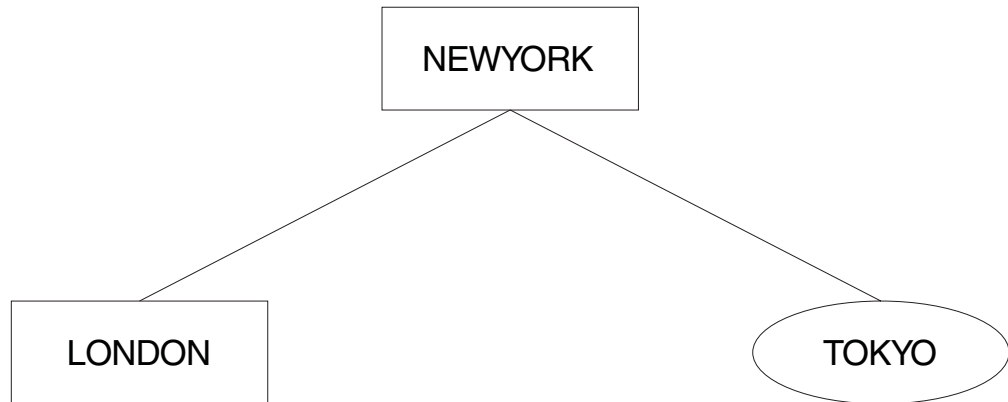
This mixed network is in a perfectly valid state. It can remain in this state until you are ready to do the next stage of the migration.

## Stage 2: migration of the NEWYORK broker

Follow the step-by-step procedure for migrating a single broker for broker NEWYORK. This is described in “Migrating WebSphere MQ brokers” on page 48.

1. Quiesce all client applications at all brokers to which NEWYORK is a neighbor; in this network, LONDON and TOKYO. This ensures that no publications are missed by any subscribers while the topology is being changed.
2. Quiesce all the brokers in the network. This guarantees that no publications are delivered while the topology is being changed.

The network now contains two WebSphere Event Broker brokers (LONDON and NEWYORK), and one WebSphere MQ broker (TOKYO):



The LONDON and NEWYORK brokers are still connected by a WebSphere MQ connection. They can remain connected in this way for as long as necessary. However, to develop applications that use the functions provided by WebSphere Event Broker you must join the two WebSphere Event Broker brokers together using the workbench.

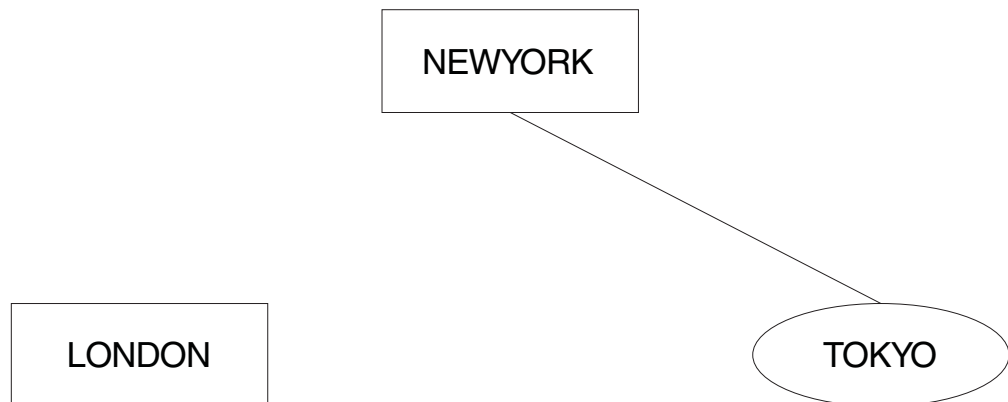
The connection can be upgraded to a WebSphere Event Broker connection by first removing the original WebSphere MQ connection between LONDON and NEWYORK.

To remove this connection, issue the WebSphere Event Broker command `mqsiclearmqpubsub` at both brokers:

```

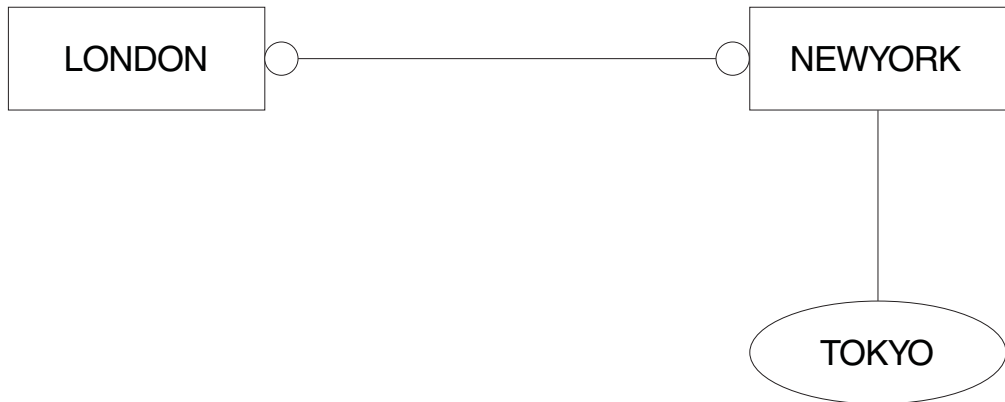
mqsiclearmqpubsub NEWYORK -n LONDON
mqsiclearmqpubsub LONDON -n NEWYORK
  
```

The network now looks like this:



Now use the workbench to define the relationship between the two brokers, LONDON and NEWYORK. Both brokers are already defined, but the collective to which they are to be assigned is not. You can define this collective from the *Topology* view, and assign the two brokers to it. All brokers in a collective are assumed to be connected, so you do not have to make those connections using the workbench.

The new topology can now be deployed. The connection between LONDON and NEWYORK is now implemented using WebSphere Event Broker functions. The network is now:



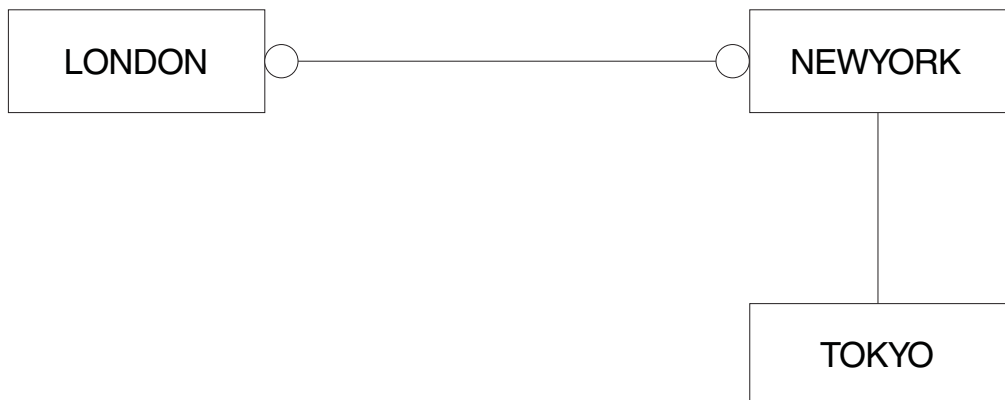
The two brokers, LONDON and NEWYORK, are no longer in a parent-child relationship but are neighbors within a collective. The topology of the WebSphere Event Broker network is not based on a hierarchical structure as was the WebSphere MQ network.

Now that LONDON and NEWYORK form a collective, there is no root node left in the WebSphere MQ network. NEWYORK is the gateway between the WebSphere MQ broker (TOKYO) and the WebSphere Event Broker collective of brokers.

### Stage 3: migration of the TOKYO broker

The final WebSphere MQ broker, TOKYO, is now ready to be migrated. Follow the procedure described in “Migrating WebSphere MQ brokers” on page 48.

The network is now:



The WebSphere MQ connection between TOKYO and NEWYORK can now be broken. This is done by using the following commands:

```

mqsiclearmqpubsub NEWYORK -n TOKYO
mqsiclearmqpubsub TOKYO -n NEWYORK
  
```

Now use the workbench to add the TOKYO broker to the WebSphere Event Broker network, and to the collective. The operation of a collective requires that all brokers have direct physical connections with each other (via WebSphere MQ).

Before the topology of the new WebSphere Event Broker network can be deployed, a WebSphere MQ connection between LONDON and TOKYO is required. A series

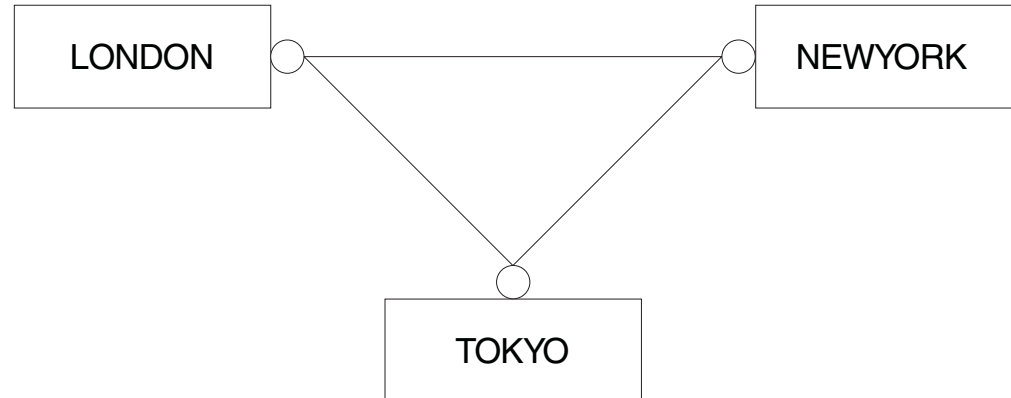
of WebSphere MQ commands must be invoked to define the channels and transmission queues that support two-way traffic.

When you have completed the migration of all the brokers in the collective, you have removed the single point of failure at the NEWYORK broker. Subscribers on the LONDON broker can receive publications from the TOKYO broker even when the NEWYORK broker is not running.

Before migration, traffic between brokers was always routed through NEWYORK, the root node, which was therefore the single point of failure.

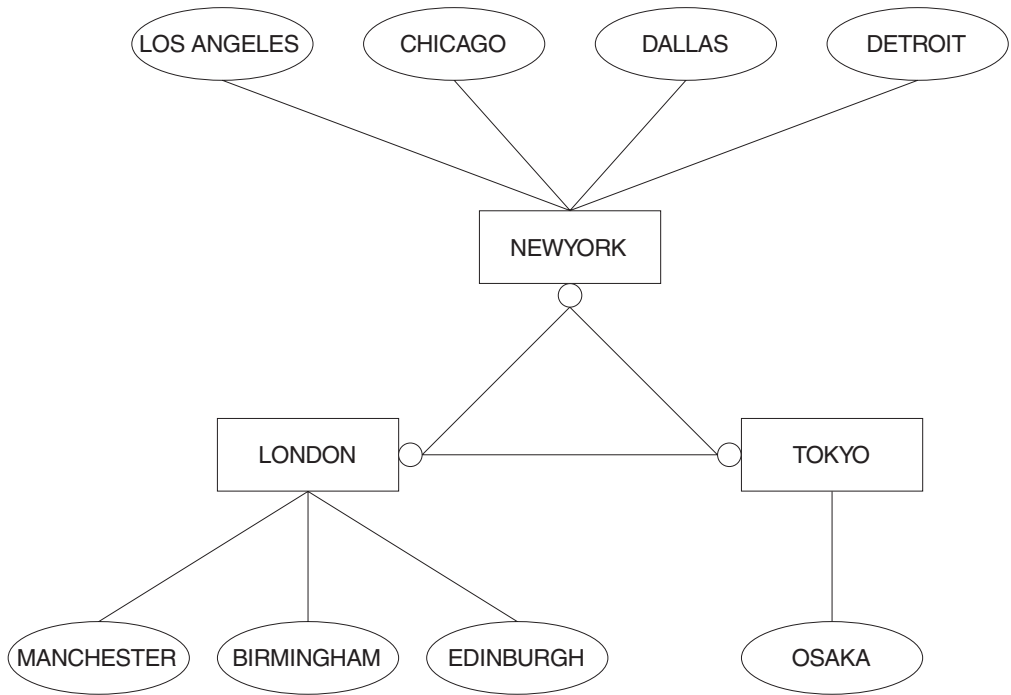
For further details of connecting brokers to each other, see *Configuring WebSphere Event Broker*. For more general information about distributed WebSphere MQ networks, refer to *WebSphere MQ Intercommunication*.

When all migration and associated tasks have been completed, the network comprises a single collective, containing three WebSphere Event Broker brokers connected as equals.



### **A network of migrated brokers**

The following diagram shows a mixed network of WebSphere Event Broker and WebSphere MQ brokers. Brokers NEWYORK, LONDON, and TOKYO have been migrated to form a WebSphere Event Broker collective. All the other brokers remain as WebSphere MQ brokers.





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## Part 2. Reference

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## Migration and upgrade

This section contains the following topics:

- “Supported migration and upgrade paths”
- “Migrating message flows from Version 2.1” on page 60
- “Migration glossary” on page 71

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### Supported migration and upgrade paths

The following table shows the supported migration and upgrade paths to the Version 6.0 products:

From ...	You can migrate to ...
MQSeries® Integrator Version 2.0.2	<ul style="list-style-type: none"><li>• Migration from MQSeries Integrator Version 2.0.2, or an earlier release, is not supported.</li></ul>
WebSphere MQ Event Broker Version 2.1 (at any service level)	<ul style="list-style-type: none"><li>• WebSphere Event Broker Version 6.0</li><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere MQ Integrator Broker Version 2.1 (at CSD02 or later) <sup>1</sup>	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere MQ Integrator Version 2.1 (at CSD02 or later) <sup>1</sup>	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0<sup>2</sup></li><li>• WebSphere Message Broker with Rules and Formatter Extension Version 6.0</li></ul>
WebSphere MQ Event Broker Version 2.1 (at any service level) and WebSphere MQ Integrator Broker Version 2.1 <sup>3</sup> (at CSD02 or later) <sup>1</sup>	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere MQ Event Broker Version 2.1 (at any service level) and WebSphere MQ Integrator Version 2.1 <sup>3</sup> (at CSD02 or later) <sup>1</sup>	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0<sup>2</sup></li><li>• WebSphere Message Broker with Rules and Formatter Extension Version 6.0</li></ul>
WebSphere Business Integration Event Broker Version 5.0	<ul style="list-style-type: none"><li>• WebSphere Event Broker Version 6.0</li><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere Business Integration Message Broker Version 5.0	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 5.0	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0<sup>4</sup></li><li>• WebSphere Message Broker with Rules and Formatter Extension Version 6.0</li></ul>
WebSphere MQ Publish/Subscribe	<ul style="list-style-type: none"><li>• WebSphere Event Broker Version 6.0</li><li>• WebSphere Message Broker Version 6.0</li></ul>
WebSphere Event Broker Version 6.0	<ul style="list-style-type: none"><li>• WebSphere Message Broker Version 6.0</li></ul>

#### Notes:

1. If you have applied CSD02, CSD03, CSD04, or CSD05 to Version 2.1, you must apply an additional APAR (IY45459) in order for migration to be successful. APAR IY45459 is included in CSD06.

2. This migration path is possible only if you have not used the New Era of Networks Rules and Formatter support in WebSphere MQ Integrator Version 2.1, or you do not want to continue using it after migration.
3. Two broker domains are merged into one broker domain during migration.
4. This migration path is possible only if you have not used the Rules and Formatter function in WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 5.0, or you do not want to continue using it after migration.

---

## Message flow migration notes

This section provides reference information to assist you when you migrate message flows to WebSphere Event Broker Version 6.0. It contains the following topics:

- “Migrating message flows from Version 2.1”
- “Migrating a user-defined node” on page 61
- “Migrating a message flow that contains WebSphere MQ Everyplace nodes” on page 63

If you are using the Version 5.1 Message Brokers Toolkit, replace all references in these topics to “Version 5.0” with “Version 5.1”.

### Migrating message flows from Version 2.1

Use the `mqsimigratemsgflows` command to migrate message flows from Version 2.1 to Version 6.0. **It is not necessary to use this command when migrating from Version 5.0 to Version 6.0.**

This topic contains the following sections:

- “Conditions for using the `mqsimigratemsgflows` command”
- “Promoted property name” on page 61
- “Converting Version 2.1 names that are not valid” on page 61

#### Conditions for using the `mqsimigratemsgflows` command

- Export message flows from Version 2.1 to an export file. You can use SupportPac utilities to create the files, and these exported files are the input to the migration process.
- Message flows that are found in multiple export files are migrated each time that they occur. When migrating a message flow, any previous flow with the same name is overwritten without warning.
- Message flows and their related subflows should be exported to the same file. This is the default Version 2.1 export behavior. This helps you to identify and resolve references to the other message flows and subflows, and to rename objects consistently. The migration uses the name of the message flow rather than the UUID to link flows and subflows and to name the message flow file.
- If a message flow refers to a subflow that cannot be located, but appears to be in the project, it is possible that it has been migrated separately, and was referenced internally in an inconsistent manner due to renaming. To correct the situation, export the message flows again in the same export file.

- When migration is complete, open the workbench. If the project is closed, open it; if the project is open, refresh it and clean all the projects by clicking Project -> Clean.

## Promoted property name

In Version 2.1, when a promoted property is created through the drag-and-drop process, the property name (xmi.label) is set to be the translation of the attribute name. The original attribute name must not contain spaces otherwise it is rejected by the broker. However, promoted attributes are never sent to the broker, so they might have contained spaces in Version 2.1.

When the message flow is migrated, the original name is lost and only the translation is kept. The promoted attribute can override several attributes, so the original name must correspond to the translated name.

The solution is to generate a suitable attribute name by replacing spaces or other offending characters with the unicode representation. The *propertyName* attribute of the *propertyDescriptor* is set to `key=Property.<the translated attribute name>`. The UI returns *<the translated attribute name>*.

However, migrated message flows have not retained the attribute system name, only the translated name. It is therefore difficult or impossible to locate the original attribute.

## Converting Version 2.1 names that are not valid

Message flows and properties can contain names that are not valid in Version 6.0. If this situation arises, the following transformation occurs. Each offending character is replaced with a series of characters representing its unicode code point. For example, an exclamation mark ("!") is replaced with X0026. This is explained in the report file that is generated.

This transformation is deterministic. If a message flow is migrated on another occasion, and the message flow refers to a flow with a character that is not valid, both names are transformed in the same way.

These transformations do not result in conflicting names except in extremely rare circumstances. A conflict might occur because a Unicode code point sequence occurs in a name precisely where the corresponding character occurs in another name, which is otherwise identical. In this case, rename one of these message flows or properties and re-export the flows. Select a new name that does not contain a Unicode code point sequence ('Xnnnn') and rename the message flow in the Control Center before you migrate. Never rename a .msgflow file in the file system; always use the Control Center or the workbench to perform renaming tasks.

## Migrating a user-defined node

You must complete the following steps to migrate a user-defined node to WebSphere Event Broker Version 6.0:

1. "Migrating the Message Brokers Toolkit representation of the user-defined node" on page 62
2. "Migrating the runtime user-defined node code" on page 62

## Migrating the Message Brokers Toolkit representation of the user-defined node

You can deploy a user-defined node that is written in the Version 5.0 Message Brokers Toolkit on the Version 6.0 Message Brokers Toolkit. Before you can deploy the user-defined node, you must migrate the Message Brokers Toolkit representation of the user-defined node to the Version 6.0 Message Brokers Toolkit.

To migrate from the Version 5.1 Message Brokers Toolkit to the Version 6.0 Message Brokers Toolkit:

1. Import the user-defined node project into the Version 6.0 Message Brokers Toolkit.
2. Select your user-defined node project in the Package Explorer, and click **Project> Clean Project**.

To migrate from the Version 5.0 Message Brokers Toolkit to the Version 6.0 Message Brokers Toolkit:

1. Import the user-defined node project into the Version 6.0 Message Brokers Toolkit.
2. Select your user-defined node project in the Package Explorer, and click **Project> Clean Project**.
3. Modify the `<requires>` element in the `plugin.xml` file in the user-defined node project root to match the following:

```
<requires>
    <import match="greaterOrEqual" plugin="com.ibm.etools.mft.api" version="6.0.0"/>
</requires>
```

4. Modify the `"org.eclipse.help.contexts"` extension in the same `plugin.xml` file to match the following:

```
<extension point="org.eclipse.help.contexts">
    <contexts file="HelpContexts.xml"/>
</extension>
```

When you have migrated your user-defined nodes, you do not need to migrate any message flows that contain the user-defined node.

You must now complete the step "Migrating the runtime user-defined node code."

## Migrating the runtime user-defined node code

Before you start this step you must have Migrated the Message Brokers Toolkit representation of the user-defined node.

To migrate the runtime user-defined node code:

1. Put a copy of your compiled or packaged user-defined extension file on every broker system from which you intend to use it.
  - If you are migrating a Java user-defined node, then you can build the user-defined extension file once and distribute it to each of your systems .
  - If you are migrating a C user-defined node and all of your brokers are of the same machine type, you can build the user-defined extension file once and distribute it to each of your systems.
  - If you are migrating a C user-defined node and you have a cluster that consists of various machine types, for example one AIX, one Solaris, and one Windows broker, you must build the files separately on each machine type.
2. Specify the directory in which to put the file, by using either the **mqsicchangebroker** or **mqsiccreatebroker** command.

In previous versions, the .lil or .jar file was saved in the installation directory. Do not save the .lil or .jar file in the WebSphere Event Broker installation directory.

For C user-defined extensions, store the .pdb file that corresponds to the .lil file, in the chosen directory. The .pdb file provides symbolic information that is used by WebSphere Event Broker when displaying stack diagnostic information in the event of access violations or other software malfunctions.

3. Stop and start each broker to ensure that the existence of a new file is detected. There are two situations where a broker restart is not necessary:

- If you have created an execution group in the Message Brokers Toolkit, and there is nothing yet deployed to it, you can add the .lil, .pdb, and .jar file to your chosen directory.
- If something has already been deployed to the execution group that you want to use, add the .lil, .pdb, or .jar file to your chosen directory and then use the **mqsireload** command to restart the group. It is not possible to overwrite an existing file on the Windows operating system when the broker is running because of the file lock that is put in place by the operating system.

Use these two approaches with caution because any execution group that is connected to the same broker will also detect the new .lil, .pdb, and .jar files when that execution group is restarted, or when something is first deployed to that execution group. By using the more conventional way of restarting the broker, you ensure that anyone with an interest in a particular execution group is made aware that recent changes have been made to the broker.

These two situations assume that you have already completed the previous step, and have therefore used either the **mqsichangebroker** command or the **mqsicreatebroker** command to notify the broker of the directory in which the user-defined extension files have been placed.

When you have installed a user-defined node, it is referred to by its schema and name, just like a message flow.

## Migrating a message flow that contains WebSphere MQ Everyplace nodes

The support for connecting WebSphere MQ Everyplace device clients to WebSphere Event Broker has changed in WebSphere Message Broker Version 6.0.

This topic summarizes the changes, and the subsequent topics describe the situation in more detail:

1. Migrating an MQe message flow (this topic)
2. "Designing MQe connections" on page 64
3. "Deploying an MQe message flow" on page 66
4. "Configuring after MQe message flow deployment" on page 67

### Previous versions

- You can use either of these connection configurations:
  1. MQe device client *<--connects to -->* MQe gateway *<--connects to -->* Broker (using MQInput and MQOutput nodes)
  2. MQe device client *<--connects to -->* Broker (using MQeInput and MQeOutput nodes)
- The MQe code level contained within the MQe nodes in the broker is at a fixed version, and you can not update it independently.

## Version 6.0

- The MQeInput and MQeOutput nodes do not exist (the broker has no MQe code within it).
- You can use only this connection configuration:
  1. MQe device client <--connects to --> MQe gateway <--connects to --> Broker (using MQInput and MQOutput nodes)
- You must install WebSphere MQ Everyplace separately. The MQe code is now all contained in that separate installation and it can be upgraded independently to newer versions.
- You can still import or create a message flow with MQe nodes in it, and save it and deploy it to a broker:
  - The bar files generated will be exactly the same as before.
  - When you deploy to a previous version broker, the flow will work just as before.
  - When you deploy to a Version 6.0 broker, the broker run time interprets the bar file differently, changing the MQeInput and MQeOutput nodes into MQInput and MQOutput nodes, ignoring some MQe node attributes and reinterpreting others.

This way, you can migrate your existing MQe message flows unchanged to WebSphere Message Broker Version 6.0 (you must configure the MQe gateway according to the reinterpreted attributes).

**Attention:** The use of message flows that contain MQeInput and MQeOutput nodes in WebSphere Message Broker Version 6.0 is deprecated. The behavior that is described here is intended only for when you are deploying from Version 6.0 to a previous version, and to provide a route for migration. Redesign your flows to remove the MQe nodes and replace them with MQ nodes that are configured to your own specifications and coordinated with your MQe Gateway configuration.

- If you are using MQeOutput nodes with the *Destination Mode* property set to *Destination List*, when you migrate your MQe flows to a Version 6.0 broker, change the *Destination Mode* property to *Reply to Queue* then redeploy the modified flows. You can use either the Version 6.0 or previous version of the Message Brokers Toolkit to perform the redeployment.

If you want to use MQe connections with WebSphere Message Broker Version 6.0 see the subsequent topics for more details, starting with “Designing MQe connections.”

For help with configuring WebSphere MQ Everyplace, see the documentation supplied with that product.

## Designing MQe connections

This topic is part of a set of related topics that are best read in total and in sequence:

1. “Migrating a message flow that contains WebSphere MQ Everyplace nodes” on page 63
2. Designing MQe connections (this topic)
3. “Deploying an MQe message flow” on page 66
4. “Configuring after MQe message flow deployment” on page 67

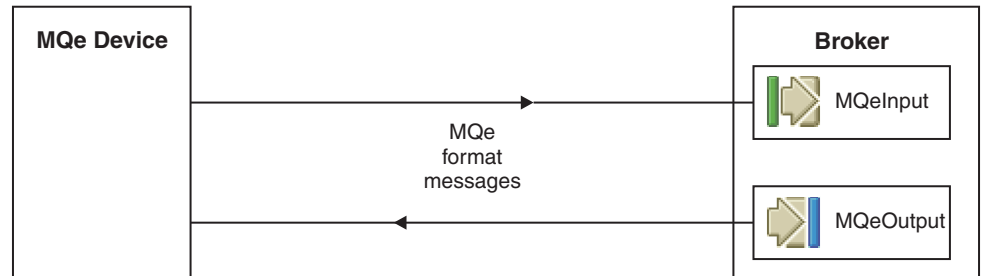


This topic describes the connection possibilities between WebSphere MQ Everyplace device clients and WebSphere Event Broker.

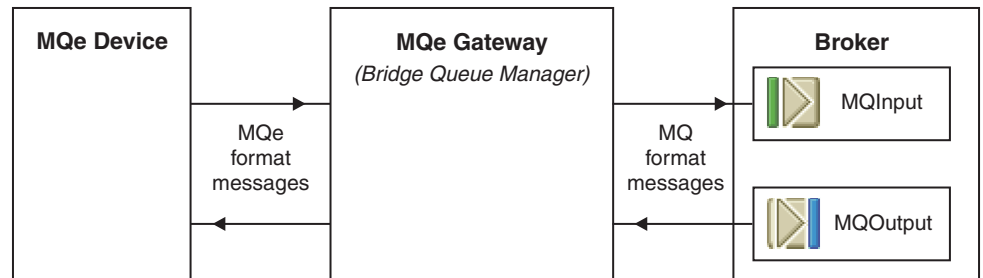
The following two diagrams illustrate the possibilities visually, and a table follows with the details.

1. The connection options for previous versions:

a. Directly

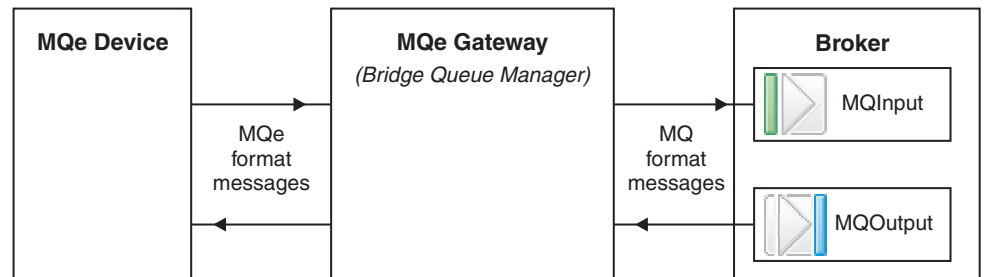


b. Via MQe Gateway



2. The connection options for Version 6.0:

• Via MQe Gateway



The following table lists connection possibilities between WebSphere MQ Everyplace device clients and WebSphere Event Broker

Connection considerations	Previous versions	Version 6.0
MQe devices connect directly to the broker	Yes	No
MQe devices connect to an MQe Gateway, then that connects to the broker	Yes	Yes
The format of messages into and out of the broker is:	MQe format or MQ format	MQ format only

The next topic in this set is “Deploying an MQe message flow.”

For help with configuring WebSphere MQ Everyplace, see the documentation supplied with that product.

## Deploying an MQe message flow

This topic is part of a set of related topics that are best read in total and in sequence:

1. “Migrating a message flow that contains WebSphere MQ Everyplace nodes” on page 63
2. “Designing MQe connections” on page 64
3. Deploying an MQe message flow (this topic)
4. “Configuring after MQe message flow deployment” on page 67

The following table describes the deployment possibilities of a message flow that contains MQeInput and MQeOutput nodes.

**Attention:** The use of message flows that contain MQeInput and MQeOutput nodes in WebSphere Message Broker Version 6.0 is deprecated. The behavior that is described here is intended only for when you are deploying from Version 6.0 to a previous version, and to provide a route for migration. Redesign your flows to remove the MQe nodes and replace them with MQ nodes that are configured to your own specifications and coordinated with your MQe Gateway configuration.

Deploy from	Deploy to	Result
Previous version	Previous version	Works as before
Previous version	Version 6.0	Not possible - instead you must import your old message flow into your Version 6.0 Message Brokers Toolkit and then deploy from there. <sup>1</sup>
Version 6.0	Previous version	Works as before. <sup>2</sup>
Version 6.0	Version 6.0	Works when you set up an appropriately configured MQe gateway. When the broker receives the bar file, the MQeInput and MQeOutput nodes in the message flow are converted into MQInput and MQOutput nodes that are re-configured as described below.

### Notes:

1. When you save the flow in Version 6.0 you see an error message saying that the use of MQe nodes is now deprecated. You can override the error and continue to save and deploy.
2. The bar files generated by Version 6.0 contain XML that is exactly the same as previous versions.

The following list describes what happens to all the MQE node attributes when the node is converted into an MQ node. (For a summary of the key attributes, see the next topic in this set, “Configuring after MQE message flow deployment”).

MQEInput and MQEOutput node properties panels	Converted MQ node properties
<b>General panel attributes</b>	
<ul style="list-style-type: none"> <li>• Trace</li> <li>• Trace Filename</li> <li>• Use Config File</li> <li>• Config Filename</li> <li>• Queue Manager Name</li> <li>• Queue Name</li> </ul>	<p>All discarded except:</p> <ul style="list-style-type: none"> <li>• Queue Manager Name</li> <li>• Queue Name</li> </ul> <p>Do your tracing in the normal way for WebSphere Event Broker, as described in the Using trace topic. When this flow is traced, the MQ nodes are seen, not the MQE nodes in the message flow in the deployed bar file that have been converted.</p>
<b>Registry panel attributes</b>	
<ul style="list-style-type: none"> <li>• Registry type</li> <li>• Directory</li> <li>• PIN</li> <li>• Certificate Request PIN</li> <li>• Keyring Password</li> <li>• Certificate Host</li> <li>• Certificate Port</li> </ul>	<p>All discarded</p> <p>These attributes concern MQE registry and security, and you configure that on your MQE gateway.</p>
<b>Listener panel attributes</b>	
<ul style="list-style-type: none"> <li>• Listener Type</li> <li>• Host Name</li> <li>• Port</li> <li>• Time Interval</li> </ul>	<p>All discarded</p> <p>You configure these attributes on your MQE gateway and your broker queue manager.</p>

To use such a deployment, create a suitable configuration on the broker queue manager for the converted nodes to work, as described in the next topic, “Configuring after MQE message flow deployment.”

For help with configuring WebSphere MQ Everyplace, see the documentation supplied with that product.

## Configuring after MQE message flow deployment

This topic is part of a set of related topics that are best read in total and in sequence:

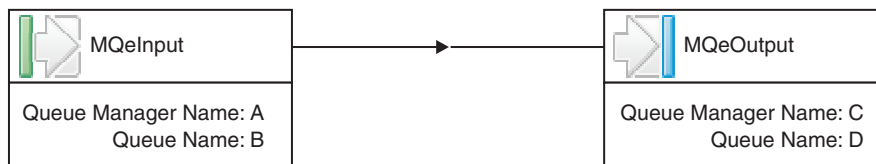
1. “Migrating a message flow that contains WebSphere MQ Everyplace nodes” on page 63
2. “Designing MQE connections” on page 64
3. “Deploying an MQE message flow” on page 66
4. Configuring after MQE message flow deployment (this topic)

When you deploy a message flow that contains MQEInput and MQEOutput nodes on WebSphere Message Broker Version 6.0 the nodes are converted to MQInput and MQOutput nodes (for full details see “Deploying an MQE message flow” on page 66).

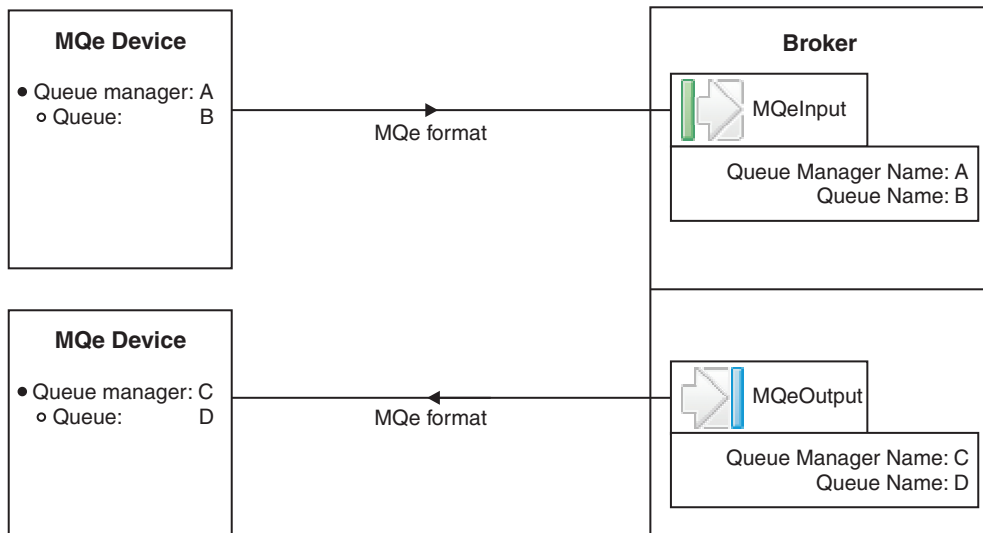
**Attention:** The use of message flows that contain MQeInput and MQeOutput nodes in WebSphere Message Broker Version 6.0 is deprecated. The behavior that is described here is intended only for when you are deploying from Version 6.0 to a previous version, and to provide a route for migration. Redesign your flows to remove the MQe nodes and replace them with MQ nodes that are configured to your own specifications and coordinated with your MQe Gateway configuration.

When the MQe nodes are converted into MQ nodes at deployment time, the *queue manager name* and *queue name* attributes are preserved, and you must create a configuration on the broker queue manager to handle them.

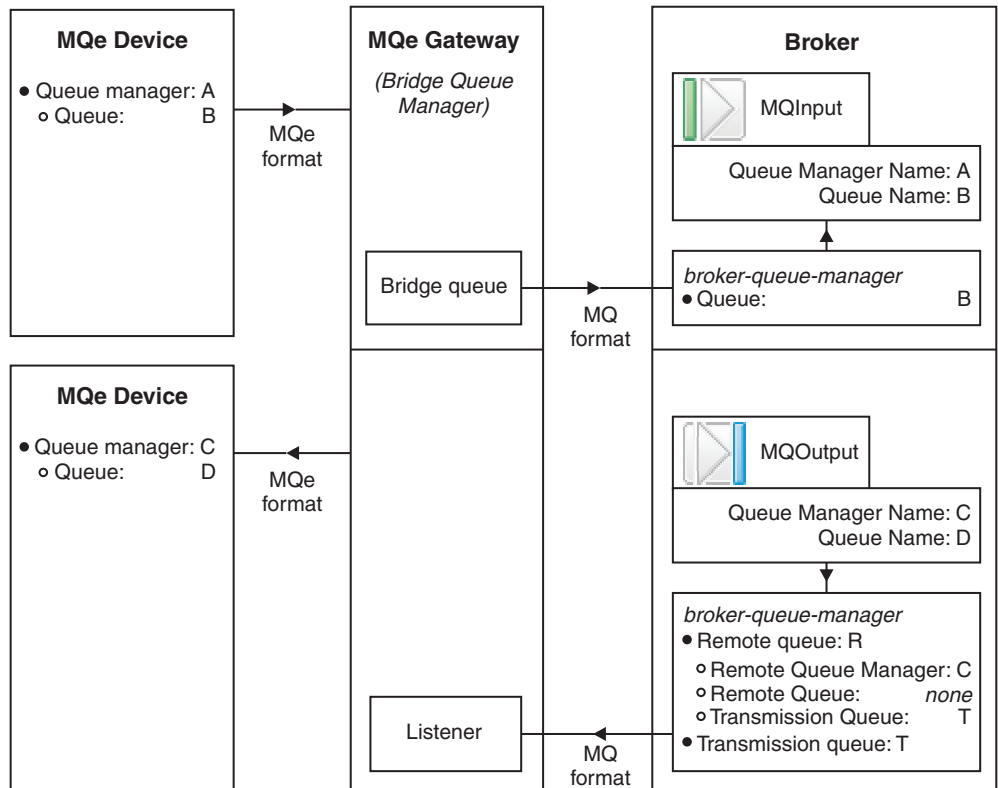
For example, suppose you have a message flow like this simplified one that contains MQeInput and MQeOutput nodes:



The following diagram shows this message flow connected directly to MQe devices, as it would be used on a previous version broker:



When you deploy this message flow to a Version 6.0 broker, create a configuration as shown here:



Configuration details:

1. Configure your broker queue manager with the following parameters:

- A local queue named B
- A remote queue definition R with these attributes:
  - Remote Queue Manager = C
  - Remote Queue = *none* (leave blank)
  - Transmission Queue = T

This remote queue definition will match all messages that are destined for any queue on queue manager C and put them to the transmission queue.

2. Configure your MQE gateway with the following parameters:

- Provision for accepting messages from an MQE device with queue manager A and queue B, transforming the format from MQE to MQ, and putting them onto a bridge queue
- A bridge queue that puts messages to queue B on the broker queue manager
- A listener that reads messages from transmission queue T on the broker queue manager
- Provision for transforming the message format of the messages on queue T from MQ to MQE format, and sending them to the MQE device with queue manager C and queue D

For help with configuring WebSphere MQ Everyplace, see the documentation supplied with that product.

## Equivalent customization variables in mqsicompCIF and BIPEDIT

One of the steps involved in migrating a broker or User Name Server to Version 6.0 on z/OS is to customize the Version 6.0 BIPEDIT file using values that are defined in the Version 2.1 or Version 5.0 mqsicompCIF file.

The following table lists the customization variables that are used in the Version 2.1 and Version 5.0 mqsicompCIF file, and the equivalent variables in the Version 6.0 BIPEDIT file. You can also look at the sample BIPEDIT file.

Version 2.1 and Version 5.0 mqsicompCIF customization variables	Version 6.0 BIPEDIT customization variables
DB2_SAMPLE_PGMNAME	++DB2SAMPLEPROGRAM++
DB2_SAMPLE_PGMPLAN	++DB2SAMPLEPROGRAMPLAN++
DB2_DSNACLI_PLANNAME	++DB2DSNACLIPLAN++
DB2_SUBSYSTEM	++DB2SUBSYSTEM++
DB2_LOCATION	++DB2LOCATION++
DB2_TABLE_OWNER	++DB2TABLEOWNER++ ++DB2CURRENTSQLID++ (These can be different)
DB2_STORAGE_GROUP	++DB2STORAGEGROUP++
DB2_STOR_GROUP_VCAT	++DB2LOCATION++
DB2_STOR_GROUP_VOL	Default value in BIPCRDB
DB2_DATABASE	++DB2DATABASE++
DB2_BUFFER_POOL	++DB2BUFFERPOOL++ ++DB2INDEXBP++ ++DB2LOBBP++ (These can be different)
COMPONENT_PDS	++COMPONENTDATASET++
COMPONENT_KEY	++STARTEDTASKNAME++
STPN	++STARTEDTASKNAME++
USER_PROCLIB_PDS	N/A
STEPLIB_NAME	Defined in each JCL
JAVAHOME	++JAVA++
CLASSPATH	Default value in profile
PATH	Default value in profile
LIBPATH	Default value in profile
LILPATH	Default value in profile
DISTHUB_PATH	Default value in profile
LANG	++LOCALE++
LC_ALL	++LOCALE++
TZ	++TIMEZONE++
NLSPATH	Default value in profile
CONSOLE_NLSPATH	Default value in profile
MC_MESSAGES	Default value in profile
DB2_CONVERSION	++DB2CONVERSION++

Version 2.1 and Version 5.0 mqsicompcif customization variables	Version 6.0 BIPEDIT customization variables
USE_ARM	Default value in profile
ARM_ELEMENTNAME	Default value in profile
ARM_ELEMENTTYPE	Default value in profile
_CEE_RUNOPTS	N/A
NNSY_ROOT	Default value in profile
NNSY_CATALOGUES	Default value in profile
NN_CONFIG_FILE_PATH	NN_CONFIG_FILE_PATH in BIPBRPOF
//BIPXXXXX JOB 5655-G97, // MSGLEVEL=(1,1), // MSGCLASS=A, // NOTIFY=&SYSUID	Defined in each JCL
mqsicreate(broker/username) server command	++INSTALL++
mqsicreate(broker/username) server command	++COMPONENTDIRECTORY++
mqsicreate(broker/username) server command	++COMPONENTNAME++
N/A	++HOME++
N/A	++OPTIONS++
STEPLIB	++WMQHLQ++
mqsicreate(broker/username) server command	++QUEUEMANAGER++
N/A	++COMPONENTPROFILE++
N/A	++XMLTOOLKIT++
STEPLIB	++DB2HLQ++
STEPLIB	++DB2RUNLIB++
N/A	++MQPATH++

---

## Migration glossary

This glossary lists differences in terminology between WebSphere Event Broker Version 6.0 and previous versions of the product.

For a full list of terms and abbreviations used by the product documentation, and for definitions that are more complete, see the Glossary of terms and abbreviations.

### A

#### assigned message flow

In Version 2.1, a message flow that is assigned to an execution group. In Version 6.0, when you add a message flow to a broker archive (bar) file and deploy the bar file to an execution group, the message flow is assigned implicitly to the execution group.

**assigned message flow properties**

In Version 2.1, the properties of an assigned message flow. In Version 6.0, you specify the equivalent properties in the deployment descriptor of a broker archive (bar) file.

**Assignments view**

In Version 2.1, the user interface in the Control Center that is used to assign message flows to an execution group. In Version 6.0, the equivalent function is provided by the Broker Administration perspective of the workbench. When you add message flows to a broker archive (bar) file and deploy the bar file to an execution group, the message flows are assigned implicitly to the execution group.

**B****Broker Administration perspective**

In Version 6.0, a broker administration console that communicates with one or more Configuration Managers. Administrators work in this perspective to manage the resources (also referred to as domain objects) in the broker domain that are defined on one or more Configuration Managers. In Version 2.1, the equivalent function is provided by the Assignments view.

**built-in node**

In Version 6.0, a message processing node that is supplied by the product. In Version 2.1, this is referred to as an IBM Primitive node.

**C****check in**

In Version 2.1, a Control Center action that stores a new or updated resource in the Configuration Manager. In Version 6.0, the equivalent check-in function might be provided by an external repository that is associated with the workbench.

**check out**

In Version 2.1, a Control Center action that extracts a resource from the Configuration Manager and locks it for local modification by a user. In Version 6.0, the equivalent check-out function might be provided by an external repository that is associated with the workbench.

**Configuration Manager**

In Version 6.0, the Configuration Manager does not store message flow definitions. Instead, these definitions are stored in the local file system or in an external repository that is associated with the workbench. In addition in Version 6.0 the Configuration Manager no longer uses an external database to store the domain configuration, but uses an internal repository instead.

**connection**

In Version 6.0, this represents the flow of control and data between two message processing nodes. In Version 2.1, this is referred to as a connector.

**connector**

In Version 2.1, this represents the flow of control and data between two message processing nodes. In Version 6.0, this is referred to as a connection.

**Control Center**

In Version 2.1, the graphical user interface that provides the function to define, configure, deploy, and monitor resources. In Version 6.0, this



function is provided, with enhancements, by the Message Brokers Toolkit, which is also known as the workbench.

## I

### **IBM Primitive node**

In Version 2.1, a message processing node that is supplied by the product. In Version 6.0, this is referred to as a built-in node.

### **Input Terminal node**

In Version 2.1, an IBM Primitive node through which a message is received by a subflow. In Version 6.0, this function is provided by the Input node.

## M

### **Message Brokers Toolkit**

In Version 6.0, the development and operational management environment for a broker domain. It is also referred to as the workbench. In Version 2.1, the Control Center provides this function.

## O

### **Operations view**

In Version 2.1, the Control Center view that is used to manage and monitor the brokers in a broker domain. In Version 6.0, the equivalent function is provided by the Domains and Alerts views in the Broker Administration perspective of the workbench.

### **Output Terminal node**

In Version 2.1, an IBM Primitive node through which a message is propagated by a subflow. In Version 6.0, this function is provided by the Output node.

## S

### **shared data**

In Version 2.1, configuration repository and message repository data that is shared by Control Center users. In Version 6.0, the equivalent functionality might be provided by an external repository that is associated with the workbench.

## T

### **traffic light status icon**

In Version 2.1, an icon next to a message flow, execution group, or broker in the Domain Topology pane of the Operations view in the Control Center. A green traffic light indicates that the resource is running, and a red traffic light indicates that it is not running. In Version 6.0, an alert appears in the Alerts view in the Broker Administration perspective of the workbench only when the resource is not running.

## U

### **unlock**

In Version 2.1, the action to end the checked-out state of a resource in such a way that any changes made to the resource since it was checked out are not stored in the Configuration Manager. In Version 6.0, the equivalent function might be provided by an external repository that is associated with the workbench.

## V

**view** In Version 2.1, a user interface in the Control Center that enables a user to perform a specified task. There are eight views: Message Sets, Message Flows, Topology, Assignments, Topics, Operations, Subscriptions, and Log. In Version 6.0, a view is a component of a perspective in the workbench. To perform a specified task, the user selects the appropriate perspective and then uses a combination of one or more views and an editor.

## W

### **workbench**

See Message Brokers Toolkit.

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## Part 3. Appendixes



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## Appendix. Notices

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Printed in USA