

IBM WebSphere Business Integration



Installation Guide for WebSphere Business Integration Adapters

Version 24.0

IBM WebSphere Business Integration



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Version 24.0

Note!

Before using this information and the product it supports, read the information in "Notices" on page 43.

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This edition of this document applies to IBM WebSphere InterChange Server, version 4.2.2, IBM WebSphere Business Integration Adapter Framework, version 2.4, and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this document

The IBM^(R) WebSphere^(R) Business Integration Adapter portfolio supplies integration connectivity for leading e-business technologies and enterprise applications. The system includes tools and templates for customizing, creating, and managing components for business process integration.

This document describes how to install the IBM WebSphere Business Integration Adapters in Windows, Solaris, AIX, and HP-UX environments.

Note: Although you may be installing the adapters on a UNIX computer, you must have one Windows computer to run the tools.

Audience

This document is for consultants, developers, and system administrators who plan, install, deploy, and administer WebSphere Business Integration Adapters.

Related documents

You can install the documentation or read it directly only at the following sites:

- For general adapter information; for using adapters with WebSphere message brokers (WebSphere MQ Integrator, WebSphere MQ Integrator Broker, WebSphere Business Integration Message Broker); and for using adapters with WebSphere Application Server:

<http://www.ibm.com/software/websphere/integration/wbiadapters/infocenter>

- For using adapters with WebSphere InterChange Server:

<http://www.ibm.com/websphere/integration/wicserver/infocenter>

These sites contain simple directions for downloading, installing, and viewing the documentation.

Typographic conventions

This document uses the following conventions:

Note: In this document backslashes (\) are used as the convention for directory paths. For UNIX installations, substitute slashes (/) for backslashes. All file pathnames are relative to the directory where the product is installed on your system.

<i>courier font</i>	Indicates a literal value, such as a command name, file name, information that you type, or information that the system prints on the screen.
<i>italic, italic</i>	Indicates a new term the first time that it appears, a variable name, or a cross-reference.
<i>blue text</i>	A blue outline, which is visible only when you view the manual online, indicates a cross-reference hyperlink. Click inside the outline to jump to the object of the reference.
{ }	In a syntax line, curly braces surround a set of options from which you must choose one and only one.

	In a syntax line, a pipe separates a set of options from which you must choose one and only one.
[]	In a syntax line, square brackets surround an optional parameter.
...	In a syntax line, ellipses indicate a repetition of the previous parameter. For example, <code>option[,...]</code> means that you can enter multiple, comma-separated options.
< >	Angle brackets surround individual elements of a name to distinguish them from each other, as in <code><server_name><connector_name>tmp.log</code> .
/, \	In this document, backslashes (\) are used as the convention for directory paths. For UNIX installations, substitute slashes (/) for backslashes. All product pathnames are relative to the directory where the connector for Ariba Buyer is installed on your system.
%text% and \$text	Text within percent (%) signs indicates the value of the Windows text system variable or user variable. The equivalent notation in a UNIX environment is <code>\$text</code> , indicating the value of the <code>text</code> UNIX environment variable.
<i>ProductDir</i>	Represents the directory where the product is installed.

New in this release

New in release 2.4

The following changes have been made for this release:

- Each WebSphere Business Integration Adapters product now has its own installer. For information on using each installer, see Chapter 3, “Installing WebSphere Business Integration Adapters products,” on page 13.
- This guide now features Chapter 1, “Installation process overview,” on page 1, which provides procedural direction for preparing different types of WebSphere Business Integration Adapters environments.
- This guide now features Chapter 2, “Installation requirements,” on page 7, which describes hardware and software prerequisites.
- This guide now features Chapter 5, “Distributing connector agents across networks,” on page 35, which provides information on how to enable adapters for remote communication by using WebSphere MQ Internet pass-thru.
- The uninstallation process for WebSphere Business Integration Adapters has changed. For information on how to uninstall WebSphere Business Integration Adapters, see Chapter 4, “Uninstalling WebSphere Business Integration Adapters products,” on page 33.
- The IBM Java Development Kit is now delivered with the Adapter Framework for the Windows platform. For information on how to install the IBM JDK, see “Installing the IBM Java Development Kit on Windows” on page 10.
- The VisiBroker Object Request Broker has been replaced by the IBM Java Object Request Broker.
- The adapter scripts have been modified for this release. For information on changes you might have to make to existing scripts, see the release notes.

New in release 2.3.1

This book is new as of WBIA version 2.3.1.

Chapter 1. Installation process overview

This chapter presents a description of the different kinds of WebSphere Business Integration Adapters environments you might have to prepare and the workflow you have to follow in order to do so.

Figure 1 illustrates the types of WebSphere Business Integration Adapters environments.

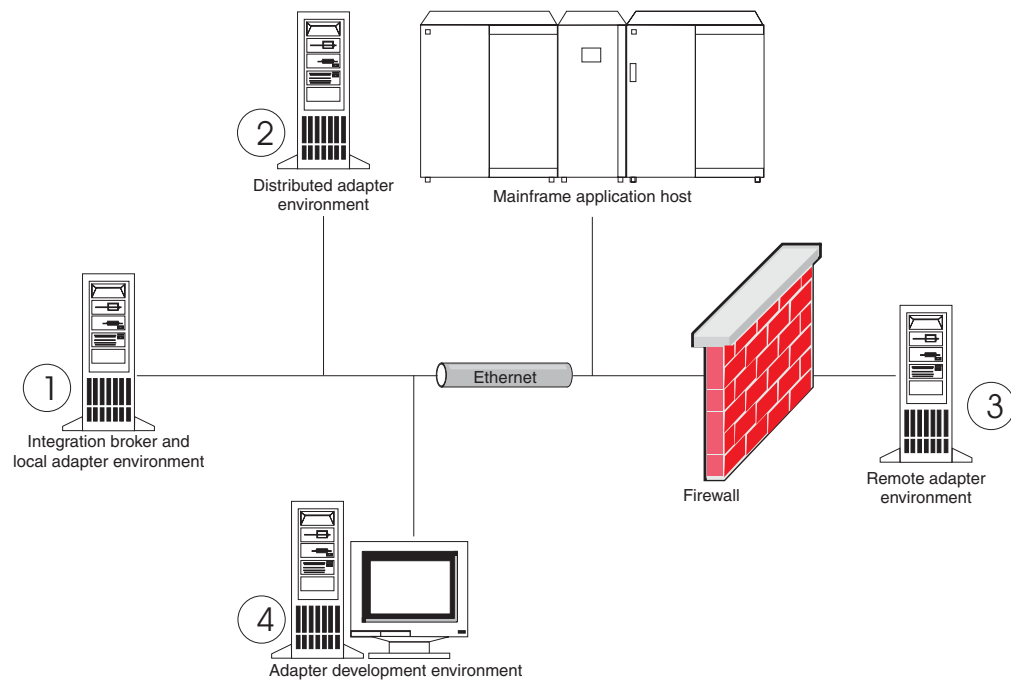


Figure 1. WebSphere Business Integration Adapter environments

Local adapter environments

Typically you install an adapter on the same computer where the integration broker is installed and runs. This type of environment is easiest to maintain and manage, particularly when you are developing and testing interfaces, because all the components in the business integration system are installed on a single computer. Environment 1 in Figure 1 illustrates this type of environment.

Do the following to prepare a local adapter environment:

1. Obtain computers that satisfy the hardware requirements for each of the required environments.
For more information about hardware requirements, see “Hardware requirements” on page 7.
2. If your integration broker is WebSphere MQ Integration Broker or WebSphere Application Server, install the WebSphere MQ client as described in the WebSphere MQ documentation. The supported version of the WebSphere MQ client is listed in Table 5 on page 8.
3. Do one of the following depending on which integration broker you are implementing:

- If your integration broker is InterChange Server, then install InterChange Server and all its prerequisite software as described in the *System Installation Guide for Windows or Unix*.
- If your integration broker is one of the supported message brokers or WebSphere Application Server, install the Adapter Framework as described in “Installing the Adapter Framework” on page 16.

Note: If your integration broker is WebSphere InterChange Server and you are installing WebSphere Business Integration Adapters on the same computer on which InterChange Server is installed, then do not install the Adapter Framework. The Adapter Framework is installed with WebSphere InterChange Server.

4. Read the chapter named “Installing and configuring the connector” in the guide for each adapter you plan to install in the environment and determine any data handler requirements for the environment.
5. Install each data handler required for the environment as described in “Installing data handlers” on page 19.
6. Install each adapter required for the environment as described in “Installing adapters” on page 22.
7. Perform any adapter-specific installation steps, such as installing the application client on the adapter host computer, as described in the guide for each adapter required in the environment.

Distributed adapter environments

Although it is frequently possible to install adapters on the same computer that hosts the integration broker, it is sometimes necessary to distribute the adapters. This means installing the adapters on a different computer than the computer on which the broker is installed.

There are several reasons you might have to distribute connectors agents, including the following:

- You might improve the performance of the business integration system by relieving the computer that hosts the broker of the load imposed by adapters.
- You might improve the performance of an adapter by installing it on a computer close in proximity on the network to the computer that hosts the application.
- You might not always be able to obtain a version of the adapter on the operating system of the computer that hosts the broker.

Environment 2 in Figure 1 on page 1 illustrates this type of environment, where the adapter is distributed to communicate with a mainframe application.

Do the following to prepare a distributed adapter environment within the enterprise network:

1. Obtain computers that satisfy the hardware requirements for each of the required environments.
For more information about hardware requirements, see “Hardware requirements” on page 7.
2. Install the WebSphere MQ client as described in the WebSphere MQ documentation. Be sure to install the Java Messaging feature. The supported version of the WebSphere MQ client is listed in Table 5 on page 8.
3. Do the following depending on your integration broker:

- If your integration broker is WebSphere Application Server or one of the supported messaging brokers, do the following:
 - a. Install the Adapter Framework as described in “Installing the Adapter Framework” on page 16.
 - b. Read the chapter named “Installing and configuring the connector” in the guide for each adapter you plan to install in the environment and determine any data handler requirements for the environment.
 - c. Install each data handler required for the environment as described in “Installing data handlers” on page 19.
 - d. Install each adapter required for the environment as described in “Installing adapters” on page 22.
- If your integration broker is WebSphere InterChange Server, do the following:
 - a. Run the installer for WebSphere InterChange Server on the distributed computer to install the proper version of the Adapter Framework on it. When the InterChange Server Configuration Wizard is presented, specify the same configuration values as those specified when installing InterChange Server on the broker host computer. For more information on installing WebSphere InterChange Server, see *System Installation Guide for Windows or Unix*.

Note: You should not start this instance of InterChange Server. You are only installing it to install a compatible version of the Adapter Framework on the adapter host computer.

 - b. Apply any patches that have been applied to the InterChange Server host computer to the distributed computer so that the broker and adapter environments are running at the same patch level.
 - c. Install the adapter as described in “Installing adapters” on page 22 on the distributed computer. At the IBM WebSphere InterChange Server screen, specify the name of the InterChange Server instance on the broker host computer, rather than the name of the InterChange Server instance you installed on the adapter host computer (which you had to install to install the Adapter Framework on the computer).
 - d. Import the connector definition created in the repository directory into your development environment as described in the *Implementation Guide for WebSphere InterChange Server*.
 - e. Configure the connector as described in the guide for the adapter.
 - f. Deploy the connector to the InterChange Server repository as described in the *Implementation Guide for WebSphere InterChange Server*.
- 4. Do the following to configure the environment to communicate with the broker:
 - a. Open the shared environment file located in the *ProductDir*\bin directory in a text editor.

On Windows computers, the shared environment file is named `CWSharedEnv.bat`.

On UNIX computers, the shared environment file is named `adapterEnv.sh` or `CWSharedEnv.sh`, depending on the broker you are using and the version of its release.

- b. Set the value of the ORB_PORT property to the port over which the Object Request Broker installed on the broker computer is configured to communicate.
 - c. Set the value of the ORB_HOST property to the IP address of the computer on which the broker is installed.
5. Perform any adapter-specific installation steps, such as installing the application client on the adapter host computer, as described in the guide for each adapter required in the environment.

Remote adapter environments

You must prepare a remote adapter environment to enable an adapter to exchange data with the integration broker across the boundaries of the network. This is common when a company must exchange business data with trading partners.

Environment 3 in Figure 1 on page 1 illustrates this type of environment, where the adapter is enabled to communicate with the broker over the internet.

Do the following to prepare a remote adapter environment:

1. Obtain computers that satisfy the hardware requirements for each of the required environments.
For more information about hardware requirements, see “Hardware requirements” on page 7.
2. Install the WebSphere MQ client as described in the WebSphere MQ documentation. Be sure to install the Java Messaging feature. The supported version of the WebSphere MQ client is listed in Table 5 on page 8.
3. Install and configure WebSphere MQ Internet pass-thru as described in Chapter 5, “Distributing connector agents across networks,” on page 35.
4. Do the following depending on your integration broker:
 - If your integration broker is WebSphere Application Server or one of the supported messaging brokers, do the following:
 - a. Install the Adapter Framework as described in “Installing the Adapter Framework” on page 16.
 - b. Read the chapter named “Installing and configuring the connector” in the guide for each adapter you plan to install in the environment and determine any data handler requirements for the environment.
 - c. Install each data handler required for the environment as described in “Installing data handlers” on page 19.
 - d. Install each adapter required for the environment as described in “Installing adapters” on page 22.
 - If your integration broker is WebSphere InterChange Server, do the following:
 - a. Run the installer for WebSphere InterChange Server on the distributed computer to install the proper version of the Adapter Framework on it. When the InterChange Server Configuration Wizard is presented, specify the same configuration values as those specified when installing InterChange Server on the broker host computer.
For more information on installing WebSphere InterChange Server, see *System Installation Guide for Windows or Unix*.

Note: You should not start this instance of InterChange Server. You are only installing it to install a compatible version of the Adapter Framework on the adapter host computer.

- b. Apply any patches that have been applied to the InterChange Server host computer to the distributed computer so that the broker and adapter environments are running at the same patch level.
 - c. Install the adapter as described in “Installing adapters” on page 22 on the distributed computer.

At the IBM WebSphere InterChange Server screen, specify the name of the InterChange Server instance on the broker host computer, rather than the name of the InterChange Server instance you installed on the adapter host computer (which you had to install to install the Adapter Framework on the computer).
 - d. Import the connector definition created in the repository directory into your development environment as described in the *Implementation Guide for WebSphere InterChange Server*.
 - e. Configure the connector as described in the guide for the adapter.
 - f. Deploy the connector to the InterChange Server repository as described in the *Implementation Guide for WebSphere InterChange Server*.
5. Perform any adapter-specific installation steps, such as installing the application client on the adapter host computer, as described in the guide for each adapter required in the environment.

Adapter development environments

You must prepare an adapter development environment in order to create custom adapters. Although you can develop adapters in an environment in which the broker is installed and adapters are running, you can also use an environment that is dedicated exclusively to adapter development.

Environment 4 in Figure 1 on page 1 illustrates this type of environment.

Do the following to prepare an adapter development environment:

1. Obtain computers that satisfy the hardware requirements for each of the required environments.

For more information about hardware requirements, see “Hardware requirements” on page 7.
2. Install the Adapter Framework as described in “Installing the Adapter Framework” on page 16.
3. Install each data handler that will be required for the adapters you are developing as described in “Installing data handlers” on page 19.
4. Install the Adapter Development Kit as described in “Installing the Adapter Development Kit” on page 25.
5. Install a compiler appropriate for the language in which you will be developing the adapter:
 - If you will be developing the adapter in C or C++, install a C or C++ compiler.
 - If you will be developing the adapter in Java, install the IBM Java Development Kit:
 - It is assumed that if your operating system is AIX then you already have the supported version of the IBM JDK installed.

- For information on installing the IBM Java Development Kit on Windows, see “Installing the IBM Java Development Kit on Windows” on page 10.
- For information on installing the Sun Java Development Kit, see the Sun JDK documentation.
- For information on installing the HP Java Development Kit, see the HP JDK documentation.

Chapter 2. Installation requirements

This chapter contains the following sections:

- “Hardware requirements”
- “Software requirements” on page 8

Before you install the IBM WebSphere Business Integration Adapters software, ensure that you have all the necessary prerequisites. The topics in this chapter give you a brief overview of the system hardware and software requirements, the prerequisite software, and the user accounts required to run WebSphere Business Integration Adapters.

Hardware requirements

Table 1 lists the minimum hardware requirements. The actual requirements for your system may be greater, however, depending on the particular WebSphere Business Integration Adapter products you install and your integration requirements. Also, the following information is for the WebSphere Business Integration Adapter products only. If you run other products, such as the integration brokers or application clients on the same computer as the WebSphere Business Integration Adapter products, then you must adjust the requirements accordingly.

Table 1. AIX hardware requirements

Component	Minimum Required
Processor	IBM eServer xSeries and Intel-based system (or equivalent) running at a minimum processor speed of 1 GHz
Memory	512 MB
Disk space	435 MB

Table 2. Windows hardware requirements

Component	Minimum Required
Processor	IBM eServer pSeries or RS/6000 system with either a uniprocessor or symmetric multiprocessor running at a minimum processor speed of 375 MHz
Memory	512 MB
Disk space	435 MB

Table 3. Solaris hardware requirements

Component	Minimum Required
Processor	Sun Microsystems UltraSPARC processor system running at a minimum processor speed of 450 MHz
Memory	512 MB
Disk space	435 MB

Table 4. HP-UX hardware requirements

Component	Minimum Required
Processor	Hewlett-Packard HP-9000 PA-RISC processor system running at a minimum processor speed of 440 MHz
Memory	512 MB
Disk space	435 MB

Software requirements

The WebSphere Business Integration Adapters product set consists of IBM components and third-party components. Other third-party software, such as Java Development Kits for Sun Solaris and HP-UX, are not provided by IBM.

Table 5 lists the software requirements for the WebSphere Business Integration Adapters products.

Table 5. Software requirements for Windows

Software	Version and patch	Comments
Operating system (one of the following)		
One of the following: <ul style="list-style-type: none"> • Windows 2000, Professional, Server, and Advanced Server • Windows XP • AIX 5.1 • AIX 5.2 • Sun Solaris 7 • Sun Solaris 8 • HP-UX 11.11 (11i) 	<ul style="list-style-type: none"> • Service Pack 4 • Service Pack 1A • Maintenance level 4 • Maintenance level 1 • Solaris 7 recommended patch cluster date 23 July 2003 • Solaris 8 recommended patch cluster date 23 July 2003 • GOLDAPPS 11i, r=B.11.11.0306.4 and GOLDBASE 11i, r=B.11.11.03.06.4 	<ul style="list-style-type: none"> • Supported only for WebSphere Business Integration Adapters toolset. Not supported for the running of adapters.
Integration broker		
One of the following: <ul style="list-style-type: none"> • WebSphere Application Server, Enterprise Edition • IBM WebSphere MQ Integrator Broker • WebSphere Business Integration Message Broker 	<ul style="list-style-type: none"> • 5.0.2 • 2.1 CSD05 • 5.0 CSD02 	

Table 5. Software requirements for Windows (continued)

Software	Version and patch	Comments
<ul style="list-style-type: none"> WebSphere InterChange Server 	<ul style="list-style-type: none"> 4.1.1, 4.2.0, 4.2.1, 4.2.2 <p>Note: Some adapters are not compatible with all listed versions of InterChange Server. For more information, see your adapter guide.</p>	
Other required software (based on needed function)		
IBM WebSphere MQ Server and Client	Version 5.3.0.2 with CSD05 Important: If you do not apply CSD 05, the connectors will not be able to initialize.	Required for event persistence during communication between connectors and broker.
IBM WebSphere MQ Internet pass-thru (IPT)	Version 1.2	Option for use with Remote Agent.
Java Development Kit		
One of the following, depending on operating system:		
<ul style="list-style-type: none"> IBM JDK (for Windows and AIX computers) Sun JDK (for Solaris computers) HP JDK (for HP-UX computers) 	<ul style="list-style-type: none"> 1.3.1 SR5 1.3.1_07 1.3.1_06 	
One of the following browsers:		Required to view documents.
<ul style="list-style-type: none"> Microsoft Internet Explorer Netscape Navigator 	<ul style="list-style-type: none"> N/A Version 4.x 	
Adobe Acrobat Reader 4.0 or later. IBM recommends using version 4.0.5 or later of Acrobat Reader, with Search option, so that you can take advantage of the PDF Search feature. Go to http://www.adobe.com for the latest version of Adobe Acrobat Reader for your platform.		
Tool framework		
One of the following:		
<ul style="list-style-type: none"> WebSphere Studio Workbench WebSphere Studio Application Developer Integration Edition 	<ul style="list-style-type: none"> 2.0.3 5.0.1 	

Installing and configuring other software

This section contains information about installing and configuring software that is not delivered with WebSphere Business Integration Adapters and does not necessarily have its own documentation. You will be directed to perform these tasks by other sections of this guide when necessary.

Configuring your environment for X emulation

If you are installing on a UNIX computer, but are using a Windows computer to connect to the UNIX computer then do the following to configure the environment for X emulation:

1. Determine the IP address of the Windows computer that you are using to connect to the UNIX computer.
You can execute the `ipconfig` command at the Windows command line interface to display the IP address of the Windows computer.
2. Set the `DISPLAY` environment variable on the UNIX computer to the IP address determined in step 1.
You must be sure to follow the IP address with a colon and the identifier for the monitor or display on the Windows client computer. If the Windows client computer only has a single monitor then the display value is `0.0`.
The following example shows the `DISPLAY` environment variable being set to the single monitor on a Windows computer whose IP address is `9.26.244.30`:
`DISPLAY=9.26.244.30:0.0`
3. Export the `DISPLAY` environment variable on the UNIX computer by executing the following command:
`export DISPLAY`
4. Start the X emulation client on the Windows computer and connect to the UNIX computer.

Installing the IBM Java Development Kit on Windows

Do the following to install the IBM Java Development Kit on Windows:

1. Copy the files named `ibm-sdk-in131.exe` and `ibm-sdk-tn131.exe` from the `IBM_JDK_WIN32` directory of the Adapter Framework installation media to a temporary directory on your system.
2. Double-click the files named `ibm-sdk-in131.exe` and `ibm-sdk-tn131.exe` in the temporary directory to extract their contents.
3. Double-click the file named `install.exe`, which was created when the contents of the compressed files were extracted in step 2.
4. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
5. At the Welcome screen click **Next**.
6. At the Software License Acceptance screen click **Yes**.
7. At the Choose Destination Location screen, either accept the default path or perform one of the following tasks, then click **Next** when done:
 - Click **Browse** and select a directory to install the JDK to, then click **OK**
 - Click **Browse**, type the directory into which you want to install the JDK to in the **Path** field, then click **OK**
8. At the Select Components screen, leave all the checkboxes for the components enabled and click **Next**.
9. When prompted to install the Java Runtime Environment as the System JVM click **No**.
10. At the Start Copying Files screen click **Next**.
11. At the Setup Complete screen click **Finish**.

Data handler requirements

Table 6 lists the data handler requirements for each adapter if it has any.

Table 6. Data handler requirements for adapters

IBM WebSphere Business Integration Adapter for...	Data handlers required
ACORD XML	XML

Table 6. Data handler requirements for adapters (continued)

IBM WebSphere Business Integration Adapter for...	Data handlers required
SAP Exchange Infrastructure	XML
eMail	XML
HTTP	XML
i2	XML
NightFire Applications	XML
Siebel eBusiness Applications	XML
Telcordia	XML
WebSphere Commerce	XML
WebSphere MQ Integrator Broker	XML
WebSphere MQ Workflow	XML
XML	XML
QAD MFG/PRO	XML

Chapter 3. Installing WebSphere Business Integration Adapters products

This chapter describes how to install WebSphere Business Integration Adapters.

If you are upgrading WBIA from a previous version, be sure to back up your integration broker system first, as described in the installation or implementation guides for your broker.

This chapter includes the following sections:

- “Preparing the installation media”
- “General procedures for using installation media” on page 14
- “Installing the Adapter Framework” on page 16
- “Installing data handlers” on page 19
- “Installing adapters” on page 22
- “Installing the Adapter Development Kit” on page 25
- “WBIA directories, files, and environment variables” on page 29

Preparing the installation media

Perform the steps in one of the following sections depending on your installation media:

- “Preparing a product CD”
- “Using Passport Advantage” on page 14

Preparing a product CD

If your WebSphere Business Integration Adapters product is on a CD, do the following to prepare the computer for installation depending on your operating system:

- On AIX:

Insert the product CD into the CD drive of the AIX computer and execute the following command to mount the CD:

```
mount -V cdrfs -o ro /dev/cd0 /cdrom
```

- On Windows:

Insert your product CD into the CD drive of the Windows computer.

- On Solaris:

Insert the product CD into the CD drive of the Solaris computer and execute the following command to mount the CD:

```
mount -r -F hsfs /dev/sr0 /cdrom
```

- On HP-UX:

Insert the product CD into the CD drive of the HP-UX computer and execute the following command to mount the CD:

1. Execute the following commands to start the PFS mounting daemon:

```
/usr/sbin/pfs_mountd &  
/usr/sbin/pfsd &
```

2. Add a line such as the following to the `etc/pfs_fstab` file:

```
/dev/dsk/cdrom_device /mount_point pfs-iso9660 xlat=unix 0 0
```

where *cdrom_device* is the identifier for the CD-ROM disk device (such as *c3t2d0*) and */mount_point* is the desired mount point through which you want to access the CD (such as */cdrom*).

3. Execute the following command to mount the CD:

```
mount /mount_point
```

where */mount_point* is the mount point you specified in step 2 on page 13.

Using Passport Advantage

If you obtain your WebSphere Business Integration Adapters product from Passport Advantage, do the following to prepare the installation media:

- On Windows, download the self-extracting executable from Passport Advantage and then double-click it to extract the installation files.
- On UNIX, download the compressed .tar file from Passport Advantage and then inflate it to extract the installation files.

General procedures for using installation media

This section describes general procedures for using the installation media. Other sections in this guide refer to the content in this section.

Invoking the graphical WBIA installer

The graphical WebSphere Business Integration Adapters Installer presents you with a wizard that allows you to make choices about the installation of WebSphere Business Integration Adapters. You invoke Installer by running platform-specific executables for the different product installers. The product installers are identical whether you obtain them from a CD or from Passport Advantage. This section describes how to invoke Installer for any of the WebSphere Business Integration Adapters products on both Windows and UNIX computers.

Invoking Installer in a Windows environment

To invoke Installer in a Windows environment, navigate to the Windows directory of the installation media and execute `setupwin32.exe`.

Invoking Installer in a UNIX environment

The WBIA installer in a UNIX environment is invoked through a .bin file specific to the platform, located in the UNIX directory of the installation media.

Make sure you are logged in as the WebSphere business integration system administrator before you install WebSphere Business Integration Adapters. When you install on a UNIX computer, the permissions of the folders and files that are created are set based on the permissions of the user account that performs the installation. Furthermore, make sure that you do not install WebSphere Business Integration Adapters as root on an AIX computer. The entry that is added to the Object Data Manager (ODM) when installing as root prevents you from using SMIT to uninstall other applications, so you should not install WBIA as root.

Follow the steps in one of the following sections to invoke the installer depending on how you are working with the UNIX computer:

- “If you are running CDE on the UNIX computer” on page 15
- “If you are connecting to the UNIX computer through X emulation software” on page 15

If you are running CDE on the UNIX computer: If you are running the Common Desktop Environment (CDE) and working on the UNIX computer directly then you can navigate to the UNIX directory of the installation media and double-click the .bin file specific to the operating system.

You can also navigate to the UNIX directory of the installation media and execute the .bin file at the command line. The following example shows how to do so on an AIX computer:

```
# ./setupAIX.bin
```

If you are connecting to the UNIX computer through X emulation software: If you are using a Windows computer to connect to the UNIX computer through X emulation software do the following to invoke the installer:

1. Follow the steps in “Configuring your environment for X emulation” on page 9.
2. Execute the .bin file specific to the operating system. The following example shows how to do so on an AIX computer:

```
# ./setupAIX.bin
```

The graphical installer starts on the Windows computer that you are using to connect to the UNIX computer.

Note: Accessibility hotkeys do not function when you are working on a UNIX computer through emulation software. To use accessibility hotkeys, you must work directly on the UNIX computer.

Performing a silent installation

You can perform a silent installation of WebSphere Business Integration Adapters, where you provide your installation choices in a file rather than at the screens of the installation wizard. This is particularly helpful when you have to perform multiple installations that are identical.

To perform a silent installation, you create a file with your installation choices as described in “Preparing the installation response file” and then perform the installation using the file as described in “Executing the silent installation” on page 16. The following sections about installing the different types of WebSphere Business Integration Adapters products address the installation options that are specific to each product type:

- “Installing the Adapter Framework silently” on page 17
- “Installing data handlers silently” on page 20
- “Installing adapters silently” on page 23
- “Installing the Adapter Development Kit silently” on page 26

Preparing the installation response file

When performing a silent installation, you prepare a response file that contains your installation choices. IBM provides response file templates that contain the options for each WebSphere Business Integration Adapters product. The response file templates are named settings.txt and are provided with the other installation files.

The following tables list the options that are available for each type of WebSphere Business Integration Adapters products:

- Table 8 on page 18

- Table 9 on page 21
- Table 10 on page 24
- Table 11 on page 27

Be sure to read all the information in the **Option values** column, as it specifies when particular options should be commented out and what the broker and platform compatibilities are.

You can modify one of the response file templates and use it for the silent installation. In this case you should be sure that any options that are incompatible with others you require are commented out by placing a hash symbol # in front of them. Alternatively, you can create a new response file with the options you require. This approach has the benefit that no unnecessary options or commented description blocks are present to clutter the response file, making it easier to read and edit. If you take this latter approach, it is recommended that you copy a template file and remove the sections and options that are not necessary, rather than typing the necessary options into a new file.

Note: There should not be any spaces in front of any of the options in the response file.

Executing the silent installation

To execute the silent installation, you run the platform-specific installer executable at the command line with several options, including the name of the response file you prepared.

The following example shows how to do so on a Windows computer where the response file exists in the C:\data directory:

```
D:\WebSphereBI>setupwin32.exe -silent -options C:\data\settings.txt
```

The following example shows how to do so on an AIX computer where a custom response file named install.txt has been created in the /home/wbia directory:

```
# ./setupAIX.bin -silent -options /home/wbia/install.txt
```

Installing the Adapter Framework

Follow the instructions in one of the following sections to install the Adapter Framework if indicated by the procedural overview in Chapter 1, “Installation process overview,” on page 1:

- “Installing the Adapter Framework using the graphical installer”
- “Installing the Adapter Framework silently” on page 17

Installing the Adapter Framework using the graphical installer

Do the following to install the Adapter Framework:

Note: If you are installing WebSphere Business Integration Adapters on the same computer on which InterChange Server is installed, you must not install the Adapter Framework.

1. Invoke Installer as described in “Invoking the graphical WBIA installer” on page 14 for the Adapter Framework.
2. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
3. At the Welcome screen click **Next**.

4. At the IBM license acceptance screen, click **I accept the terms in the license agreement** and then click **OK**.
5. At the product directory screen, perform one of the following tasks:
 - Type the full path of the directory into which you want to install the Adapter Framework in the **Directory Name** field and click **Next**
 - Click **Browse** to select a directory and click **Next**
 - Accept the default path and click **Next**

Table 7 lists the default product directories for WebSphere Business Integration Adapters on the supported operating systems:

Table 7. Default product directories for WebSphere Business Integration Adapters

Operating system	Default product directory
Windows	C:\IBM\WebSphereAdapters
UNIX (AIX, Solaris, HP-UX)	/opt/IBM/WebSphereAdapters

Important: You must specify a product directory path and name that does not contain spaces.

6. The summary screen lists the features that will be installed, the specified product directory, and the amount of disk space required. Read the information to verify it and then click **Next**.
7. At the WebSphere MQ Java library screen, either type the directory path to the `java\lib` directory of the WebSphere MQ installation or click **Browse** to select the directory, then click **Next**.
8. If you are installing on Windows and installer detects that you have a supported version of WebSphere Studio Application Developer Integration Edition or WebSphere Studio Workbench installed then it presents a screen where you must do one of the following:
 - Leave the **Add plug-ins to an existing workbench installation** radio button enabled if you want to install the tools plug-ins into the detected installation of WebSphere Studio Application Developer Integration Edition or WebSphere WorkBench, then click **Next**.
 - Enable the **Install WebSphere Studio Workbench and plug-ins** radio button to install WebSphere Studio Workbench and install the tools plug-ins into that installation, then click **Next**.
9. If you enabled the **Add plug-ins to an existing workbench installation** radio button at step 8 then you are presented with a screen where you must specify the path of the workbench installation into which you want the tools plug-ins installed.

Either type path to the installation directory of WSADIE or WSWB in the text field labeled **IBM WebSphere Studio Workbench directory** or click **Browse** to navigate to the directory, then click **Next**.
10. If you are installing on a Windows computer then Installer next presents the program folder selection screen. In the **Program Group** field, type the name of the program group in which shortcuts for the adapters should be created or accept the default program group and then click **Next**.
11. After Installer finishes successfully, click **Finish**.

Installing the Adapter Framework silently

Do the following to perform a silent installation of the Adapter Framework:

1. Prepare a response file to install the Adapter Framework as described in “Preparing the installation response file” on page 15, using the desired options listed in Table 8.

Table 8. Silent installation options for the Adapter Framework

Option name	Option values
-P installLocation	<p>Set this option to the path and name of the directory into which you want the product installed.</p> <p>If you leave this option commented, the product installs to the default directory listed in Table 7 on page 17.</p> <p>This value must not contain any spaces.</p>
-W mqDirectoryUserInput.mqLibraryLocation	<p>Set this option to the path of the java\lib directory within the WebSphere MQ installation on the computer when the operating system is Windows.</p> <p>Comment out this option if your broker is WebSphere InterChange Server and you are installing the Adapter Framework on the same computer where the broker is installed or if the operating system is not Windows.</p> <p>Comment out this option if you want to use the default values. On the Windows platform, installer searches the Windows registry by default and uses the value it finds there.</p>
-W mqUserInputAIX.mqLibraryLocation	<p>Set this option to the path of the java/lib directory within the WebSphere MQ installation on the computer when the operating system is AIX.</p> <p>Comment out this option if your broker is WebSphere InterChange Server and you are installing the Adapter Framework on the same computer where the broker is installed, or if the platform is not AIX.</p> <p>Comment out this option if you want to use the default values. On the AIX platform, installer uses the default value /usr/mqm/java/lib.</p>
-W mqUserInputSOL.mqLibraryLocation	<p>Set this option to the path of the java/lib directory within the WebSphere MQ installation on the computer when the operating system is Solaris or HP-UX.</p> <p>Comment out this option if your broker is WebSphere InterChange Server and you are installing the Adapter Framework on the same computer where the broker is installed, or if the platform is not Solaris or HP-UX.</p> <p>Comment out this option if you want to use the default values. On the Solaris and HP-UX platforms, installer uses the default value /opt/mqm/java/lib.</p>
-W workbenchChoice.workbenchList	<p>Set this option to 1 to add the tools plug-ins to an existing installation of WebSphere Studio Workbench or WebSphere Studio Application Developer Integration Edition.</p> <p>Set this option to 2 to install WebSphere Studio Workbench.</p> <p>This option is only relevant on the Windows platform. Comment out this option when installing on UNIX.</p>

Table 8. Silent installation options for the Adapter Framework (continued)

Option name	Option values
-W workbenchLocation.workbenchLocDirectory	<p>If you specified that WebSphere Studio Workbench be installed by setting the value of the workbenchChoice.workbenchList option to 2, then set this option to the directory in which the workbench should be installed, for example C:\WebSphereAdapters\Tools.</p> <p>This option is only relevant on the Windows platform. Comment out this option when installing on UNIX.</p>
-W inputShortcuts.folder	<p>Set this option to the name of the program group created for the WBIA product, for example IBM WebSphere Business Integration Adapters.</p> <p>This option is only relevant on the Windows platform. Comment out this option when installing on UNIX.</p>
-G replaceExistingResponse	<p>Set this option to yesToAll or yes to replace all files found on the system that have the same name as those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that have the same name as those being copied by the installer.</p>
-G replaceNewerResponses	<p>Set this option to yesToAll or yes to replace all files found on the system that are newer than those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that are newer than those being copied by the installer.</p>
-G createDirectoryResponse	<p>Set this option to yes to create the product directory specified by the option if it does not already exist.</p> <p>Set this option to no to not have the product directory created if it does not exist.</p> <p>You must set this option to yes if the specified directory does not exist for the installation to succeed.</p>
-G removeExistingResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>
-G removeModifiedResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>

2. Perform the silent installation as described in “Executing the silent installation” on page 16, using the response file prepared in step 1 on page 18.

Installing data handlers

Follow the instructions in one of the following sections to install a data handler if indicated by the procedural overview in Chapter 1, “Installation process overview,” on page 1:

- “Installing data handlers using the graphical installer” on page 20
- “Installing data handlers silently” on page 20

Installing data handlers using the graphical installer

Do the following to install a data handler using the graphical installer:

1. Invoke Installer as described in for your data handler.
2. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
3. At the Welcome screen click **Next**.
4. At the IBM license acceptance screen, click **I accept the terms in the license agreement** and then click **OK**.
5. The product directory screen allows you to specify where to install the data handlers. The product directory must contain an installation of a compatible version of the Adapter Framework. You may specify another directory, but it must contain an installation of a compatible version of the Adapter Framework.

On the Windows platform, the field defaults to the value contained in the CROSSWORLDS environment variable, which is set by either the WebSphere InterChange Server Installer or the WebSphere Business Integration Adapters Installer for Adapter Framework.

On the UNIX platform, the installer queries an entry in a file created by either the Adapter Framework installer or the WebSphere InterChange Server installer.

For information on installing the Adapter Framework, see “Installing the Adapter Framework” on page 16. For more information on installing WebSphere InterChange Server, see the *System Installation Guide for Windows or Unix*.

At the product directory screen, perform one of the following tasks:

- Type the full path of the directory into which you want to install the Adapter Framework in the **Directory Name** field and click **Next**
 - Click **Browse** to select a directory and click **Next**
 - Accept the default path and click **Next**
6. The summary screen lists the features that will be installed, the specified product directory, and the amount of disk space required. Read the information to verify it and then click **Next**.
 7. If you are installing on a Windows computer then Installer presents the program folder selection screen for some data handlers. In the **Program Group** field, type the name of the program group in which you want to create shortcuts for the adapters or accept the default program group and then click **Next**.
 8. After Installer finishes successfully, click **Finish**.

Installing data handlers silently

Do the following to perform a silent installation of a data handler:

1. Prepare a response file to install the data handler as described in “Preparing the installation response file” on page 15, using the desired options listed in Table 9 on page 21.

Table 9. Silent installation options for data handlers

Option name	Option values
<p>-W installLocation.active</p>	<p>You must set this option to the value true to be able to specify the installation location through the use of the installLocation.value option.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.
<p>-W installLocation.value</p>	<p>Set this option to the directory path in which the WebSphere Business Integration Adapters product is installed.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.

Table 9. Silent installation options for data handlers (continued)

Option name	Option values
-G replaceExistingResponse	Set this option to <code>yesToAll</code> or <code>yes</code> to replace all files found on the system that have the same name as those being copied by the installer. Set this option to <code>noToAll</code> or <code>no</code> to not replace any files found on the system that have the same name as those being copied by the installer.
-G replaceNewerResponses	Set this option to <code>yesToAll</code> or <code>yes</code> to replace all files found on the system that are newer than those being copied by the installer. Set this option to <code>noToAll</code> or <code>no</code> to not replace any files found on the system that are newer than those being copied by the installer.
-G createDirectoryResponse	Set this option to <code>yes</code> to create the product directory specified by the option if it does not already exist. Set this option to <code>no</code> to not have the product directory created if it does not exist. You must set this option to <code>yes</code> if the specified directory does not exist for the installation to succeed.
-G removeExistingResponse	This option is not relevant for any broker on any platform. Comment out this option.
-G removeModifiedResponse	This option is not relevant for any broker on any platform. Comment out this option.

2. Perform the silent installation as described in “Executing the silent installation” on page 16, using the response file prepared in step 1 on page 20.

Installing adapters

Follow the instructions in one of the following sections to install an adapter if indicated by the procedural overview in Chapter 1, “Installation process overview,” on page 1:

- “Installing adapters using the graphical installer”
- “Installing adapters silently” on page 23

Installing adapters using the graphical installer

Do the following to install an adapter using the graphical installer:

1. Invoke Installer as described in for your adapter.
2. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
3. At the Welcome screen click **Next**.
4. At the IBM license acceptance screen, click **I accept the terms in the license agreement** and then click **OK**.
5. The product directory screen allows you to specify where to install the adapters. The product directory must contain an installation of a compatible version of the Adapter Framework. The field defaults to the value contained in the `CROSSWORLDS` environment variable, which is set by either the WebSphere InterChange Server Installer or the WebSphere Business Integration Adapters

Installer for Adapter Framework. You may specify another directory, but it must contain an installation of a compatible version of the Adapter Framework. For information on installing the Adapter Framework, see “Installing the Adapter Framework” on page 16. For more information on installing WebSphere InterChange Server, see the *System Installation Guide for Windows or Unix*.

At the product directory screen, perform one of the following tasks:

- Type the full path of the directory into which you want to install the Adapter Framework in the **Directory Name** field and click **Next**
 - Click **Browse** to select a directory and click **Next**
 - Accept the default path and click **Next**
6. The summary screen lists the features that will be installed, the specified product directory, and the amount of disk space required. Read the information to verify it and then click **Next**.
 7. At the IBM WebSphere InterChange Server screen, do one of the following tasks depending on your integration broker:
 - If your integration broker is WebSphere InterChange Server, type the name of the InterChange Server instance with which the adapters will communicate in the **IBM WebSphere InterChange Server Name** field, then click **Next**.
 - If you are using any integration broker other than WebSphere InterChange Server, click **Next**.
 8. If you are installing on a Windows computer then Installer presents the program folder selection screen. In the **Program Group** field, type the name of the program group in which you want to create shortcuts for the adapters or accept the default program group and then click **Next**.
 9. After Installer finishes successfully, click **Finish**.

Installing adapters silently

Do the following to perform a silent installation of an adapter:

1. Prepare a response file to install the adapter as described in “Preparing the installation response file” on page 15, using the desired options listed in Table 10 on page 24.

Table 10. Silent installation options for adapters

Option name	Option values
<p>-W installLocation.active</p>	<p>You must set this option to the value true to be able to specify the installation location through the use of the installLocation.value option.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.
<p>-W installLocation.value</p>	<p>Set this option to the directory path in which the WebSphere Business Integration Adapters product is installed.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.

Table 10. Silent installation options for adapters (continued)

Option name	Option values
-W inputServer.name	<p>Set this option to the name of the InterChange Server instance with which the installed adapters will communicate. The name is case-sensitive and must be specified accurately or the adapters will not be able to communicate with the server.</p> <p>You must make sure this option is not commented and is set to the proper value when installing adapters to communicate with WebSphere InterChange Server. Comment out this option when installing adapters to communicate with the WMQI or WAS brokers.</p>
-W inputShortcuts.folder	<p>Set this option to the name of the program group created for the WBIA product, for example IBM WebSphere Business Integration Adapters.</p> <p>This option is only relevant on the Windows platform. Comment out this option when installing on UNIX.</p>
-G replaceExistingResponse	<p>Set this option to yesToAll or yes to replace all files found on the system that have the same name as those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that have the same name as those being copied by the installer.</p>
-G replaceNewerResponses	<p>Set this option to yesToAll or yes to replace all files found on the system that are newer than those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that are newer than those being copied by the installer.</p>
-G createDirectoryResponse	<p>Set this option to yes to create the product directory specified by the option if it does not already exist.</p> <p>Set this option to no to not have the product directory created if it does not exist.</p> <p>You must set this option to yes if the specified directory does not exist for the installation to succeed.</p>
-G removeExistingResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>
-G removeModifiedResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>

2. Perform the silent installation as described in “Executing the silent installation” on page 16, using the response file prepared in step 1 on page 23.

Installing the Adapter Development Kit

Follow the instructions in one of the following sections to install the Adapter Development Kit if indicated by the procedural overview in Chapter 1, “Installation process overview,” on page 1:

- “Installing the Adapter Development Kit using the graphical installer” on page 26
- “Installing the Adapter Development Kit silently” on page 26

Installing the Adapter Development Kit using the graphical installer

Do the following to install the Adapter Development Kit using the graphical installer:

1. Invoke Installer as described in for your data handler.
2. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
3. At the Welcome screen click **Next**.
4. At the IBM license acceptance screen, click **I accept the terms in the license agreement** and then click **OK**.
5. The product directory screen allows you to specify where to install the Adapter Development Kit. The product directory must contain an installation of a compatible version of the Adapter Framework. The field defaults to the value contained in the CROSSWORLDS environment variable, which is set by the either the WebSphere InterChange Server Installer or the WebSphere Business Integration Adapters Installer for Adapter Framework. You may specify another directory, but it must contain an installation of a compatible version of the Adapter Framework.

For information on installing the Adapter Framework, see “Installing the Adapter Framework” on page 16. For more information on installing WebSphere InterChange Server, see the *System Installation Guide for Windows or Unix*.

At the product directory screen, perform one of the following tasks:

- Type the full path of the directory into which you want to install the Adapter Framework in the **Directory Name** field and click **Next**
 - Click **Browse** to select a directory and click **Next**
 - Accept the default path and click **Next**
6. The summary screen lists the features that will be installed, the specified product directory, and the amount of disk space required. Read the information to verify it and then click **Next**.
 7. After Installer finishes successfully, click **Finish**.

Installing the Adapter Development Kit silently

Do the following to perform a silent installation of the Adapter Development Kit:

1. Prepare a response file to install the Adapter Development Kit as described in “Preparing the installation response file” on page 15, using the desired options listed in Table 11 on page 27.

Table 11. Silent installation options for the Adapter Development Kit

Option name	Option values
-W installLocation.active	<p>You must set this option to the value true to be able to specify the installation location through the use of the installLocation.value option.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.

Table 11. Silent installation options for the Adapter Development Kit (continued)

Option name	Option values
-W installLocation.value	<p>Set this option to the directory path in which the WebSphere Business Integration Adapters product is installed.</p> <p>If you comment out this option or set it to a value other than false, the silent installation is affected as follows:</p> <ul style="list-style-type: none"> • If you are installing on Windows and installer detects the presence of the CROSSWORLDS environment variable, then the product installs to the location specified by the environment variable. • If you are installing on UNIX and installer finds an entry for the product in the vpd.properties file, then the product installs to the location specified in the file. • If you are installing on Windows and installer does not detect the presence of the CROSSWORLDS environment variable, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17. • If you are installing on UNIX and installer does not find an entry for the product in the vpd.properties file, but there is a lib directory in the default installation location specified in Table 7 on page 17 that contains a valid version of CROSSWORLDS.JAR, then the product installs to the default location specified in Table 7 on page 17.
-G replaceExistingResponse	<p>Set this option to yesToAll or yes to replace all files found on the system that have the same name as those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that have the same name as those being copied by the installer.</p>
-G replaceNewerResponses	<p>Set this option to yesToAll or yes to replace all files found on the system that are newer than those being copied by the installer.</p> <p>Set this option to noToAll or no to not replace any files found on the system that are newer than those being copied by the installer.</p>
-G createDirectoryResponse	<p>Set this option to yes to create the product directory specified by the option if it does not already exist.</p> <p>Set this option to no to not have the product directory created if it does not exist.</p> <p>You must set this option to yes if the specified directory does not exist for the installation to succeed.</p>
-G removeExistingResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>
-G removeModifiedResponse	<p>This option is not relevant for any broker on any platform. Comment out this option.</p>

2. Perform the silent installation as described in “Executing the silent installation” on page 16, using the response file prepared in step 1 on page 26.

Configuring adapters as Windows Services

You can configure adapters to run as Windows services so that they can be remotely managed, can start automatically when the computer starts, and can be restarted automatically if they experience a fatal error.

Do the following to configure an adapter as a Windows service:

1. Create a copy of the batch file used to start the connector and open the copy in a text editor such as Notepad, then do the following:
 - a. Use a “find and replace” function to replace the string %CONNAME%Connector with the actual name of the connector, for example **JDBCCconnector**.
 - b. Use a “find and replace” function to replace the string %SERVER% with the actual name of the InterChange Server instance with which the connector will communicate, if InterChange Server is the broker.
If you are using a broker other than InterChange Server, specify a placeholder value such as **WMQI** or **WAS**.
 - c. Save and close the file.

Note: It is particularly important to use a copy of the batch file that starts a connector when configuring it as a service because some connectors share a common batch file. If you make such edits to a batch file shared by multiple connectors then they will no longer work.

2. Execute the following command at the command line to configure an adapter as a Windows service:

```
ProductDir\bin\cwservice -xi -mode=ServiceStartupType -tCONNECTOR  
-cConnectorBatchFile -sConnectorName -iInterChangeServerName -tThreadMode
```

where the following are true:

- *ProductDir* is the product directory
- *ServiceStartupType* is set to **Auto** if you want the service to start automatically or if set to **Manual** if you want to start the service manually
- *ConnectorBatchFile* is set to the path and name of the batch file that starts the connector, for example
C:\IBM\WebSphereAdapters\connectors\JDBC\start_service_JDBC.bat
- *ConnectorName* is set to the name of the connector, for example **JDBCCconnector**
- *InterChangeServerName* is the name of the InterChange Server instance with which the connectors will communicate, if InterChange Server is the broker.
If you are using a broker other than InterChange Server, specify a placeholder value such as **WMQI** or **WAS**.
- *ThreadMode* is set to **MULTI_THREADED** or **SINGLE_THREADED**

The command creates a Windows service named CWInterchange *ConnectorName* where *ConnectorName* is the value you specified for the *ConnectorName* parameter when executing the command.

WBIA directories, files, and environment variables

Installer creates a number of directories, files, and environment variables depending on the selections you made while running Installer.

WBIA directories and files

After the installation is complete, you can view the file system and its contents. Table 12 lists some of the directories you might need to know about. The folders and files created vary depending on the choices made during the installation and on the operating system.

Table 12. WebSphere Business Integration Adapter directories

Directory name	Contents
<code>_jvm</code>	This directory contains the Java Runtime files. Note: If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.
<code>_uninst_AdapterDevKit</code>	This directory contains files that are required to uninstall the Adapter Development Kit. For more information on uninstalling WebSphere Business Integration Adapters products, see Chapter 4, “Uninstalling WebSphere Business Integration Adapters products,” on page 33. Note: If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.
<code>_uninst_AdapterFramework</code>	This directory contains files that are required to uninstall the Adapter Framework. For more information on uninstalling WebSphere Business Integration Adapters products, see Chapter 4, “Uninstalling WebSphere Business Integration Adapters products,” on page 33. Note: If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.
<code>_uninst_adapter</code>	This directory contains files that are required to uninstall an adapter. For example, the directory named <code>_uninst_JDBC</code> contains files that are required to uninstall the WebSphere Business Integration Adapter for JDBC. For more information on uninstalling WebSphere Business Integration Adapters products, see Chapter 4, “Uninstalling WebSphere Business Integration Adapters products,” on page 33. Note: If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.
<code>_uninst_datahandler</code>	This directory contains files that are required to uninstall a data handler. For example, the directory named <code>_uninst_xml dh</code> contains files that are required to uninstall the XML data handler. For more information on uninstalling WebSphere Business Integration Adapters products, see Chapter 4, “Uninstalling WebSphere Business Integration Adapters products,” on page 33. Note: If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.

Table 12. WebSphere Business Integration Adapter directories (continued)

Directory name	Contents
_uninst_Zip	This directory contains log files about tool plug-ins installed.
bin	This directory contains the executable files and shell scripts that the business integration adapters use.
connectors	This directory contains files specific to each adapter in the system. It also contains adapter-specific files that you may need to install in the application that the adapter supports.
DataHandlers	This directory contains the .jar files for the data handlers.
DevelopmentKits	This directory contains the files needed to develop connectors.
docs	This directory contains the license file for the Java Runtime Environment.
installLogs	This directory contains log files about the installation of WebSphere Business Integration Adapters products.
jre	This directory contains the Java Runtime Environment.
lib	This directory contains shared libraries and .jar files for the system.
license_AdapterDevKit	This directory contains the license files for the Adapter Development Kit.
license_AdapterFramework	This directory contains the license files for the Adapter Framework.
license_datahandler	This directory contains the license files for a data handler. For example, the directory named _license_xml dh contains the license files for the XML data handler.
license_adapter	This directory contains the license files for an adapter. For example, the directory named _license_JDBC contains the license files for the WebSphere Business Integration Adapter for JDBC.
logs	This directory is provided to contain log and trace files.
messages	This directory contains message text files used by the connectors to generate log and trace messages.
ODA	This directory contains the .jar and .bat files for each Object Discovery Agent.
repository	This directory contains the connector definition files.
templates	This directory contains sample script files for creating and clearing WebSphere MQ queues. If your integration broker is one of the supported message brokers or WebSphere Application Server, see your broker implementation guide for more information on using these scripts. If your integration broker is WebSphere InterChange Server, see the installation guide for InterChange Server on the appropriate platform.
Tools	This directory contains the WSWB203 directory, which in turn contains the installation of WebSphere Studio Workbench if you chose to install it.

Environment variables

If you chose one of the supported message brokers or WebSphere Application Server as your broker, Installer takes the actions described in Table 13 to create and update environment variables on the computer. These actions are not taken if you chose WebSphere InterChange Server as your integration broker, because the environment variables required for that broker are created during installation of the broker itself.

Table 13. Actions taken by Installer for environment variables

Environment variable name	Installer action
CROSSWORLDS	Creates this environment variable to reference the WebSphere Business Integration Adapters product directory, as specified when using Installer.
MQ_LIB	Creates this environment variable to contain the path to the Java\lib directory within the WebSphere MQ installation, as specified when using Installer.
PATH	Adds the following entries: <i>ProductDir\jre\bin\classic;</i> <i>ProductDir\bin;</i> <i>ProductDir\bin\connectors;</i>
SM_PATH	Creates this environment variable to contain the path to the installation of WebSphere Studio Application Developer Integration Edition or WebSphere Studio Workbench into which the tools plug-ins are installed.

Chapter 4. Uninstalling WebSphere Business Integration Adapters products

This chapter describes how to install WebSphere Business Integration Adapters products.

This chapter includes the following sections:

- “Uninstalling WebSphere Business Integration Adapters by using the graphical uninstaller”
- “Performing a silent uninstallation” on page 34

Note: If you have to uninstall the Adapter Framework as well as other components such as adapters, data handlers, or the Adapter Development Kit, you should uninstall the Adapter Framework last, because uninstalling it also removes the Java program that is required to uninstall the other products.

Uninstalling WebSphere Business Integration Adapters by using the graphical uninstaller

Do the following to uninstall WebSphere Business Integration Adapters by using the graphical uninstaller:

1. Start the graphical uninstaller as described in “Invoking the graphical uninstaller.”
2. Proceed through the uninstallation wizard to make your selections as described in “Using the graphical uninstaller” on page 34.

Invoking the graphical uninstaller

To uninstall most WebSphere Business Integration Adapters components, you must use the command line as described in “Invoking the graphical uninstaller at the command line.”

To uninstall the Adapter Framework, you can alternatively follow the instructions in “Invoking the graphical uninstaller for the Adapter Framework” on page 34.

Invoking the graphical uninstaller at the command line

To execute the graphical uninstaller for any WebSphere Business Integration Adapters component, execute the following command at the command line:

```
ProductDir\_jvm\jre\bin\java -jar ProductDir\UninstallDirectory\uninstall.jar
```

where the following are true:

- *ProductDir* is the product directory
- *UninstallDirectory* is the directory that contains the uninstallation files for the component you want to uninstall. For example, the directory `_uninst_JDBC` contains the uninstallation files for the WebSphere Business Integration Adapter for JDBC.

For more information on the directory structure of WebSphere Business Integration Adapters, see “WBIA directories and files” on page 30.

Invoking the graphical uninstaller for the Adapter Framework

Follow the instructions in one of the following sections to invoke the graphical installer for the Adapter Framework, depending on your operating system:

- “To invoke the uninstaller in a Windows environment”
- “To invoke the uninstaller in a UNIX environment”

To invoke the uninstaller in a Windows environment: Navigate to the *ProductDir/_uninst_AdapterFramework* directory and execute *uninstaller.exe*.

To invoke the uninstaller in a UNIX environment: Navigate to the *ProductDir/_uninst_AdapterFramework* directory and execute the WBI Uninstaller, *uninstaller.bin*.

If you are running the Common Desktop Environment and are working directly on the UNIX computer then you can double-click the *uninstaller.bin* file.

If you are using X emulation software to connect to the UNIX computer from a Windows computer then you must execute the *uninstaller.bin* file from the command line, as in the following example:

```
# ./uninstaller.bin
```

Using the graphical uninstaller

Do the following to uninstall a WebSphere Business Integration Adapters component:

1. At the language selection prompt, choose the desired language from the drop-down menu and click **OK**.
2. At the “Welcome” screen click **Next**.
3. The “summary” screen lists the components that will be uninstalled and the product directory from which they will be removed. Read the information to verify it and then click **Next**.
4. After the uninstaller finishes successfully, click **Finish**.

Performing a silent uninstallation

To perform a silent uninstallation for any WebSphere Business Integration Adapters component, execute the following command at the command line:

```
ProductDir\_jvm\jre\bin\java -jar ProductDir\UninstallDirectory\uninstall.jar -silent
```

where the following are true:

- *ProductDir* is the product directory
- *UninstallDirectory* is the directory that contains the uninstallation files for the component you want to uninstall. For example, the directory *_uninst_JDBC* contains the uninstallation files for the WebSphere Business Integration Adapter for JDBC.

For more information on the directory structure of WebSphere Business Integration Adapters, see “WBI directories and files” on page 30.

Chapter 5. Distributing connector agents across networks

This chapter contains the following sections:

- “Which components to install”
- “Installation tasks” on page 36
- “Security” on page 41

The appendix describes how to install adapters to exchange business data through MQ intercommunication across the Internet.

In this environment, implement a hub-and-spoke feature called Remote Agent technology—in which a hub site has a complete broker system, but the spoke sites need install only a connector agent.

This feature is typically used where data exchanges need to go across the Internet and traverse a firewall. It can also be used in situations where there is no firewall, however.

Which components to install

This section describes the operating system and software requirements for the Remote Agent.

Operating system requirements

Remote Agent technology is supported on Windows 2000 and Sun Solaris 7.0 and 8.0. The hub and spoke sites can run different operating systems.

Most connectors can run on Windows 2000 or Solaris, but some can run only on specific operating systems. Refer to the guide for your adapter to determine if it has any operating system restrictions.

This guide assumes that your site is the hub site and that your broker is installed on Windows 2000.

Required software for hub sites

You must install the following components at the hub site:

- Supported integration broker
- If your integration broker is InterChange Server, you must deploy the definition for the connector to the repository
- Supported version of WebSphere MQ server
- WebSphere MQ Internet pass-thru (required if HTTP/HTTPS is the configured transport)

For information on supported software versions, see “Software requirements” on page 8

Required software for spoke sites

You must install the following components at the spoke site:

- The adapters that will participate in the data exchange and their prerequisite WebSphere Business Integration Adapters products
- Supported version of WebSphere MQ server
- WebSphere MQ Internet pass-thru (required if HTTP/HTTPS is the configured transport)

For information on supported software versions, see “Software requirements” on page 8

Installation tasks

The following installation tasks must be performed to implement MQ intercommunication:

- “Planning the installation”
- “Configuring the Remote Agent”
- “Enabling the application to interact with the connector” on page 40
- “Starting the Remote Agent components” on page 40

Planning the installation

Before you install and configure the Remote Agent, you should address a number of planning considerations, including the following:

- Who will be responsible for establishing the configurations at the spoke sites?
Because the implementer at the hub site typically has primary responsibility for planning the overall process, this appendix describes the necessary installation tasks for both the hub and spoke sites.
- What are the security needs of the hub site? The spoke site?
Your security requirements may differ from those of your trading partners, and there may be different requirements among your trading partners. See “Security” on page 41 for some of the choices that you can make in setting the configuration properties that define your levels of security.
- What configuration properties need to be coordinated between the hub and spoke sites?
Certain configuration properties, port numbers, and some security settings, need to be coordinated between the hub and spoke sites.

Configuring the Remote Agent

The Remote Agent can be configured for use with either Native WebSphere MQ or HTTP/HTTPS protocols for communication over the internet. The Native WebSphere MQ option is configured using only the software delivered with the product. The HTTP option requires WebSphere MQ Internet pass-thru, which is not delivered and must be acquired separately. This section describes both configurations.

Note: JMS is the only supported transport for both configurations.

Native WebSphere MQ

This configuration option uses the WebSphere MQ protocol, along with Security Socket Layer (SSL) to ensure secure communication over the internet. This configuration provides better performance; however, it requires that a port be opened on the firewall to allow WebSphere MQ across through the firewall. Figure 2 on page 37. illustrates this configuration.

You must configure the WebSphere MQ channels for bidirectional communication between the broker and the adapter. Two channels are required—one for each direction.

Note: The following steps assume that MQ1 and MQ2 are listening on port 1414.

To configure channels for Native WebSphere MQ:

1. Channel 1 (MQ1 is the sender and MQ2 is the receiver):
 - a. Create the CHANNEL1 sender channel on MQ1.
 - b. Create the CHANNEL1 receiver channel on MQ2.
2. Channel 2 (MQ2 is the sender and MQ1 is the receiver):
 - a. Create the CHANNEL2 sender channel on MQ2.
 - b. Create the CHANNEL2 receiver channel on MQ1.
3. Configure firewall 1 to forward traffic on port 1414 to MQ1 and configure firewall 2 to forward traffic on port 1414 to MQ2.

Note: Assume that MQ1 and MQ2 are listening on port 1414 and that the firewall allows network traffic based on port forwarding. The actual configuration may change, depending on the type of firewall being used.

4. Set the IpAddress of sender Channel 1 to the connection name of firewall 2.
5. Set the IpAddress of sender Channel 2 to the connection name of firewall 1.

To configure queues for Native WebSphere MQ:

1. MQ1 (Q1 is used for communication from the hub site to the spoke site):
 - a. Set Q1 as the remote queue and Q2 as the local queue.
 - b. Set MQ2 as the remote queue manager for Q1.
2. MQ2 (Q2 is used for communication from the spoke site to the hub site):
 - a. Set Q2 as the remote queue and Q1 as the local queue.
 - b. Set MQ1 as the remote queue manager for Q2.
3. Set up a transmission queue on each queue manager.
4. Set up a dead letter queue on each queue manager.
5. Confirm that the fault queue is local to each queue manager.

Refer the RemoteAgentSample.mqsc and RemoteServerSample.mqsc sample scripts, located in *ProductDir\mqseries* to configure the queue managers.

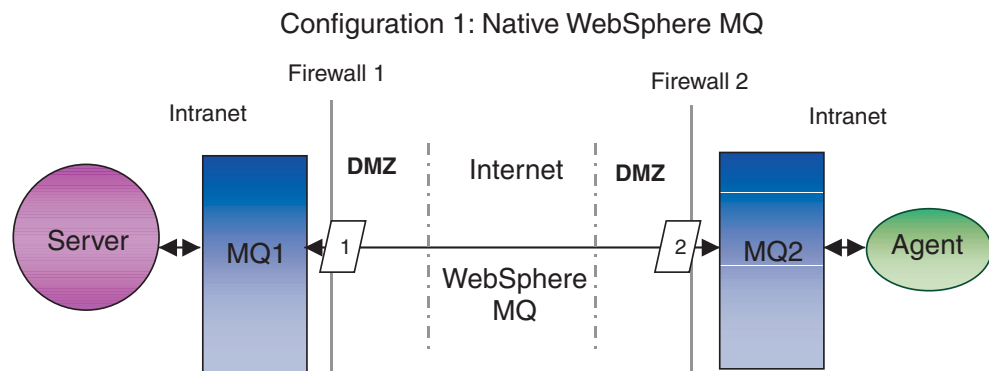


Figure 2. Native WebSphere MQ Configuration

HTTP/HTTPS

This configuration option uses WebSphere MQ Internet pass-thru to pass information over the internet using HTTP. Figure 3 on page 40 illustrates this configuration.

You must define routes to specify the port, IP address, and SSL details. Two routes must be configured for bidirectional communication between the hub and the spoke site. Two routes at each site are required—one for each direction.

Channels must be configured for bidirectional communication between the hub site and the spoke site. Two channels are required—one for each direction.

Note: The following steps assume that MQ1 and MQ2 are listening on port 1414.

To configure channels for HTTP/HTTPS:

1. Channel 1 (MQ1 is the sender and MQ2 is the receiver):
 - a. Create the CHANNEL1 sender channel on MQ1.
 - b. Create the CHANNEL1 receiver channel on MQ2.
2. Channel 2 (MQ2 is the sender and MQ1 is the receiver):
 - a. Create the CHANNEL2 sender channel on MQ2.
 - b. Create the CHANNEL2 receiver channel on MQ1.
3. Set the ConnectionName of CHANNEL1 to the IpAddress and ListenerPort of MQIPT1.
4. Set the ConnectionName of CHANNEL2 to the IpAddress and ListenerPort of MQIPT2.
5. Set firewall 1 to forward all traffic on the ListenerPort to MQIPT1.
6. Set firewall 2 to forward all traffic on the ListenerPort to MQIPT2.

To configure queues for HTTP/HTTPS:

1. MQ1 (Q1 is used for communication from the hub site to the spoke site):
 - a. Set Q1 as the remote queue and Q2 as the local queue.
 - b. Set MQ2 as the remote queue manager for Q1.
2. MQ2 (Q2 is used for communication from the spoke site to the hub site):
 - a. Set Q2 as the remote queue and Q1 as the local queue.
 - b. Set MQ1 as the remote queue manager for Q2.
3. Set up a transmission queue on each queue manager.
4. Set up a dead letter queue on each queue manager.
5. Confirm that the fault queue is local to each queue manager.

Refer the RemoteAgentSample.mqsc and RemoteServerSample.mqsc sample scripts, located in *ProductDir*\mqseries to configure the queue managers.

To configure routes for MQIPT1:

- Route1 — Set the following parameters:
 - ListenerPort = Port on which MQIPT1 is listening for messages from queue manager MQ1
 - Destination = Domain name or IP address of MQIPT2
 - DestinationPort = Port on which MQIPT2 is listening

- HTTP = true
- HTTPS = true
- HTTPProxy = IpAddress of firewall2 (or a proxy server if there is one in the DMZ)
- SSLClient = true
- SSLClientKeyRing = Path to the file that contains the MQIPT1 certificate
- SSLClientKeyRingPW = Path to the file that contains the password for the ClientKeyRing file
- SSLClientCAKeyRing = Path to the file that contains the trusted CA certificates
- SSLClientCAKeyRingPW = path to the file that contains the password for the CAKeyRing file
- Route2 — Set the following parameters:
 - ListenerPort = Port on which MQIPT1 is listening for messages from MQIPT2
 - Destination = Domain name or IPaddress for queue manager MQ1
 - DestinationPort = Port on which MQ1 is listening
 - SSLServer = true
 - SSLServerKeyRing = Path to the file that contains the MQIPT1 certificate
 - SSLServerKeyRingPW = Path to the file that contains the password for the ServerKeyRing file
 - SSLServerCAKeyRing = Path to the file that contains the trusted CA certificates
 - SSLServerCAKeyRingPW = Path to the file that contains the password for the CAKeyRing file

To configure routes for MQIPT2:

- Route1 - Set the following parameters:
 - ListenerPort = Port on which MQIPT2 is listening for MQIPT1
 - Destination = Domain name of IPaddress of queue manager MQ2
 - DestinationPort = Port on which MQ2 is listening
 - SSLServer = true
 - SSLServerKeyRing = Path to the file that has MQIPT2s certificate
 - SSLServerKeyRingPW = Path to the file that has the password for the ServerKeyRing file
 - SSLServerCAKeyRing = Path to the file that contains the trusted CA certificates
 - SSLServerCAKeyRingPW = Path to the file that contains the password for the CAKeyRing file
- Route2 - Set the following parameters:
 - ListenerPort = Port on which MQIPT2 is listening for messages from MQ2
 - Destination = Domain name or IP address of MQIPT1
 - DestinationPort = Port on which MQIPT1 is listening
 - HTTP = true
 - HTTPS = true
 - HTTPProxy= IpAddress of firewall1 (or a proxy server if there is one in the DMZ)
 - SSLClient = true
 - SSLClientKeyRing = Path to the file that contains the MQIPT2 certificate

- SSLClientKeyRingPW = Path to the file that contains the password for the ClientKeyRing file
- SSLClientCAKeyRing = Path to the file that has trusted CA certificates
- SSLClientCAKeyRingPW = Path to the file that contains the password for the CAKeyRing file

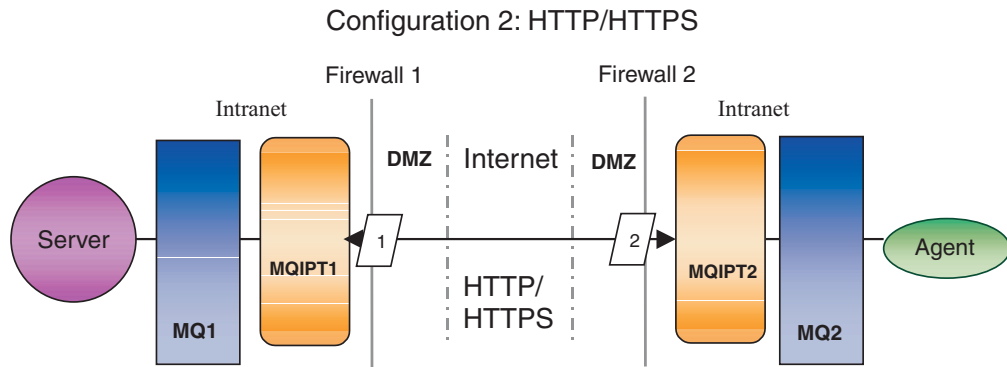


Figure 3. HTTP/HTTPS Configuration

Enabling the application to interact with the connector

You may have to perform configuration tasks in some applications for the connectors to be able to perform the necessary operations with this particular communication model. Refer to the guide for your adapter to determine if any such configuration tasks are necessary.

Starting the Remote Agent components

Remote Agent requires that the following be running:

- The integration broker
 - For information on how to start the WebSphere InterChange Server broker, see the *System Installation Guide for Windows or Unix*.
 - See the WebSphere Application Server documentation for information on how to start that broker.
 - See the documentation on a supported message broker for information on how to start that broker.
- Connector agent
 - For information on how to start connectors if your broker is WebSphere InterChange Server, see the *System Administration Guide*.
 - For information on how to start connectors if your broker is WebSphere Application Server, see *Implementing Adapters with WebSphere Application Server*.
 - For information on how to start connectors if your broker is one of the supported message brokers, see *Implementing Adapters with WebSphere Message Brokers*.
- Queue managers at both the hub and spoke sites
 - For information on how to start WebSphere MQ services, see the WebSphere MQ documentation.
- WebSphere MQ internet pass-thru (if HTTP/HTTPS is the configured transport)
 - For information on how to start WebSphere MQ Internet pass-thru, see the WebSphere MQ Internet pass-thru documentation.

Security

The Remote Agent uses the Security Socket Layer (SSL) protocol to provide security. Both WebSphere MQ and WebSphere MQ Internet pass-thru support SSL at the link level. SSL provides a secure connection between two queue managers in the Native WebSphere MQ option and between two WebSphere MQ Internet pass-thru installations in the HTTP/HTTPS option.

Refer to the WebSphere MQ product documentation for details on configuring SSL.

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WebSphere Business Integration Adapter Framework V2.4.0

System Manager and other perspectives include software developed by the Eclipse Project (<http://www.eclipse.org/>)

IBM WebSphere InterChange Server V4.2.1, IBM WebSphere Business Integration Toolset V4.2.1, IBM WebSphere Business Integration Adapters, V2.3.1.



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