

IBM WebSphere Business Integration



# Installing WebSphere Business Integration Adapters



IBM WebSphere Business Integration



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**Note!**

Before using this information and the product it supports, read the information in "Notices" on page 49.

**13September2005**

This edition of this document applies to IBM WebSphere Business Integration Adapter Framework (5724-G92), and to all subsequent releases and modifications until otherwise indicated in new editions.

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# Contents

<b>About this document</b> . . . . .	<b>v</b>
What this document does not include . . . . .	v
Audience . . . . .	v
Related documents . . . . .	v
Typographic conventions . . . . .	vi

<b>New in this release</b> . . . . .	<b>vii</b>
New with WebSphere Business Integration Adapters . . . . .	vii
New with WebSphere Business Integration Adapter Framework v2.6 . . . . .	vii
New with WebSphere Business Integration Adapter Framework v2.4 (25Jun2004) . . . . .	viii
New in release 2.4 . . . . .	viii
New in release 2.3.1 . . . . .	viii

<b>Chapter 1. Overview of installation</b> . . . . .	<b>1</b>
Installation roadmap. . . . .	1
Terminology . . . . .	3
Adapter Framework 2.6 changes. . . . .	4
Installation process . . . . .	5

<b>Chapter 2. Installation requirements</b> . . . . .	<b>11</b>
Hardware and software requirements. . . . .	11
Installing and configuring other software . . . . .	11
Data handler requirements . . . . .	12

<b>Chapter 3. Installing WebSphere Business Integration Adapters products</b> . . . . .	<b>13</b>
Preparing the installation media . . . . .	13
General procedures for using installation media . . . . .	14
Installing the adapter framework . . . . .	16
Installing data handlers . . . . .	17

Installing adapters . . . . .	17
WBIA directories, files, and environment variables . . . . .	21
Registering an adapter to run as a Windows service . . . . .	23

<b>Chapter 4. Uninstalling WebSphere Business Integration Adapters products</b> . . . . .	<b>25</b>
Uninstalling WebSphere Business Integration Adapters using the graphical uninstaller. . . . .	25
Performing a silent uninstallation . . . . .	27

<b>Chapter 5. Distributing connector agents across networks</b> . . . . .	<b>29</b>
Which components to install. . . . .	29
Installation tasks. . . . .	30
Security . . . . .	35

<b>Chapter 6. Upgrading WebSphere Business Integration Adapters</b> . . . . .	<b>37</b>
Upgrading an adapter development environment. . . . .	37
Upgrading a WebSphere Business Information adapter. . . . .	37
Upgrading a custom adapter . . . . .	39

<b>Chapter 7. Troubleshooting Installer error messages</b> . . . . .	<b>41</b>
Responding to errors . . . . .	41
	<b>47</b>

<b>Notices</b> . . . . .	<b>49</b>
Programming interface information . . . . .	51
Trademarks and service marks . . . . .	51



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## About this document

The IBM<sup>(R)</sup> WebSphere<sup>(R)</sup> Business Integration Adapter portfolio supplies integration connectivity for leading e-business technologies and enterprise applications. The system includes the IBM WebSphere Business Integration Toolset 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<sup>®</sup>, Solaris, AIX<sup>®</sup>, Linux, and HP-UX environments.

**Note:** This document explains installation for adapters and adapter components released with the September 2005 release of WebSphere Business Integration Adapters. If you are using an adapter released prior to September 2005, it uses a different installation procedure than what is documented in this manual. **Make sure to refer to the version of the WebSphere Business Integration Adapters Installation Guide that corresponds to the adapter you are installing.**

**Note:** Although you may be installing the adapters on a UNIX<sup>®</sup> computer, you must have one Windows computer to run the tools.

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## What this document does not include

This document does not describe deployment metrics and capacity planning issues, such as server load balancing, number of adapter processing threads, maximum and minimum throughputs, and tolerance thresholds.

Such issues are unique to each customer deployment and must be measured within or close to the exact environment where the adapter is to be deployed. You should contact your IBM services representative to discuss the configuration of your deployment site, and for details on planning and evaluating these kinds of metrics, given your specific configuration.

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## Audience

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

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## 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/websphere/integration/wbiadapters/infocenter>

- For using adapters with WebSphere InterChange Server:

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

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

**Note:** Important information about the products described in this guide may be available in Technical Support Technotes and Flashes issued after this document was published. These can be found on the WebSphere Business Integration Support Web site, <http://www.ibm.com/software/integration/websphere/support/>. Select the component area of interest and browse the Technotes and Flashes section.

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## 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.

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<code>courier font</code>	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>&lt;server_name&gt;&lt;connector_name&gt;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.
<code>%text%</code> and <code>\$text</code>	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.

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## New in this release

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### New with WebSphere Business Integration Adapters

The following changes have been made for this release:

- The 2.6.0.3 adapter framework upgrade is available as a fix pack and installed separately from this release. For more information, see the *Installing Adapter Framework 2.6.0.3* Technote. To obtain the fix pack, go to the fix pack download site.
- This document no longer describes how to install the adapter framework, data handlers, or development software.
- Hardware and software requirements no longer appear in this document. This information is available in a techdoc. For a link to this techdoc, see “Hardware and software requirements” on page 11.

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### New with WebSphere Business Integration Adapter Framework v2.6

The following changes have been made for this release:

- Unlike previous releases of the adapter framework, Adapter Framework 2.6 software is available and installed separately from ICS. This makes possible a more flexible enhancement path for both the adapter framework and ICS. It also isolates the adapter framework from releases prompted solely by broker enhancements, and vice versa. In consequence, there are a number of new installation, upgrade, and migration scenarios. Installation and upgrade scenarios are discussed in Chapter 1, “Overview of installation,” on page 1. For information on migrating adapters from previous releases to the new adapter framework, see the document *Migrating Adapters to Adapter Framework, Version 2.6*.
- Adapter Framework 2.6 uses Java™ Runtime Environment (JRE) 1.4.2. IBM JDK 1.4.2 for all supported platforms is delivered on a separate CD with this release.
- The adapter framework installer now features an integration broker selection window.
- The adapter framework now supports the following:
  - SuSE Linux Enterprise Server 8.1, service pack 3
  - SuSE Linux Standard Server 8.1, service pack 3
  - Red Hat Enterprise Linux 3.0 Update 1:
    - RHEL 3.0 ES
    - RHEL 3.0 AS
    - RHEL 3.0 WS
  - Windows 2003
- The adapter framework supports WASDIE 5.1 and 5.1.1
- The adapter framework installer allows you to select installation of the WebSphere Business Integration Toolset or the adapter framework or both for Windows platforms only. If you select ICS as the broker, or if the Installer detects that ICS is installed, or if the operating system is Windows 2003, the toolset component cannot be installed.
- The adapter framework installer sets the following new environment (Windows) and shell script (UNIX) variables:

- ARMJAR to support IBM Tivoli® Monitoring for Transaction Performance.
- WAS\_CLIENT\_HOME to support WebSphere Application Server integration brokers.
- The document features a new troubleshooting chapter describing all installation error messages.

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## **New with WebSphere Business Integration Adapter Framework v2.4 (25Jun2004)**

The following changes have been made for this release:

- New installed file structures
- Each adapter installer now provides the option to register the adapter as a Windows service, if supported by the adapter and if running Interchange Server as the broker
- Document installation for new adapters
- New installation batch file (Windows) and shell script file (UNIX)

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## **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, “Overview of installation,” 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 11, which describes hardware and software prerequisites.
- This guide now features Chapter 5, “Distributing connector agents across networks,” on page 29, which provides information on how to enable adapters for remote communication by using WebSphere MQ Internet pass-thru.
- This guide now features Chapter 6, “Upgrading WebSphere Business Integration Adapters,” on page 37, which provides information on how to upgrade environments in which you develop adapters, run custom-developed adapters, and run adapters that are part of the WebSphere Business Integration Adapters product.
- 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 25.
- 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 page 12.
- 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.

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## **New in release 2.3.1**

This book is new as of WBIA version 2.3.1.

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## Chapter 1. Overview of installation

This guide provides step-by-step instructions for installing WebSphere Business Integration Adapters running on Adapter Framework 2.6 or 2.6.0.3. The guide also shows you how to upgrade and uninstall adapters.

This overview chapter includes the following sections:

- “Installation roadmap”
- “Terminology” on page 3
- “Adapter Framework 2.6 changes” on page 4
- “Installation process” on page 5

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### Installation roadmap

This document describes how to install the following adapters:

- WebSphere Business Integration Adapter for e-Mail, V. 5.5
- WebSphere Business Integration Adapter for EJB, V. 1.2
- WebSphere Business Integration Adapter for iSeries, V. 2.1
- WebSphere Business Integration Adapter for JMS, V. 2.8
- WebSphere Business Integration Adapter for HTTP, V. 1.3
- WebSphere Business Integration Adapter for Portal Infranet, V. 4.4
- WebSphere Business Integration Adapter for CORBA, V. 1.3
- WebSphere Business Integration Adapter for WebSphere Message Broker, V. 2.8
- WebSphere Business Integration Adapter for WebSphere MQ, V. 2.8
- WebSphere Business Integration Adapter for WebSphere MQ Workflow, V. 2.8

There are a variety of installation scenarios. They depend on the configuration of your environment and the kind and location of the integration broker. The high level installation tasks are as follows:

**1. Determine your WebSphere Business Integration adapter environment:**

- Identify your environment: local, distributed, remote, or development. For definitions of these environments, see “Terminology” on page 3.
- Review hardware and software requirements. For more information, see Chapter 2, “Installation requirements,” on page 11.
- For installed, previously-released WebSphere Business Integration configurations:
  - Identify the installed adapter framework version (if any) and locate the machine on which it is installed
  - Identify specific adapters (if any) that are running with earlier adapter frameworks; note the version of each adapter
  - Identify the integration broker (if any) and its version; note the machine on which the broker is installed and the broker directory path
- Find your installation configuration in column 1 of Table 1 below.

**2. Install Adapter Framework 2.6 and adapter and apply Fix Pack 2.6.0.3** Follow the links in Table 1 for specific procedures that reflect your configuration and environment requirements.

3. **Migrate adapters** Follow the links in Table 1 to see how you can migrate adapters to the new framework. Migrating adapters involves modifying adapter and ODA start scripts. For further information, see the *Migrating Adapters to Adapter Framework, Version 2.6* guide.

Table 1 summarizes the installation scenarios that apply to a variety of WebSphere Business Integration environments. Each row of the table ends with a pointer to documentation that contains step-by-step instructions for completing the procedure.

*Table 1. Installing WebSphere Business Integration Adapters task roadmap*

<b>WebSphere Business Integration adapter configuration</b>	<b>Associated installation procedure(s) (see...)</b>	<b>For more information (see...)</b>
New installation: no WebSphere Business Integration Adapter Framework or adapter artifacts	Note: If you install ICS 4.3 as your integration broker, you must install Adapter Framework 2.6 and Fix Pack 2.6.0.3 to a separate directory.	See "Installation process" on page 5
Adapter Framework 2.4 and ICS 4.3 broker	1. Uninstall Adapter Framework 2.4, and then install Adapter Framework 2.6 and apply Adapter Framework Fix Pack 2.6.0.3; or install Adapter Framework 2.6, apply Adapter Framework 2.6.0.3, install data handlers, install adapters, and optionally install ADK on a separate machine. 2. Optionally migrate adapters	1. See "Installation process" on page 5 and <i>Installing Adapter Framework Fix Pack 2.6.0.3</i> Technote. 2. See the <i>Migrating Adapters to Adapter Framework, Version 2.6</i> guide
Adapter Framework 2.4 and ICS 4.2.2 broker	1. Uninstall Adapter Framework 2.4, and then install Adapter Framework 2.6 and apply Adapter Framework Fix Pack 2.6.0.3; or install Adapter Framework 2.6, apply Adapter Framework 2.6.0.3, install data handlers, install adapters, and optionally install ADK on a separate machine. Note: If you are running Adapter Framework 2.6 with ICS 4.2.2, certain ICS 4.3 features in Adapter Framework 2.6 are unavailable. 2. Optionally migrate adapters.	1. See "Installation process" on page 5 and <i>Installing Adapter Framework Fix Pack 2.6.0.3</i> Technote. 2. See the <i>Migrating Adapters to Adapter Framework, Version 2.6</i> guide
Adapter Framework 2.4 and WBI MB or WAS broker	1. Uninstall Adapter Framework 2.4, and then install Adapter Framework 2.6 and apply Adapter Framework Fix Pack 2.6.0.3; or install Adapter Framework 2.6, apply Adapter Framework 2.6.0.3, install data handlers, install adapters, and optionally install ADK on a separate machine. 2. Optionally migrate adapters.	1. See "Installation process" on page 5 and <i>Installing Adapter Framework Fix Pack 2.6.0.3</i> Technote. 2. See the <i>Migrating Adapters to Adapter Framework, Version 2.6</i> guide

Table 1. Installing WebSphere Business Integration Adapters task roadmap (continued)

WebSphere Business Integration adapter configuration	Associated installation procedure(s) (see...)	For more information (see...)
Adapter Framework 2.3 or earlier	<ol style="list-style-type: none"> <li>1. Uninstall earlier adapter framework; then install data handlers, Adapter Framework 2.6 (then apply Adapter Framework Fix Pack 2.6.0.3), adapters, and optionally ADK.</li> <li>2. Migrate adapters as needed (if most recent adapter version runs with Adapter Framework 2.4, you must migrate)</li> </ol>	<ol style="list-style-type: none"> <li>1. See "Installation process" on page 5, and <i>Installing Adapter Framework Fix Pack 2.6.0.3</i> Technote, and then Chapter 6, "Upgrading WebSphere Business Integration Adapters," on page 37.</li> <li>2. See the <i>Migrating Adapters to Adapter Framework, Version 2.6</i> guide</li> </ol>

## Terminology

To understand the adapter framework, you must understand these terms:

### adapter

The component in the WebSphere business integration system that provides components to support communication between an integration broker and either an application or a technology. An adapter always includes a connector, message files, and the Connector Configurator Tool. It can also include an Object Discovery Agent (ODA). Some adapters also may require a data handler.

### adapter environments

There are four adapter environments:

- **Local adapter environment** Adapters are installed on the same computer where the integration broker is installed and runs.
- **Distributed adapter environment** Adapters are installed on a different computer than the computer on which the integration broker is installed.
- **Remote adapter environment** Adapters are installed and configured to communicate with the integration broker over the internet.
- **Adapter development environment** Adapter Framework and Adapter Development Kit and related tools are installed optionally in a local, distributed or remote adapter environment.

### adapter framework

The software that IBM provides to configure and run an adapter. The runtime components of the adapter framework include the Java runtime environment, the connector framework, and the Object Discovery Agent (ODA) runtime. This connector framework includes the connector libraries (C++ and Java) needed to develop new connectors. The ODA runtime includes the library in the Object Development Kit (ODK) needed to develop new ODAs. The configuration components include the following tools:

- Business Object Designer,
- Connector Configurator,
- Log Viewer,
- System Manager,
- Adapter Monitor,
- Test Connector

- and, optionally, any Object Discovery Agents (ODAs) associated with an adapter.

**adapter framework fix pack**

An upgrade to an existing adapter framework. Adapter Framework Fix Pack 2.6.0.3 updates the 2.6 framework. It is recommended and may be required. For further information see *Installing Adapter Framework Fix Pack 2.6.0.3* Technote. To download the fix pack, go to the fix pack download site.

**Adapter Development Kit (ADK)**

A development kit that provides some samples for adapter development, including sample connectors and Object Discovery Agents (ODAs).

**BiDi** An abbreviation of “bidirectional” that refers to languages whose text orientations are left-to-right or right-to-left.

**integration broker**

The component in the WebSphere business integration system that integrates data among heterogeneous applications. An integration broker typically provides a variety of services that include: the ability to route data, a repository of rules that govern the integration process, connectivity to a variety of applications, and administrative capabilities that facilitate integration. Examples of integration brokers: the WebSphere Business Integration Message Broker; WebSphere Business InterChange Server; WebSphere Application Server

**WebSphere business integration system**

An enterprise solution that moves information among diverse sources to perform business exchanges, and that processes and routes information among disparate applications in the enterprise environment. The business integration system consists of an integration broker and one or more adapters.

**WebSphere Integration Message Broker, Version 2.1**

A message broker product that transforms and routes messages between WebSphere MQ queues. The technology enables applications to communicate asynchronously by delivering messages to and receiving messages from potentially remote queues. A major change with WebSphere Integration Message Broker is the addition of message flows that add the ability to format, store, and route messages based on user-defined logic.

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## Adapter Framework 2.6 changes

Beginning with the 2.6 release, Adapter Framework software is installed separately from ICS. This makes possible a more flexible enhancement path for both the adapter framework and ICS. It also isolates the adapter framework from releases prompted solely by broker enhancements, and vice versa. For more information on the 2.6 framework, or to install it, see *Installing WebSphere Business Integration Adapters, V. 2.6*.

### Adapter Framework Fix Pack 2.6.0.3

This fix pack updates the 2.6 framework with a variety of enhancements, fixes, and file supplements. It is described in detail in the *Installing Adapter Framework Fix Pack 2.6.0.3* Technote.

The WebSphere Business Integration Adapters Installer described in this guide does not apply the 2.6.0.3 upgrade to the 2.6 framework. To take full advantage of

all of the features of the adapter you are installing, it is highly recommended that you apply the 2.6.0.3 framework fix pack. To obtain this fix pack, go to the fix pack download site.

## Installation process

This section describes 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 Adapter environments.

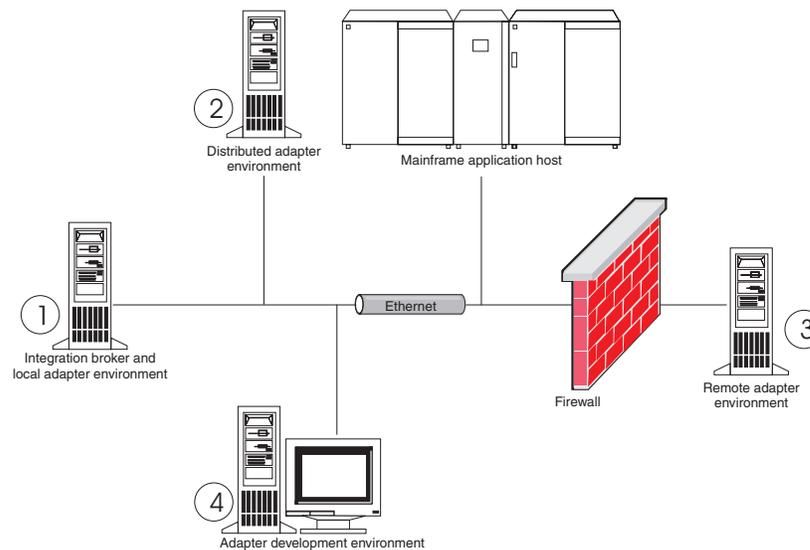


Figure 1. WebSphere Business Integration Adapter environments

### 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 and software requirements” on page 11.

2. If your integration broker is WebSphere Business Integration Message 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 the techdoc describing hardware and software requirements. For further information, see “Hardware and software requirements” on page 11.
3. Do one of the following depending on which integration broker you are implementing:

- If your integration broker is WebSphere InterChange Server, then do the following:
  - a. Install WebSphere InterChange Server and all its prerequisite software as described in the *System Installation Guide for Windows* or *System Installation Guide for UNIX*.
  - b. Install Adapter Framework 2.6 to a directory other than the one containing ICS. For further information, see *Installing WebSphere Business Integration Adapters, V. 2.6*. It is highly recommended that you also apply Adapter Framework Fix Pack 2.6.0.3.

**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, you must install the Adapter Framework to a separate directory. With version 2.6 and 2.6.0.3, the adapter framework is no longer installed with WebSphere InterChange Server.

- If your integration broker is one of the supported message brokers or WebSphere Application Server, install the Adapter Framework as described in *Installing WebSphere Business Integration Adapters, V. 2.6* and then install the 2.6.0.3 fix pack.
4. Read the configuration chapter 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 WebSphere Business Integration Adapters, V. 2.6*.
  6. Install each adapter required for the environment as described in “Installing adapters” on page 17.
  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.
  8. If you wish to run adapters released with an earlier framework, see the *Migrating Adapters to Adapter Framework, Version 2.6* guide.

## 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 want 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 be able to obtain a version of the adapter on the operating system of the computer that hosts the broker.
- You may need to install Adapter Framework 2.6 and apply Adapter Framework Fix Pack 2.6.0.3 on a separate machine from the machine where ICS and earlier version of the adapter framework are installed.

Environment 2 in Figure 1 on page 5 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 and software requirements” on page 11.
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 the techdoc describing hardware and software requirements. For further information, see “Hardware and software requirements” on page 11.
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 WebSphere Business Integration Adapters, V. 2.6*. Then apply Adapter Framework Fix Pack 2.6.0.3 as described in the *Installing Adapter Framework Fix Pack 2.6.0.3 Technote*.
    - 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 WebSphere Business Integration Adapters, V. 2.6*.
    - d. Install each adapter required for the environment as described in “Installing adapters” on page 17.
  - If your integration broker is WebSphere InterChange Server, do the following:
    - a. Run the Adapter Framework Installer on the distributed computer to install the adapter framework on it. For further information, see *Installing WebSphere Business Integration Adapters, V. 2.6*. Then apply Adapter Framework Fix Pack 2.6.0.3 as described in the *Installing Adapter Framework Fix Pack 2.6.0.3 Technote*.  
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.
    - b. Install the adapter as described in “Installing adapters” on page 17 on the distributed computer.  
At the IBM WebSphere InterChange Server screen, specify the name of the InterChange Server instance on the broker host computer.
    - c. Import the connector definition created in the repository directory into your development environment as described in the *Implementation Guide for WebSphere Interchange Server*.
    - d. Configure the connector as described in the guide for the adapter.
    - e. 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 5 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 and software requirements” on page 11.
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 the techdoc describing hardware and software requirements. For further information, see “Hardware and software requirements” on page 11.
3. Install and configure WebSphere MQ Internet pass-thru as described in Chapter 5, “Distributing connector agents across networks,” on page 29.
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 WebSphere Business Integration Adapters, V. 2.6*. Then apply Adapter Framework Fix Pack 2.6.0.3 as described in the *Installing Adapter Framework Fix Pack 2.6.0.3 Technote*.
    - 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 WebSphere Business Integration Adapters, V. 2.6*.
    - d. Install each adapter required for the environment as described in “Installing adapters” on page 17.

- If your integration broker is WebSphere InterChange Server, do the following:
  - a. Run the Adapter Framework Installer on the distributed computer to install the adapter framework on it. For further information, see *Installing WebSphere Business Integration Adapters, V. 2.6*.  
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.
  - b. Install the adapter as described in “Installing adapters” on page 17 on the distributed computer.  
At the IBM WebSphere InterChange Server screen, specify the name of the InterChange Server instance on the broker host computer.
  - c. Import the connector definition created in the repository directory into your development environment as described in the *Implementation Guide for WebSphere Interchange Server*.
  - d. Configure the connector as described in the guide for the adapter.
  - e. 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 5 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 and software requirements” on page 11.
2. Install the Adapter Framework as described in *Installing WebSphere Business Integration Adapters, V. 2.6*. Then apply Adapter Framework Fix Pack 2.6.0.3 as described in the *Installing Adapter Framework Fix Pack 2.6.0.3 Technote*.
3. Install each data handler that will be required for the adapters you are developing as described in *Installing WebSphere Business Integration Adapters, V. 2.6*.
4. Install the Adapter Development Kit as described in *Installing WebSphere Business Integration Adapters, V. 2.6*.
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. A single CD contains JDK’s for Windows, AIX, HP-UX, Solaris, and Linux.

**Note:** If you applied Adapter Framework Fix Pack 2.6.0.3 to the 2.6 framework, a copy of the IBM Java Development Kit is installed at <install location>/jdk. If you did not apply Adapter Framework Fix Pack 2.6.0.3, then see “Installing the IBM Java Development Kit” on page 12.

---

## Chapter 2. Installation requirements

This chapter contains the following sections:

- “Hardware and software requirements”
- “Installing and configuring other software”
- “Data handler requirements” on page 12

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 and software requirements

For a detailed description of hardware and software requirements for your adapter, see the Techdoc posted here:  
<http://www.ibm.com/support/docview.wss?uid=swg27006249>.

---

### 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

The IBM Java Development Kit (JDK) for all supported platforms (Windows, Solaris, AIX, HP-UX, and Linux) is packaged with the Adapter Framework Fix Pack 2.6.0.3. When you apply this fix pack, IBM JDK is installed to the <install location>/jdk directory. For information on obtaining the fix pack, go to the fix pack download site. If you did not apply fix pack 2.6.0.3, you can install the IBM JDK from the CD that is part of the Adapter Framework 2.6 media package.

---

## Data handler requirements

Table 2 lists the data handler requirements for each adapter if it has any.

*Table 2. Data handler requirements for adapters*

IBM WebSphere Business Integration Adapter for...	Data handlers required
ACORD XML	XML
eMail	XML
Complex Data Handler	XML
SAP Exchange Infrastructure (version 1.0.0)	XML
HTTP	XML
i2	XML
PeopleSoft	XML
NightFire Applications	XML
Siebel eBusiness Applications	XML
Telcordia	XML
WebSphere Commerce	XML
WebSphere Business Integration Message Broker	XML
WebSphere MQ Workflow	XML
XML	XML
QAD MFG/PRO	XML

**Note:** The Data Handler for Complex Data is supported on AIX 5.2 and on WBIA 2.4

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## Chapter 3. Installing WebSphere Business Integration Adapters products

This chapter describes how to install WebSphere Business Integration Adapters.

If you are upgrading an adapter 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 adapters” on page 17
- “WBIA directories, files, and environment variables” on page 21
- “Registering an adapter to run as a Windows service” on page 23

---

### 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. If the CD is not running automatically, then navigate to My Computer, double click the CD drive wbia, open the Windows folder and run setupwin32.exe.

- 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 the previous step.

- On Linux:

Insert the product CD into the CD drive of the Linux computer and execute the following commands:

1. On SuSE click the CD-ROM desktop icon. This opens a browser window (Konqueror browser) displaying the content of the CD.  
On Red Hat, the CD desktop icon will appear (on the desktop) when the CD is inserted. Double click the CD icon. This opens a file browser (Nautilus) displaying the contents of the CD.
2. On SuSE, click the UNIX directory and then click the `setupLinux.bin` file to launch the installer.  
On Red Hat double click the UNIX directory and then double click the `setupLinux.bin` file to launch the installer.
3. Follow the installer prompts to complete the installation.

## 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 file 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.

**Note:** For information on obtaining Passport Advantage software, ask your IBM representative.

---

## 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

Make sure you are logged in with administrative privileges before you install WebSphere Business Integration Adapters 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.

When you install on a UNIX-based 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. 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 System Management Interface Tool (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 a UNIX computer:

- “If you are running Common Desktop Environment CDE on a UNIX computer”
- “If you are connecting to a UNIX computer through X emulation software”

**If you are running Common Desktop Environment CDE on a UNIX computer:** 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 a 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 11.
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 a 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 a 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” on page 16 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 adapters silently on Windows systems” on page 18

## Preparing the installation response file

When performing a silent installation, you prepare a response file (or options 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.

If you are performing identical installations on multiple machines, you can easily record the selections you made during the first installation to a file and use that file as the installation response file for subsequent installations. Refer to “Recording installation selections” on page 21 for more information.

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

- Table 3 on page 19
- Table 4 on page 20

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

WebSphere Business Integration Adapters require that you first install an adapter framework. To do so, you need access to a product containing Adapter Framework, Version 2.6, and the Adapter Framework Fix Pack 2.6.0.3. To download the fix pack, go to the fix pack download site.

---

## Installing data handlers

Some WebSphere Business Integration Adapters require that you install a data handler after installing the adapter framework but before installing the adapter. To do so, you need access to a product containing the data handler your adapter requires. For information on which data handler your adapter requires, see “Data handler requirements” on page 12. For access to a product containing the required data handler, see your IBM representative.

---

## Installing adapters

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

- “Installing adapters using the graphical installer”
- “Installing adapters silently on Windows systems” on page 18
- “Installing adapters silently on UNIX and Linux systems” on page 20
- “Recording installation selections” on page 21

Note that on UNIX platforms, filenames are case-sensitive. If you change the case of any filename, the adapter will fail during start-up and log an error. If you receive an error when you attempt to start the adapter, check the filenames of the XSD files in the Connector Configurator repository. The XSD files must have a lower-case .xsd extension. For example, a filename of Customer.XSD will cause the adapter to fail. In this case, you must change the name of the file to Customer.xsd.

### Installing adapters using the graphical installer

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

1. Invoke Installer for your adapter as described in “Invoking the graphical WBIA installer” on page 14.
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**.

**Note:** If you use the `java -jar setup.jar` command to launch Installer, the install program requires a Java Runtime Environment (JRE) version of 1.4 or higher. If this condition is not met, then Installer displays an error message instructing you to install JRE 1.4 or higher and then re-launch Installer. Click **Cancel** and install or upgrade the JRE.

4. At the IBM license acceptance screen, click **I accept the terms in the license agreement** and then click **OK**.

**Note:** The Installer checks your system for certain software prerequisites at this point. If a prerequisite is not found, the Installer displays a screen informing you of this, and stating that the item must be installed or that you must enter the directory where it resides before adapter installation can continue. Install or browse to the location of the required software and restart the WebSphere Business Integration Adapters Installer.

5. The product directory screen allows you to specify where to install the adapters. The adapter installer will try to locate the installation location of the Adapter Framework; if it finds it, this path will be displayed by default. If it does not find it, then the following defaults are displayed: For Windows: `C:\IBM\WebSphereAdapters` and for UNIX, `/opt/IBM/WebSphereAdapters`.

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

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

- 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 broker name 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 adapter will communicate in the **IBM WebSphere InterChange Server Name** field. If you want the adapter to be registered as a Microsoft Windows service, click the **Windows service** checkbox. Then click **Next**.

**Note:** If you have not applied Adapter Framework Fix Pack 2.6.0.3, registration as a Windows service is supported only if the broker being used is WebSphere Interchange Server. Installer will automatically compute a free port number to register the adapter to run as a Windows service.

- If you are using an 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**.

**Note:** If your integration broker is ICS and it is installed on a remote system, you must move the adapter’s configuration files to the ICS system. Doing so makes the adapter configuration files available to Connector Configurator on the remote ICS machine. To locate the adapter configuration files, see the installed file structure table in your adapter user guide. The configuration file is typically named <adapter name>ConnectorTemplate. Then move this file to the directory of the Connector Configurator instance that you will be running on the ICS host machine. For more information on the installed file structure of ICS and Connector Configurator, see the *System Installation Guide* for your platform. If you are not using an ICS integration broker, or if your ICS broker resides on the same machine as the adapter, you need not transfer adapter configuration files.

## Installing adapters silently on Windows systems

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

1. Prepare a response file to install the adapter as described in “Preparing the installation response file” on page 16, using the desired options listed in Table 3 on page 19.

Table 3. Silent installation options for adapters for Windows systems

Option name	Option values
-W destination.path	<p>Set this option to the directory path in which the WebSphere Business Integration Adapters product is to be installed. For example,</p> <p>-W destination.path="C:\IBM\WebSphereAdapters"</p> <p>The install path cannot contain any spaces. The install location must contain a compatible version of the adapter framework.</p>
-W inputServer.name	<p>If your broker is IBM WebSphere InterChange Server, specify a valid InterChange server name. This name must meet the following criteria: 1. Less than 80 characters. 2. Must not contain space. 3. Must begin with an English alphabetical character (a-z, A-Z). 4. Must contain only English alphabetical and numeric characters.</p> <p>If you are not using WebSphere Interchange Server as the broker, comment out this option.</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>
-W inputServer.adapterService	<p>Set this option to yes if you want the adapter to be registered as a Windows service. Set this option to no if you do not want the adapter to be registered as a Windows service.</p>
-G createDirectoryResponse=	<p>Set this option (yes or no) to specify whether to create the destination directory if it does not already exist.</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 removeExistingResponse	<p>This option specifies whether to remove a response file that exists on the system. Note that this option is for uninstall only. Set this option to yestoall or yes to remove existing response files. Set it to notoall or no to leave existing files on the system.</p>
-G removeModifiedResponse	<p>This option specifies whether to remove a response file that has been modified since it was last installed. Note that this option is for uninstall only. Set this option to yestoall or yes to remove response files that have been modified. Set it to notoall or no to leave modified files on the system.</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 adapters silently on UNIX and Linux systems

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

1. Prepare a response file to install the adapter as described in “Preparing the installation response file” on page 16, using the desired options listed in Table 3 on page 19.

Table 4. Silent installation options for adapters for UNIX and Linux systems

Option name	Option values
-W destination.path	Set this option to the directory path in which the WebSphere Business Integration Adapters product is to be installed. For example,  -W destination.path="C:\IBM\WebSphereAdapters"  The install path cannot contain any spaces. The install location must contain a compatible version of the adapter framework.
-W inputServer.name	If your broker is IBM WebSphere InterChange Server, specify a valid InterChange server name. This name must meet the following criteria: 1. Less than 80 characters. 2. Must not contain space. 3. Must begin with an English alphabetical character (a-z, A-Z). 4. Must contain only English alphabetical and numeric characters.  If you are not using WebSphere Interchange Server as the broker, comment out this option.
-G createDirectoryResponse=	Set this option (yes or no) to specify whether to create the destination directory if it does not already exist.
-G replaceExistingResponse	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.  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.
-G replaceNewerResponses	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.  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.
-G removeExistingResponse	This option specifies whether to remove a response file that exists on the system. Note that this option is for uninstall only. Set this option to yestoall or yes to remove existing response files. Set it to notoall or no to leave existing files on the system.
-G removeModifiedResponse	This option specifies whether to remove a response file that has been modified since it was last installed. Note that this option is for uninstall only. Set this option to yestoall or yes to remove response files that have been modified. Set it to notoall or no to leave modified files on the system.

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.

## Recording installation selections

You can record your installation selections to a file by using a special option when invoking the installation program from the command line. At the completion of the install, your installation selections are recorded to the file you specified on the command line. You can use the recorded installation information in this file as a record of your installation settings and as a response file for silent installations on other machines.

To create this file, type the following command from the command line:

```
<installation launcher executable> -options-record <filename>
```

For example, type the following command in a command window to record the installation selections of your adapter installation on a Windows computer:

```
setupwin32.exe -options-record C:\data\settings.txt
```

---

## 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 5 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 5. WebSphere Business Integration Adapter directories

Directory name	Contents
<code>_jvm</code>	This directory contains the Java Runtime files. <b>Note:</b> 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 25. <b>Note:</b> If you are upgrading from a previous version of WBIA, the existing directory name is retained from that release.
<code>_uninstZip</code>	This directory contains log files about tool plug-ins.
<code>bin</code>	This directory contains the executable files and shell scripts that the business integration adapters use.
<code>connectors</code>	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.
<code>docs</code>	This directory contains the license file for the Java Runtime Environment.

Table 5. WebSphere Business Integration Adapter directories (continued)

Directory name	Contents
installLogs	This directory contains log files about the installation of WebSphere Business Integration Adapters products.
lib	This directory contains shared libraries and .jar files for the system.
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.
connector\messages	This directory contains message text files used by the connectors to generate log and trace messages.
oda\messages	This directory contains message text files used by the ODAs.
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.
jdk	If you apply fix pack 2.6.0.3, this directory contains IBM Java Development Kit 1.4.2 sr1.

## Environment variables

If you chose one of the supported message brokers or WebSphere Application Server as your broker on a Windows system, Installer takes the actions described in Table 6 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 6. Actions taken by Installer for environment variables

Environment variable name	Installer action
MQ_LIB	Set by ICS, this creates this environment variable to contain the path to the Java\lib directory within the WebSphere MQ installation, as specified when using Installer.
MQ_LIB_RUNTIME	Contains the location of the MQ Java library, avoiding conflict with the MQ_LIB environment variable that is set by ICS.

Table 6. Actions taken by Installer for environment variables (continued)

Environment variable name	Installer action
PATH	Adds the following entries: <i>ProductDir\jre\bin\classic;</i> <i>ProductDir\bin;</i> <i>ProductDir\jre\bin;</i>
WAS_CLIENT_HOME	The adapter framework sets this variable to the WAS client install location directory. If a WAS is not configured as the integration broker, this variable is set to null.
WBIA_RUNTIME	Creates this environment variable to contain the path to the installation of the adapter framework.

## Registering an adapter to run as a Windows service

Whether your integration broker is InterChange Server or not, if you have a Windows environment, you can register the adapter to run as a Windows service. These sections describe how to do so

### Registering a Windows service with InterChange Server as broker

When installing the adapter, check the Create Windows Service (IBM WebSphere InteChange Server) checkbox on the broker name screen. Installer will then perform the following tasks to register the adapter as a Windows service:

- Copy `start_<adaptername>.bat` to `start_<adaptername>_service.bat`
- Replace, in the new service.bat file, %1 with the *adaptername*.
- Replace %2 with the InterChange Server name and *-zport\_number*. As described earlier, Installer automatically computes the port number.
- Prepend `-Xrs` to the `JVMArgs` variable.

Installer then calls `<install_location>\bin\cwservice.exe` to register the adapter as a Windows service. Note that Installer does not start the service. After configuring the adapter, you can start the service by performing the following procedure:

1. Choose **Start>Settings>Control Panel>Administrative Tools>Services**.
2. Scroll to select `CWConnector WBI<adaptername>Adapter`.
3. Click the arrow on the tool bar to start the adapter service.

### Registering a Windows service with a non-ICS broker

To register an adapter as a Windows service with an integration broker other than InterChange Server, do the following:

1. Install Adapter Framework 2.6
2. Apply Adapter Framework Fix Pack 2.6.0.3.
3. Install the adapter.
4. Locate the file  
`<installation_location>\connectors\<adapter_name>\reg_<adaptername>.bat`
5. Log in as admin and launch this batch file from the command line:  
`reg_<adaptername>.bat <path to config file> <optional dependent service>`

where the *<path\_to\_config\_file>* is the fully qualified path to the adapter configuration file and *<optional\_dependent\_service>* is any dependent service that the adapter service requires. Separate multiple dependent services with commas. Globalized messages will display any errors associated with invalid input parameters to this utility. When you successfully install your adapter, Installer places the utility `reg_<adaptername>.bat` in the directory `<install_location>\connectors\<adaptername>`.

Installer replaces the following fields in the bat file:

- ADAPTER\_NAME with the name of the adapter you installed
- WBIA\_RUNTIME with the actual adapter installation location

To confirm that the adapter is running as a Windows service, perform the following tasks:

1. Choose **Start>Settings>Control Panel>Administrative Tools>Services**.
2. Scroll to CWConnector WBI<adaptername>Adapter.
3. If the service has not started, select the service and click the arrow on the tool bar to start the adapter service.

---

## Chapter 4. Uninstalling WebSphere Business Integration Adapters products

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

This chapter includes the following sections:

- “Uninstalling WebSphere Business Integration Adapters using the graphical uninstaller”
- “Performing a silent uninstallation” on page 27

**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 Runtime Environment that is required to uninstall the other products.

**Note:** The adapter framework components cannot be uninstalled unless the WebSphere Business Integration Toolset is also selected for uninstall. The toolset may be uninstalled separately.

---

### Uninstalling WebSphere Business Integration Adapters using the graphical uninstaller

Do the following to uninstall WebSphere Business Integration Adapters 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 27.

#### Invoking the graphical uninstaller

To uninstall any WebSphere Business Integration Adapters components, you can either use the command line as described in “Invoking the graphical uninstaller at the command line” on page 26 or, if you are in a Microsoft Windows environment, you can invoke the uninstaller from the Windows Add/Remove Programs control panel as described in “Invoking the graphical uninstaller from the Windows Add/Remove Programs control panel” on page 27.

**Note:** Using the Add/Remove Programs control panel to launch the uninstall program is available only for those adapter components and adapters newly released during or after June 2004. This includes the Adapter Framework, all data handlers, and most adapters. However, it does not include the Adapter Development Kit. Refer to “About this document” on page v for a complete list of those components and adapters that cannot use this feature.

To uninstall the Adapter Framework, follow the instructions in “Invoking the graphical uninstaller for the Adapter Framework” on page 26.

**Note:** Uninstall all your WebSphere Business Integration Adapters components, including the WebSphere Business Integration Toolset, before you uninstall the Adapter Framework.

## Invoking the graphical uninstaller at the command line

**Note:** Using the .bat or .sh file method described below to launch the uninstaller is available only for those adapter components and adapters newly released during or after June 2004. This includes the Adapter Framework, all data handlers, and most adapters. However, it does not include the Adapter Development Kit. Refer to “About this document” on page v for a complete list of those components and adapters that cannot use this feature. For these adapters, use the java -jar file command line described at the end of this section.

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

In a Windows environment:

```
ProductDir\UninstallDirectory\uninstaller.bat
```

In a UNIX environment:

```
ProductDir/UninstallDirectory/uninstaller.sh
```

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 21.

You can also execute the following at the command line:

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

**Note:** You must use the java -jar method above to uninstall adapter components and adapters last released prior to the WebSphere Business Integration Adapters release in June, 2004.

## Invoking the graphical uninstaller for the Adapter Framework

**Note:** If you applied Adapter Framework Fix Pack 2.6.0.3, then follow the instructions in the *Installing the Adapter Framework Fix Pack 2.6.0.3* Technote. The instructions below apply for if you are uninstalling Adapter Framework 2.6. If you uninstall Fix Pack 2.6.0.3, you will also uninstall Adapter Framework 2.6.

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” on page 27
- “To invoke the uninstaller in a UNIX environment” on page 27

On a Windows-based system, you can also use the Windows Add/Remove control panel as described in “Invoking the graphical uninstaller from the Windows Add/Remove Programs control panel.”

**Note:** Uninstall all your WebSphere Business Integration Adapters components, including the WebSphere Business Integration Toolset, before you uninstall the Adapter Framework.

**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 WBIA 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
```

### Invoking the graphical uninstaller from the Windows Add/Remove Programs control panel

Do the following to uninstall WebSphere Business Integration Adapters from a Microsoft Windows-based system by using the Add/Remove Programs control panel:

1. Select Start -> Settings -> Control Panel.
2. Select Add/Remove Programs to open the Add/Remove Programs control panel.
3. Select the adapter you want to uninstall or the Adapter Framework from the Currently installed programs list.
4. Click Remove.
5. Follow the instructions in the uninstaller to uninstall the adapter.

## 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

**Note:** Using the .bat file or .sh method described below is available only for those adapter components and adapters newly released during or after June 2004. This includes the Adapter Framework, all data handlers, and most adapters. However, it does not include the Adapter Development Kit. Refer to “About

this document” on page vfor a complete list of those components and adapters that cannot use this feature. For these adapters, use the java -jar command line described at the end of this section.

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

In a Windows environment:

```
ProductDir\UninstallDirectory\uninstaller.bat -silent
```

In a UNIX environment:

```
ProductDir/UninstallDirectory/uninstaller.sh -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 “WBIA directories and files” on page 21.

If you have an installed jre/jdk, you can also invoke the following on the command line:

```
java -jar <install location>/_uninstall_<adapter component name>/uninstall.jar -silent
```

---

## Chapter 5. Distributing connector agents across networks

This chapter contains the following sections:

- “Which components to install”
- “Installation tasks” on page 30
- “Security” on page 35

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

**Note:** This capability is supported only when IBM WebSphere InterChange Server is used as the integration broker.

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.

You would typically use this feature where data exchanges need to go across the Internet and traverse a firewall. However, you can also use it in situations where there is no firewall.

---

### 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 AIX 5.1, 5.2, Windows 2000, 2003, Windows XP, Linux, and Sun Solaris 2.8/8.0. The hub and spoke sites can run different operating systems. JRE v. 1.4 is also required.

Some adapters 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 IBM WebSphere InterChange Server is installed on Windows 2000.

#### Required software for hub sites

You must install the following components at the hub site:

- WebSphere InterChange Server (the only supported integration broker)
- Supported version of WebSphere MQ server
- WebSphere MQ Internet pass-thru (required if HTTP/HTTPS is the configured transport)
- JRE (Java Run-Time Environment)

For information on supported software versions, see “Hardware and software requirements” on page 11.

## 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 “Hardware and software requirements” on page 11.

---

## 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 34
- “Starting the Remote Agent components” on page 34

## 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 chapter 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 35 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 Secure Sockets 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. 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.

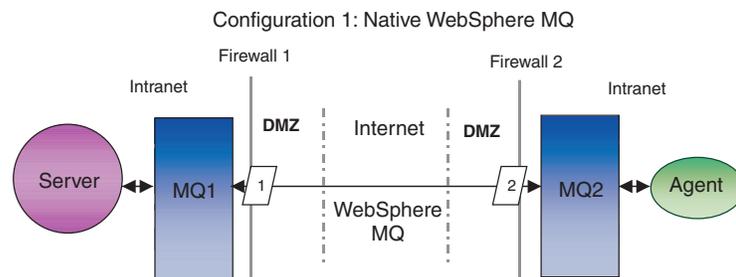


Figure 2. Native WebSphere MQ Configuration

## HTTP/HTTPS

This configuration option uses WebSphere MQ Internet pass-thru to pass information over the internet using HTTP. Figure 3 on page 34 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

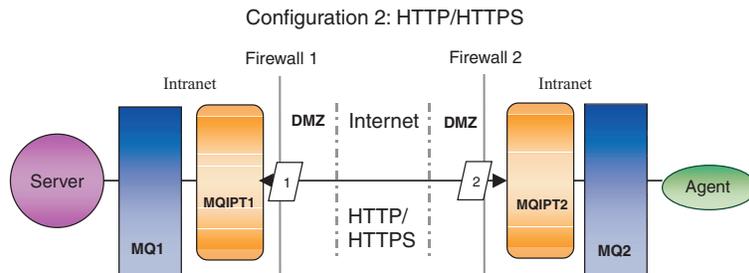


Figure 3. HTTP/HTTPS Configuration

## 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 the *System Installation Guide for 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 MQ Integrator Broker*.
- 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 Secure Sockets 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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## Chapter 6. Upgrading WebSphere Business Integration Adapters

This chapter describes how to upgrade environments in which you develop adapters, run custom-developed adapters, and run adapters that are part of the WebSphere Business Integration Adapters product. The sections discussed as follows:

- “Upgrading an adapter development environment”
- “Upgrading a WebSphere Business Information adapter”
- “Upgrading a custom adapter” on page 39

**Note:** To migrate adapters to Adapter Framework, Version 2.6, see the document *Migrating Adapters to Adapter Framework, Version 2.6*. The migration procedures described in that document are germane if you have applied Adapter Framework Fix Pack 2.6.0.3.

---

### Upgrading an adapter development environment

Do the following to upgrade an adapter development environment when your integration broker is one of the supported message brokers or WebSphere Application Server:

1. Upgrade the hardware of the computer on which you are upgrading the adapter development environment as necessary to meet the WebSphere Business Integration Adapters 2.6.0.3 requirements.  
For more information about hardware requirements, see “Hardware and software requirements” on page 11.
2. Install the Adapter Framework as described in “Installing the adapter framework” on page 16 into a directory other than the one where the adapter framework is currently installed. Apply the Adapter Framework Fix Pack 2.6.0.3.
3. Install each data handler that will be required for the adapters you are developing as described in “Installing data handlers” on page 17.
4. Install the latest available Adapter Development Kit.

---

### Upgrading a WebSphere Business Information adapter

This section describes how to upgrade an adapter that is released as part of the WebSphere Business Integration Adapters product set.

**Note:** To migrate adapters to Adapter Framework, Version 2.6, see the document *Migrating Adapters to Adapter Framework, Version 2.6*. The migration procedures described in that document are germane if you have applied Adapter Framework Fix Pack 2.6.0.3.

1. Do the following in a development environment:
  - a. Back up the integration broker system to preserve it.
  - b. Open the definition for the version of the adapter that is currently in use in Connector Configurator.  
Record all configuration information about the adapter.

- c. Upgrade the hardware of the computer on which you are upgrading the adapter as necessary to meet the WebSphere Business Integration Adapters 2.6.0.3 requirements.

For more information about hardware requirements, see “Hardware and software requirements” on page 11.

- d. If you were running Adapter Framework 2.3.1, uninstall the Visibroker Object Request Broker. The IBM Java Object Request Broker replaced the VisiBroker Object Request Broker in WebSphere Business Integration Adapters Version 2.4 through 2.6
- e. Upgrade any prerequisite software to the required version.  
For more information on software requirements, see “Hardware and software requirements” on page 11..
- f. 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 into a directory other than the one where the adapter framework is currently installed.

**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, you must install the adapter framework in a separate directory. The adapter framework is not installed with WebSphere InterChange Server.

- g. If your integration broker is InterChange Server, rename the directory of the currently-installed adapter to preserve it.
  - h. Install the new version of the adapter as described in “Installing adapters” on page 17.
  - i. Import the definition for the WebSphere Business Integration Adapters 2.6 version of the adapter into the integration broker environment.
  - j. Read the chapter named “Installing and configuring the connector” in the guide for the adapter you are upgrading and determine any new properties that must be configured.
  - k. Configure the adapter definition imported in step 1i with the information recorded in step 1b on page 37 and any new properties discovered in step 1j.
  - l. Install each data handler required for the environment as described in “Installing data handlers” on page 17.
  - m. 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.
  - n. Perform regression testing to ensure that the upgraded adapter still meets the business requirements of the implementation.
2. Perform step 1 on page 37 to upgrade the adapter in a stress-testing environment and then perform regression testing to ensure that the upgraded adapter still meets the performance requirements of the implementation.
  3. Perform step 1 on page 37 to upgrade the adapter in the production environment.

---

## Upgrading a custom adapter

To upgrade an adapter that you have developed to use the WebSphere Business Integration Adapters 2.6 adapter framework when your integration broker is one of the supported message brokers or WebSphere Application Server, see the Technote *Migrating Custom Adapter Scripts to Run With WBIA 2.6.0*. For access to this and other Technotes, see your IBM customer representative.



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## Chapter 7. Troubleshooting Installer error messages

- “Responding to errors”

The chapter describes Installer error messages and how to respond to them.

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### Responding to errors

Table 7 below describes error messages generated by the Installer. The middle column explains the message. The last column suggests responses to the error message.

Table 7. Installer error messages

Message	Explanation	Potential Solution
BIA01001: Installation aborted. <i>Product_name</i> is not supported on this operating system.	You attempted to perform a silent installation to an unsupported platform. This message is written to the <code>installationError.log</code> file.	Run installer on a supported platform.
BIA01002: You have attempted to install <i>Product_name</i> on an unsupported platform. Refer to <i>Installing WebSphere Business Integration Adapters</i> .	You attempted to perform an interactive installation to an unsupported platform. This message is displayed on an Installer panel.	Run installer on a supported platform.
BIA01003: Installation aborted. The user name does not belong to the local “Administrators” group or the user login exceeds 20 characters.	This message is written to the <code>installation Error.log</code> file during silent installation on Windows machines.	Log in using a user name that belongs to an Administrator group and does not exceed 20 characters before performing silent installation.
BIA01004: The installation program cannot continue for one of the following reasons: 1. The user name does not belong to the local “Administrators” group. 2. The user login exceeds 20 characters (The 20-character limit is required for use with IBM WebSphere MQ 5.3) Refer to the <i>System Installation Guide for Windows</i> for more information.	This message is displayed on an Installer panel during an interactive installation.	Log in using a user name that belongs to an Administrator group and does not exceed 20 characters before performing an interactive installation.
BIA01005: The directory path must not contain any spaces.	This message is displayed on an error dialog during an interactive install.	Remove the space character from directory path.
BIA01006: The directory you selected does not contain a compatible version of the Adapter Framework.	This message is displayed on an error dialog during an interactive adapter/data handler installation. Adapters and Data Handlers are required to install to the location where Adapter Framework is installed.	Enter the fully qualified path to an installed, compatible version of Adapter Framework.
BIA01007: Installation aborted. IBM WebSphere Business Integration Data Handler for XML must be installed prior to the installation of <i>Product_name</i> .	This message is written to the <code>installation Error.log</code> file during a silent installation. The XML data handler is a prerequisite for some adapters.	Install the data handler before installing the adapter.
BIA01008: You must install IBM WebSphere Business Integration Data Handler for XML before installing <i>Product_name</i> .	This message is displayed on an installer panel during an interactive installation. The XML data handler is a prerequisite for some adapters.	Install the data handler before installing the adapter.

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Table 7. Installer error messages (continued)

Message	Explanation	Potential Solution
BIA01009: The InterChange Server name cannot exceed 80 characters.	This message is displayed on an error dialog during an interactive installation. (ICS server name panel).	Enter an ICS name that is less than 80 characters.
BIA01010: The InterChange Server name cannot contain spaces. Please enter a valid InterChange Server name.	This message is displayed on an error dialog during an interactive installation (ICS server name panel).	Enter an ICS name that does not contain space characters.
BIA01011: The InterChange Server name cannot begin with a number.	This message is displayed on an error dialog during an interactive installation (ICS server name panel).	Use an ICS name that starts with an English alphabetical character.
BIA01012: The InterChange Server name must begin with a English alphabet.	This message is displayed on an error dialog during an interactive installation (ICS server name panel).	Use an ICS name that starts with an English alphabetical character.
BIA01013: Only English alphabets and numeric characters are allowed in the InterChange Server name.	This message is displayed on an error dialog during an interactive installation (ICS server name panel).	Use an ICS name that contains numbers 0 through 9 and English alphabetical characters only.
BIA01014: <i>Product_name</i> successfully installed. Return code: <i>installer_return_code</i>	Written to installation log file.	
BIA01015: <i>Product_name</i> installation failed. Return code: <i>installer_return_code</i>	Written to installation log file.	
BIA01016: <i>Product_name</i> successfully uninstalled. Return code: <i>installer_return_code</i>	Written to installation log file.	
BIA01017: <i>Product_name</i> uninstall failed. Return code: <i>installer_return_code</i>	Written to installation log file.	
BIA01018: This installation program requires Java Runtime Environment 1.4 or later to run correctly. Please install the required JRE and then launch this installation program again.	This message is displayed on an error dialog during an interactive installation.	Use a Java 1.4 or higher JRE to launch the installer. For example:<jre 1.4>/bin/java -jar setup.jar
BIA01019: Installation aborted. This installation program requires Java Runtime Environment 1.4 or later to run correctly. Please install the required JRE and then launch this installation program again.	This message is written to the installation Error.log file during a silent installation.	Use a Java 1.4 or higher JRE to launch the installer. For example:<jre 1.4>/bin/java -jar setup.jar -options settings.txt -silent
BIA01020: The install location does not contain a compatible version of the Adapter Framework.	This message is written to the installation Error.log file during a silent installation. Adapters and data handlers are required to install to a location where a compatible version of Adapter Framework is installed.	Enter the fully qualified path to an installed and compatible version of Adapter Framework in the silent response file.
BIA01021: The install location path must not contain any spaces.	This message is written to installation Error.log file during a silent installation.	Remove space character(s) from the install location property in the silent response file.
BIA01022: Installation aborted. The user name does not belong to the local "Administrators" group.	This message is written to the installation Error.log file during a silent installation.	Log in using a user id that belongs to an Admin group on Windows before performing the installation.
BIA01023: The installation cannot continue because the user name does not belong to the local "Administrators" group.	This message is displayed on an installer panel during an interactive installation.	Log in using a user id that belongs to an Admin group on Windows before performing the installation.

Table 7. Installer error messages (continued)

Message	Explanation	Potential Solution
BIA01024: Installation aborted. IBM WebSphere Business Integration Adapter for WebSphere MQ must be installed prior to the installation of <i>Product_name</i> .	This message is written to the installation Error.log file during a silent installation.	Install the Adapter for WebSphere MQ before running this installer.
BIA01025: You must install IBM WebSphere Business Integration Adapter for WebSphere MQ before installing <i>Product_name</i> .	This message is displayed on an installer panel during an interactive installation.	Install the Adapter for WebSphere MQ before running this installer.
BIA01026: No component was selected for installation. Click the "Back" button to return to the product feature panel or click Cancel to exit this installation.	This message is displayed on an installer panel during an interactive installation.	Select a component to install on the feature panel.
BIA01027: Installation aborted. No component was selected for installation.	This message is written to the installation Error.log file during a silent installation.	Set at least one product component to active in the silent installation response file.
BIA01028: A previous version to IBM WebSphere Business Integration Adapter Framework 2.6.0 is installed on your system. It is recommended that you uninstall the existing Adapter Framework version before you install version 2.6.0. Click Cancel to exit this installation to uninstall the earlier version, or click Next to continue. For instructions on how to migrate adapters to this new version, see the guide Migrating Adapters to Adapter Framework, Version 2.6.0.	This message is displayed on an installer panel during an interactive installation.	
BIA01029: IBM WebSphere InterChange Server 4.2.2 is installed on your system. It is recommended that you install <i>Product_name</i> on a separate system. Click Cancel to exit the installation or click Next to continue. For instructions on how to migrate adapters to this new version, see the guide Migrating Adapters to Adapter Framework, Version 2.6.0	This message is displayed on an installer panel during an interactive installation.	
BIA01030: <i>Product_name</i> is not compatible with the version of IBM WebSphere InterChange Server installed on your system. <i>Product_name</i> is compatible with IBM WebSphere InterChange Server 4.2.2 or higher. If using IBM WebSphere InterChange Server 4.2.2 then it is recommended that you install <i>Product_name</i> on a separate system.	This message is displayed on an installer panel during an interactive installation.	

Table 7. Installer error messages (continued)

Message	Explanation	Potential Solution
BIA01031: Installation aborted. <i>Product_name</i> is not compatible with the version of IBM WebSphere InterChange Server installed on your system. <i>Product_name</i> is compatible with IBM WebSphere InterChange Server 4.2.2 or higher. If using IBM WebSphere InterChange Server 4.2.2 then it is recommended that you install <i>Product_name</i> on a separate system.	This message is written to the installation Error.log file during a silent installation.	
BIA01032: IBM WebSphere Business Integration Adapters, Development Kit and Data Handlers must be uninstalled before uninstalling the IBM WebSphere Business Integration Adapter Framework. Ensure these components are removed from your system before continuing with this uninstall program.	This message is displayed on an installer panel during an interactive uninstall.	Uninstall all other adapter components before uninstalling the adapter framework.
BIA01033: A previous version to IBM WebSphere Business Integration Adapter Framework 2.6.0 is installed in this location. You must select an alternate install location.	This message is displayed on an installer panel during an interactive uninstall.	Change the install location of the adapter framework.
BIA01034: Installation aborted. A previous version to IBM WebSphere Business Integration Adapter Framework 2.6.0 is installed in this location. You must select an alternate install location.	This message is written to the installation Error.log file during a silent installation.	Change the install location of adapter framework in the silent installation response file.
BIA01035: IBM WebSphere InterChange Server is installed in this location. You must select an alternate install location.	This message is displayed on an installer panel during an interactive uninstall.	Change the install location of the adapter framework.
BIA01036: Installation aborted. IBM WebSphere InterChange Server is installed in this location. You must select an alternate install location.	This message is written to the installation Error.log file during a silent installation.	Change the install location of adapter framework in the silent installation response file.
BIA01037: The directory you entered is not valid. Enter a valid directory.	This message is displayed on an installer panel during an interactive uninstall.	Enter an existing valid directory path.
BIA01038: Installation aborted. IBM WebSphere MQ 5.3 Java library path option in the silent installation response file is invalid.	This message is written to the installation Error.log file during a silent installation.	Enter an existing valid directory path for MQ 5.3 Java library option in the silent installation response file.
BIA01039: Installation aborted. IBM WebSphere Studio Workbench location option in the silent installation response file is invalid.	This message is written to the installation Error.log file during a silent installation.	Enter an existing valid directory path for the Workbench option in the silent installation response file.
BIA01040: Installation aborted. IBM WebSphere Application Server Application Clients location option in the silent installation response file is invalid.	This message is written to the installation Error.log file during a silent installation.	Enter an existing valid directory path for the WAS client option in the silent installation response file.
BIA01041: Installation aborted. IBM Tivoli Monitoring for Transaction Performance Management Agent location option in the silent installation response file is invalid.	This message is written to the installation Error.log file during a silent installation.	Enter an existing valid directory path for the ITMTP agent option in the silent installation response file.

Table 7. Installer error messages (continued)

Message	Explanation	Potential Solution
BIA01042: IBM WebSphere Adapter Framework 2.6.0 is not found in the location you entered. Adapter Framework 2.6.0 must be installed before installing this Adapter Framework 2.6.0.3 (Fixpack 3). Please select a valid directory.	Adapter Framework 2.6.0.3 must be applied to the same directory as Adapter Framework 2.6.0, which you must install first.	Apply the fix pack to the directory where Adapter Framework 2.6 is installed, or install Adapter Framework 2.6 first.
BIA01045: Adapter Framework 2.6 is installed on this machine. If you choose to continue installing this version of Adapter Framework, Adapter Framework 2.6 may no longer work. Click Yes to continue installation.	The new version of Adapter Framework will overwrite some files of the older version.	It's prudent to back up the older version files.
BIA01046: The configuration file path you specified is not valid. Usage: reg_<adapter_name>.bat <absolute path to config file> <dependent services>	The configuration file you provided does not reside in the file system.	Provide a valid configuration file.
BIA01047: Usage: reg_<adapter_name>.bat <path to config file> <optional dependent service>	You need to enter one or two parameters after the .bat file name. The first parameter is the configuration file, which is required. The second, optional, parameter is the prerequisite windows service.	Provide the first parameter—the name of the configuration file.
BIA01048: The login name does not belong to the local "Administrators" group. You do not have the permission to register a Windows service.	You did not login as a member of a Windows administrators group, so you do not have the permission to register a Windows service.	Login in as an administrator.
BIA01049: Register Windows service failed.	Register Windows service failed.	Was the Adapter Framework Fix Pack 2.6.0.3 applied correctly? Has the Windows service already been registered?
BIA01050: Register Windows service succeeded.	The Windows service was successfully registered.	
BIA01044: This IBM WebSphere InterChange Server name field cannot be blank if you selected "Create Windows Service (IBM WebSphere InterChange Server)". If you are using a different broker and want to register a Windows Service for the adapter, see the note on this installation panel.	If you want to register a Windows service for InterChange Server, you must provide the InterChange Server name during installation. If you want to register Windows service for other brokers, you can do so after installation.	Provide the InterChange Server name, or deselect the check box.



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## A

- adapter
  - adapter development environment 3, 9
  - defined 3
  - distributed adapter environment 3, 6
  - installing 17
  - local adapter environment 3
  - remote adapter environment 3
- adapter development environment 3
- Adapter Development Kit (*See* ADK)
- adapter environment
  - local adapter environment 5
  - remote adapter environment 8
- adapter environments 3
- adapter framework 26
  - changes to in version 2.6 4
  - defined 3
  - installing 16
  - prerequisites 11
- ADK
  - defined 4

## B

- BiDi 4

## C

- Common Desktop Environment 15
- configuring the remote agent 30

## D

- data handler requirements 12
- data handlers
  - installing 17
- distributed adapter environment 3, 6
- distributed connector agents 29
  - operating system requirements 29

## E

- environment variables 22
- error messages 41

## H

- hardware requirements 11
- HTTP/HTTPS 32
- HTTP/S transport
  - installing 30
  - overview 29
- hub sites
  - required software 29

## I

- ICS
  - distributed connector agents 29
  - software prerequisites 37
- inserting installation CD 13
- installation CD 13
- installation response file 16
- installation roadmap 1
- installed directories, files, and environment variables 21
- installer procedure 14
- installing
  - HTTP/S transport 30
  - remote agent technology 30
- installing adapters 17
- installing adapters silently on UNIX and Linux systems 20
- installing adapters silently on Windows systems 18
- installing data handlers 17
- installing in a UNIX environment 15
- installing in a Windows environment 14
- installing the adapter framework 16
- integration broker 4

## L

- local adapter environment 3, 5

## M

- MQ intercommunication
  - installing 30

## O

- operating system requirements
  - for distributed connector agents 29

## P

- Passport Advantage 14
- performing a silent installation 15
- prerequisites
  - adapter framework 11
  - ICS software 37

## R

- remote adapter environment 3, 8
- remote agent
  - at spoke site
    - installing 34
  - components
    - starting 34
  - technology
    - installing 30
    - planning the installation 30

- requirements
  - hardware 11
  - XML data handler 12

## S

- security 35
- silent installation 15
- spoke sites
  - required software 30
- starting
  - remote agent components 34

## T

- terminology 3
- troubleshooting 41

## U

- uninstalling 25, 26
- upgrading a custom adapter 39
- upgrading an adapter development environment 37
- using the graphical installer 14

## W

- WebSphere business integration system 4
- WebSphere Integration Message Broker, Version 2.1 4

## X

- X emulation 11, 15
- XML data handler 12



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