Business Integration Message Broker Installation Guide for z/OS

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Draft level: First Draft

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Reviewers:

This book is not for review and is provided as a placeholder only. The only book under review at this time is Message Broker Installation Guide for Multiplatforms.

Please note that this title page is temporary and will be removed before publication. The title shown above is missing ″WebSphere″ because it is provided by the branding on the proper cover page (next page).

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IBM

Installation Guide for z/OS

WebSphere® Business Integration Message Broker

IBM

Installation Guide for z/OS

> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under Appendix D, "Notices," on page 67.

First edition (September 2005)

> **Notes for reviewers:**
>
> This book is under development and is constantly changing. Focus is currently on the environment that is to be supported for the beta program (limited platform support, Message Broker only).
>
> There are quite a few questions and comments throughout the text; if you have answers or further details, please let me know.
>
> The installing topics in the information center will be removed. Installing service and removing/uninstalling will remain in the information center.

This edition applies to version 6, release 0 of IBM WebSphere® Business Integration Message Broker (product number 5655-M74) and to Message Broker with Rules and Formatter Extension (product number 5697-J09) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

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About this book

This book tells you how to install Message Broker on z/OS.

A glossary is also provided.

The book describes the installation process and contains other essential information about planning your environment, tasks that you must complete before and after you install, and how you can verify that your installation has been successful. It is divided into four parts:
- Part 1, "Planning," on page 1
- Part 2, "Preparation," on page 17
- Part 3, "Installation," on page 31
- Part 4, "After installation," on page 45

If you have ordered WebSphere Business Integration Message Broker with Rules and Formatter Extension, use this book to install WebSphere Business Integration Message Broker. Then refer to the *Program Directory for WebSphere Business Integration Rules and Formatter Option for z/OS* and follow the instructions to install this component. This book contains references to the Rules and Formatter Extension only where different or additional information is required during installation of WebSphere Business Integration Message Broker. Access further information specific to the Rules and Formatter Extension within the online information center after you have installed WebSphere Business Integration Message Broker.

This book does not provide details about installing maintenance and service, nor does it tell you how to remove the product. Refer to the online information center for instructions on those tasks. Although it includes migration tasks that you must complete before you install if you are migrating from a previous version, it does not include migration tasks that you must complete after installation. These too are in the information center. "Where to find more information" on page x tells you how to access the online information center.

Who this book is for

This book is for system administrators of systems on which WebSphere Business Integration Message Broker components are installed.

What you need to know to understand this book

To understand this book, you must be familiar with the system facilities of your operating system.

Terms used in this book

All references in this book to Windows 2000 are also applicable to Windows XP unless otherwise stated.

The term Linux is used to refer to Linux in Intel and Linux on zSeries where their behavior is common.

The term UNIX® is used throughout this book to refer to the operating systems AIX, HP-UX, Linux, and Solaris where their behavior is common.

The term distributed system is used to collectively refer to Windows and UNIX systems where their behavior is common.

The term *<install_dir>* is used to refer to the directory in which you install the product.

The term *<installer>* is used to refer to the installation program (its name is not the same on every operating system).

DB2® is used to refer to IBM DB2 Universal Database™ Enterprise Edition. A copy of DB2 Version 8.1 with tailored terms and conditions is supplied on CD with WebSphere Business Integration Message Broker. If another supported database is not available, you can select this during installation and it is installed for you.

DB2 Run-Time Client (also known as Cloudscape) for Windows Version 8.1 is also provided on CD with WebSphere Business Integration Message Broker. You can select this database during installation and use it for a broker database for verification and test. For a production system you might want to install and configure your chosen enterprise database.

All new terms introduced in this book are defined in the glossary.

Where to find more information

Most of the information that you need to use this product is contained in the information center available through the Message Brokers Toolkit for WebSphere Studio. To access the information center, select **Help** then **Help Contents**.

This book contains only installation information; refer to the information center for the following topics:
- Configuring domains and components
- Administering domains and components
- Developing, debugging, and deploying resources
- Diagnosing and reporting problems
- Applying service and maintenance
- Removing components or the full product

You can download a standalone copy of the information center to view on systems on which you do not have the workbench installed. Download file `wbimb_help.zip` from this Web site:

`ftp://ftp.software.ibm.com/software/integration/wbibrokers/docs/`

Read the installing_and_managing.htm file, which is included in the wbimb_help.zip file.

On this site you can also find PDFs of topic collections for printing.

Publications

The following books are available for WebSphere Business Integration Message Broker:
- *Installation Guide for Multiplatforms*
- *Installation Guide for z/OS*(this book)

- *Program Directory for WebSphere Business Integration Message Broker for z/OS*
- *Program Directory for WebSphere Business Integration Rules and Formatter Option for z/OS*

Most of the information in these books is not duplicated in the information center.

WebSphere Business Integration information on the Web

The WebSphere Business Integration Web site is at the following address:
`http://www.ibm.com/software/info1/websphere`

Follow links on this site:
- To obtain the latest information about WebSphere Business Integration products
- To access manuals, white papers, IBM Redbooks™, and other information sources
- To download service and support information including SupportPac™ offerings
- To access information about IBM Business Partners and Partner Offerings

Part 1. Planning

The first part of this book describes the environment that you need before you can install WebSphere Business Integration Message Broker. It contains the following chapters:

Chapter 1. Hardware and software requirements

> **For information only**
>
> The basics of this chapter will be included in the information center so that users can quickly look up supported environments and we (ID) can update the information for lifecycle changes (eg new database or op sys levels) after GA (when a book update is unlikely)

Before you install WebSphere Business Integration Message Broker, you must check that your system meets both the hardware and software requirements of the product. Details are provided in these sections:
- "Hardware requirements"
- "Software requirements" on page 5

For some operations in the broker, you might need additional software products; these might be required for the purpose, or optional, for example for performance reasons. These are described in Chapter 2, "Optional software," on page 9.

Hardware requirements

Check that your target systems are at the required level of support. Table 1 describes what you need.

Table 1. Hardware requirements

Operating system	Requirements[1]
Linux on Intel	IBM e(logo)server xSeries® or equivalent Intel based systems
Linux on zSeries	IBM e(logo)server zSeries 600 or e(logo)server 700 Server
Windows	IBM e(logo)server xSeries or equivalent Intel based system[3] IBM e(logo)server iSeries™ Server using the IBM Integrated xSeries Server
z/OS®[4]	Any server capable of running one of the listed z/OS releases

Notes:

1. Always check the `readme.html` file for the latest information about supported hardware and software. The readme file is on the product CD and you can access it from the final panel of the installation program. However, the file is updated occasionally and you must access the WebSphere MQ family product readmes Web page to check that you have the latest level.

2. Only PA RISC 2.0 chipset systems are supported; the '+DAportable' flag cannot be used for 64-bit compilations, therefore WebSphere MQ 64-bit queue managers cannot be supported on the PA RISC 1.1 chips.

3. The Message Brokers Toolkit for WebSphere Studio requires any Intel Pentium® III (or higher) processor-based IBM PC or compatible, with 700 or more MHz processor speed. You cannot install this component on Windows 2003.

4. Refer to the *WebSphere Business Integration Message Broker for z/OS Program Directory* for further details.

Disk space

> **Check for V6**
> Final checks of requirements must be done, these are V5 figures.

WebSphere Business Integration Message Broker has the following system storage requirements:

- 512 MB (MB equals approximately 1000000 bytes) of RAM to support runtime operations.
- 512 MB of RAM to support workbench operations. This is the minimum supported level; you are recommended to make available 1 GB (GB equals approximately 1000000000 bytes).
- Disk space dependent on the components that you install and the working space that is required by those components (for example, for WebSphere MQ queues and persistent messages). Table 2 provides figures for guidance that might vary with different operating systems. If you install just one or two of the runtime components, the storage required is reduced by only a small amount.

Table 2. Disk space requirements

Component	MB for Event Broker	Additional MB for Message Broker
Runtime components (broker, Configuration Manager, and User Name Server)	365	60
Message Brokers Toolkit for WebSphere Studio	400	0
TOTAL	765	60

- If you install one of the database products supplied on the product CDs, you need additional space:
  - DB2 Enterprise Edition requires 360 MB of disk space.
  - DB2 Run-Time Client requires 150 MB of disk space.
- On systems on which you create a broker, approximately 10 MB is required for the broker tables. If you create user databases that are accessed by message flows, additional space is required on those systems.
- Temporary disk space. You might also need between 150 MB and 300 MB of additional space for temporary files. This space is required in the location pointed to by the TEMP system variable, not in the folder into which you install the product. These temporary files are deleted when installation has completed.

Communications

Check that your system has communications hardware that supports at least one of the following protocols:
- NetBIOS
- SNA LU 6.2
- SPX
- TCP/IP

Software requirements

> **Check for V6**
>
> What is the situation with RAC, and MDAC for V6? (Disthub is handled as an integral part of the product.)

WebSphere Business Integration Message Broker also has specific requirements for operating system software, and for supporting products. Details are provided in these sections:
- "Operating system requirements"
- "Databases"
- "Additional required products" on page 8

Operating system requirements

You must ensure that you have the correct level of operating system software before you install WebSphere Business Integration Message Broker. Check the requirements for your operating system in Table 3.

Table 3. Operating system requirements

Operating system	Requirements[1]
Linux on Intel	Linux Intel (IA32) Red Hat Enterprise Linux AS 3.0 (plus Update 2) Linux Intel (IA32) SUSE LINUX Enterprise Server (SLES) 8 (plus Service Pack 3) Linux Intel (IA32)SUSE LINUX Enterprise Server (SLES) 9
Linux on zSeries	Linux zSeries (31-bit) Red Hat Enterprise Linux AS 3.0 (plus Update 2) Linux zSeries (31-bit) SUSE LINUX Enterprise Server (SLES) 8 (plus Service Pack 3) Linux zSeries (31-bit) SUSE LINUX Enterprise Server (SLES) 9
Windows	Windows 2000 Professional (plus Service Pack 4)[2,3] Windows 2000 Server (plus Service Pack 4)[2] Windows 2000 Advanced Server (plus Service Pack 4)[2] Windows XP Professional (plus Service Pack 1a)[3] Windows Server 2003 Standard Edition Windows Server 2003 Enterprise Edition
z/OS[3]	z/OS 1.4 (at RSU0403) z/OS 1.5 z/OS 1.6

Notes:

1. Always check the readme.html file for the latest information about supported software. You can find this on the WebSphere MQ family product readmes Web page.

2. MDAC 2.7.1 or later is required.

3. Support for the broker is for development and test purposes only, not for production.

4. Refer to the *WebSphere Business Integration Message Broker for z/OS Program Directory* for further details.

Databases

A broker requires a database to contain operational and state data. If you choose to install the broker component, the installation wizard checks that you have a suitable database product installed. If you do not, it presents that information to

you and asks if you want to exit installation. If you choose to continue without a supported database available on the system, you must install a suitable database before you create a broker.

On Windows, if you invoke the LaunchPad before the installation program, it asks you to select either DB2 Enterprise Edition or DB2 Run-Time Client. If you choose one of these databases, the LaunchPad installs it for you; if you do not, you can continue with the installation program but you must install a suitable database before you create a broker.

You can choose between several different supported databases. Multiple brokers within a single installed instance can access the same database, if appropriate, because all tables are qualified by the broker name. Brokers in different instances cannot share a database.

You can also configure message flows to access user databases. The databases supported are identical.

Table 4 shows which levels of database are supported on which operating systems. In most situations, the component that accesses the database does not have to be running on the same operating system as the database server. For details about local and remote database use, and existing restrictions, see "Database locations" on page 7.

Table 4. Supported databases

Operating system	DB2[1]	Microsoft SQL Server	Oracle[1]	Sybase[1]
AIX	8.1[2]	Not applicable	9i Rel 2[3] 10G	12.5.1
HP-UX	8.1[2]	Not applicable	9i Rel 2[3] 10G	12.5.1
Linux on Intel	8.1[2]	Not applicable	9i Rel 2[3] 10G	12.5.1
Solaris	8.1[2]	Not applicable	9i Rel 2[3] 10G	12.5.1
Windows 2000 Professional Windows 2000 Server Windows 2000 Advanced Server Windows XP Professional	8.1[2]+[4]	2000 SP3a	9i Rel 2[3] 10G	12.5.1
Windows Server 2003	8.1[2]+[4]	2000 SP3a	9i Rel 2[3] 10G	Not supported
OS/400[®][5]	V5R1 V5R2	Not applicable	Not applicable	Not applicable
z/OS	7.1[6] 8.1[6]	Not applicable	Not supported	Not applicable

Notes:

1. Supported releases of DB2, Oracle, and Sybase can participate as a Resource Manager in a distributed XA transaction, and can be coordinated by WebSphere MQ as the XA Transaction Manager. In WebSphere Business Integration Message Broker, this is referred to as supporting a globally coordinated message flow. On z/OS, all transactions are coordinated by RRS.

2. Check the `readme.html` file for your product to check if a FixPak or other fix is required.

3. You are recommended to apply Oracle Patch Set 3 (3095277) to avoid potential stress problems. This does not apply to Windows XP.

4. DB2 Run-Time Client for Windows Version 8.1 is also supported. You can select this database during installation and for verification; for a production system you might want to install and configure your chosen enterprise database.

5. You can configure OS/400 databases for remote user database access only. For further details of these restrictions, and for information about the PTFs that are required with this product, see "Database locations."

6. PTFs are required with this product; DB2 7.1 requires RSU0312 and PUT0402, DB2 8.1 requires the PTF for APAR PQ84976. See the *WebSphere Business Integration Message Broker for z/OS Program Directory* for further details.

Database locations

You can create and configure databases that you use with WebSphere Business Integration Message Broker on the local system, or on a remote system, subject to the following restrictions:

- You can use a local or remote database for the broker tables, with the exception that a remote database cannot be accessed on z/OS or OS/400.
- You can use a local or remote database for user data, subject to the following operating system restrictions:

  Database on OS/400

  - Database support on OS/400 is DB2 only.
  - Your OS/400 installation must be V5R1, with PTFs SI03013 and SI04047, or V5R2. If you are using Client Access Express to connect to OS/400, V5R1 also requires PTF SI05361 and V5R2 requires PTF SI05854.
  - Large database objects (LOBs) are not supported.
  - Globally coordinated (XA) transactions are not supported.
  - You can call stored procedures if access to the remote database is provided by DB2 Connect (available on Windows and UNIX). It is not supported if access is provided by Client Access Express (available on Windows only).

  Database on z/OS

  - Database support on z/OS is DB2 only.
  - Large database objects (LOBs) are not supported.
  - You must use DB2Connect on both UNIX and Windows.
  - Table and column names cannot be greater than eighteen characters.
  - Trigger and constraint names cannot be greater than eight characters.
  - SQL batch jobs that have been run in a distributed environment must be reviewed and revised. This is because some Data Definition Language (DDL) and Data Manipulation Language (DML) commands and statements are inappropriate or incorrect for DB2 running on z/OS.

- If you choose to use a remote database, you must configure the ODBC connection to the database correctly. Refer to the documentation for your database product for further information.

There are advantages and disadvantages to local and remote database usage. You must refer to the documentation supporting the database that you are using for WebSphere Business Integration Message Broker to determine the best options for your specific environment.

Additional required products

WebSphere Business Integration Message Broker requires additional software products to run successfully. These are included on the product CDs. The installation wizard interrogates your system, and informs you if any of these programs are missing. If a program is required, and you have a back-level installed, the installation program informs you that this product must be upgraded.

The required software products are shown in Table 5.

```
┌─ Check for V6 ─────────────────────────────────────────────────┐
│   Is this where I need to list RAC (presumably Message Broker   │
│   only?) and MDAC?                                              │
└────────────────────────────────────────────────────────────────┘
```

Table 5. Additional required products

Operating system	Requirements
Linux on Intel	WebSphere MQ Version 5.3.0.1 or later Java Runtime Environment (JRE) Version 1.4.2 Mozilla[1] 1.4.2 or above
Linux on zSeries	WebSphere MQ Version 5.3.0.1 or later Java Runtime Environment (JRE) Version 1.4.2
Windows	WebSphere MQ Version 5.3.0.1 or later Java Runtime Environment (JRE) Version 1.4.2
z/OS	WebSphere MQ V5.3.1 (plus PTF for APAR PQ80677) or greater Java Runtime Environment (JRE) Version 1.4.2

Notes:

1. Some Linux offerings do not install Mozilla by default. If you plan to install the Message Brokers Toolkit on your Linux system, check that a supported version of Mozilla is already installed. If not, install Mozilla from your Linux operating system media.

Chapter 2. Optional software

> **Check for V6**
>
> Are there 'special' environments or operations like pubsub that require or recommend additional pieces?
>
> 34601 WAS coexistence. Note that If WAS with embedded messaging is installed before WMQ, WAS must be removed to ensure WMQ queue manager will start correctly (WAS version is not fully functional).

Some of the operations of WebSphere Business Integration Message Broker require or recommend additional software, or can be integrated with other products. Details are provided in these sections:
* "WebSphere Studio Application Developer"

WebSphere Studio Application Developer

You can integrate the Message Brokers Toolkit with the WebSphere Studio Application Developer Toolkit if you choose. You can do this either when you install the Message Brokers Toolkit (if you have already installed WebSphere Studio Application Developer), or after installation of the two products is complete (installation can be in either order).

Details of the actions that you need to take, and the results of the integration, are described in Appendix C, "Integrating with WebSphere Studio Application Developer," on page 65.

Chapter 3. Installation packages

┌─ **For information only** ───┐
│ This chapter replaces the Read Me First pamphlet that was included in the │
│ product package for V5. │
└──┘

┌─ **Updates required** ───┐
│ Content will change because of the separation of the toolkit from the runtime. │
│ No details available yet. │
│ │
│ Probably some other changes will also be required....... │
└──┘

This chapter describes the CDs that are contained in the product package, and tells you which CD you must insert first to begin the installation program. The contents of the packagedepend on the product that you have ordered and are shown in these tables:

- Table 6
- Table 7 on page 12

Table 6. CDs supplied for WebSphere Business Integration Message Broker

Operating System	CD label	Description
Windows 2000/XP	WebSphere Business Integration Message Broker for Windows 2000 and Windows XP *Version 6.0*	**Insert this CD first**, It checks if there are any prerequisite products that you must install on your system. It also contains the readme.html documentation and the product Quick Tour.
	DB2 V8.1 for WebSphere Business Integration broker products (Windows NT, Windows 2000 and Windows XP — English and EMEA Languages) *Version 6.0*	Product install code and documentation
	DB2 V8.1 for WebSphere Business Integration broker products (Windows NT, Windows 2000 and Windows XP — English and AP Languages) *Version 6.0*	Product install code and documentation
	WebSphere MQ for Windows *Version 5.3.0.1*	Product install code
Linux for Intel	WebSphere Business Integration Message Broker for Linux for Intel *Version 6.0*	**Insert this CD first**, It checks if there are any prerequisite products that you must install on your system. It also contains the readme.html documentation and the product Quick Tour.
	DB2 V8.1 for WebSphere Business Integration broker products (Linux for Intel) *Version 6.0*	Product install code and documentation
	WebSphere MQ for Linux for Intel *Version 5.3.0.1*	Product install code

Table 6. CDs supplied for WebSphere Business Integration Message Broker (continued)

Operating System	CD label	Description
Various	WebSphere Business Integration Brokers *Version 6.0 Supplement*	Contains two installation prerequisites, Microsoft Data Access Component version 2.9 (for Windows only) and IBM Agent Controller (for all platforms) as well as stand alone help and PDF help documentation.
	WebSphere MQ *V5.3 Client 1*	Product install code for Windows, AIX, HP-UX11, and Solaris, plus documentation.
	WebSphere MQ *V5.3 Client 2*	Product install code for Linux for Intel and Linux for zSeries.

Table 7. CDs supplied for WebSphere Business Integration Message Broker with Rules and Formatter Extension

Operating System	CD label	Description
Windows 2000/XP	WebSphere Business Integration Message Broker for Windows 2000 and Windows XP *Version 6.0*	**Insert this CD first**, It checks if there are any prerequisite products that you must install on your system. It also contains the readme.html documentation and the product Quick Tour.
	WebSphere Business Integration Message Broker with Rules and Formatter Extension for Windows 2000 and Windows XP *Version 6.0 Runtime*	Product install code and documentation
	WebSphere Business Integration Message Broker with Rules and Formatter Extension for Windows 2000 and Windows XP *Version 6.0 Design-time*	Product install code and documentation
	DB2 V8.1 for WebSphere Business Integration broker products (Windows NT, Windows 2000 and Windows XP — English and EMEA Languages) *Version 6.0*	Product install code and documentation
	DB2 V8.1 for WebSphere Business Integration broker products (Windows NT, Windows 2000 and Windows XP — English and AP Languages) *Version 6.0*	Product install code and documentation
	WebSphere MQ for Windows *Version 5.3.0.1*	Product install code
Linux for Intel	WebSphere Business Integration Message Broker for Linux for Intel *Version 6.0*	**Insert this CD first**, It checks if there are any prerequisite products that you must install on your system. It also contains the readme.html documentation and the product Quick Tour.
	DB2 V8.1 for WebSphere Business Integration broker products (Linux for Intel) *Version 6.0*	Product install code and documentation
	WebSphere MQ for Linux for Intel *Version 5.3.0.1*	Product install code
Various	WebSphere Business Integration Brokers *Version 6.0 Supplement*	Contains two installation prerequisites, Microsoft Data Access Component version 2.9 (for Windows only) and IBM Agent Controller (for all platforms) as well as stand alone help and PDF help documentation.
	WebSphere MQ *Version 5.3 Client 1*	Product install code for Windows, AIX, HP-UX11, and Solaris, plus documentation.
	WebSphere MQ *Version 5.3 Client 2*	Product install code for Linux for Intel and Linux for zSeries.

Chapter 4. National language support

> **Check for V6**
>
> Check that chapter contents are correct for operating system and V6.

The message catalogs are provided in the following languages on z/OS:
* Japanese
* Simplified Chinese
* US English

The messages written to the z/OS operator console (which are a subset of the messages written to the syslog) are in US English only, and are written in mixed case or in uppercase depending on your chosen system configuration.

On Windows or Linux systems on which you install the workbench, the user interface and message catalogs are provided in the following languages:
* Brazilian Portuguese
* French
* German
* Italian
* Japanese
* Korean
* Simplified Chinese
* Spanish
* Traditional Chinese
* US English

WebSphere Business Integration Message Broker provides a selection of message catalogs that are used by the product components to report any problems that occur. If you use other products in conjunction with WebSphere Business Integration Message Broker, these might cause WebSphere Business Integration Message Broker to report errors using its message catalogs, or might report problems using their own techniques.

You must refer to the documentation supplied with any other products that you use to determine the process they employ. In particular, you must check the documentation supplied by the databases that you use and documentation provided with any user-defined node or parser that you integrate into the WebSphere Business Integration Message Broker environment.

You can install WebSphere Business Integration Message Broker and WebSphere MQ in any supported language; all language versions for each product are compatible with all language versions for the other product. All languages for the WebSphere MQ messaging products are included on the WebSphere MQ server CD supplied with WebSphere Business Integration Message Broker.

All messages generated for internal inter-component message exchange (for example, deployed configuration messages and log files for the **mqsireadlog** command) are generated in code page 1208 (utf-8).

Locales

WebSphere Business Integration Message Broker supports messages for at least the following locales:

Table 8. Supported locales

Windows	Linux	z/OS
English (United States)	en_US	En_US.IBM-1047, En_US.IBM-037
German (Standard)	de_DE	not supported
Spanish (Modern Sort)	es_ES	not supported
French (Standard)	fr_FR	not supported
Italian (Standard)	it_IT	not supported
Portugese (Brazilian)	pt_BR	not supported
Japanese	ja_JP	Ja_JP.IBM-939, Ja_JP.IBM-930
Simplified Chinese (China)	zh_CN	Zh_CN.IBM-1388, Zh_CN.IBM-935
Traditional Chinese (Taiwan)	zh_TW	not supported
Korean	ko_KR	not supported

Chapter 5. Coexistence

> **Work only just started**
>
> Need to discuss how components can (and can't) coexist. Also the concept of instances and what they mean.
>
> Instances are created of a certain type. Source is feature 34937.4 (still under review).

Typical

Install everything. Instance name is fixed as *primary*. <install_dir> is fixed as `<install_root>/mqsi_primary` where:
- On AIX, <install_root> is /usr/opt
- On all other UNIX platforms, <install_root> is /opt
- On Windows, <install_root> is C:\Program Files\IBM

No user input possible to alter these settings. Therefore only one typical instance per system.

Custom

Choose one or more runtime components (broker, Configuration Manager, User Name Server). There is no default name or directory associated with this setup type, although if a primary (typical) instance does not exist, the typical settings are initially displayed for a custom installation.

Also use this option to upgrade an existing instance to a later fix level (an earlier one won't be permitted.

Some discussion about how to find out what you already have installed, and how 'instances' of previous releases are displayed. Also mqsilistinstances command (need a definition of this in this book). And what versions and components can coexist with what. And that 2.1 products must be removed before V6 is installed.

> **Note from 34937.4**
>
> The new installation manual will need to cover the concept of instances, see all 34937 features, and the new install options available. These are covered in the specification section. *The lack of native software integration will need to be documented clearly since it could cause confusion.* The alternative to native platform tools, such as lslpp, will be to use the new mqsilistinstances command, described in feature 34937.3, to list all installed instances and their locations, so it will still be possible for a user to find out what copies of the product they have installed and where.

Part 2. Preparation

This part describes the tasks that you might need to complete before you start installation of WebSphere Business Integration Message Broker. It contains the following chapters:

Chapter 6. Backing up your system

> **Information required**
>
> Are there any preinstall procedures needed?

If you are installing WebSphere Business Integration Message Broker for the first time on this system, complete the tasks described here. If you are migrating from a previous version, backup requirements are different; refer to Chapter 9, "Migrating from Version 5," on page 27 or Chapter 10, "Migrating from Version 2.1," on page 29.

Windows

V5 information: Take a backup of your INCLUDE, LIB, and PATH environment variables.

No longer required because environment variables no longer used? Use of profile instead?

Any others?

Feature 34937.4 states "Backups are not required when installing a new, separate, instance at a later Fix Pack level." New install is all this book covers. That and (from same feature) "Attention should be drawn to the need for backups before upgrading an existing instance to a new Fix Pack level." to be covered in info center.

Chapter 7. Setting up security

> **Check for V6 accuracy**
>
> Updates for V6 required throughout this chapter. This is just to get the installation and verification completed. Needs to provide pre-install steps only. Not sure groups are needed for install itself (ie create before attempting install), but are afterwards before user does anything ie for verification?
>
> What is required on Windows/Linux if user is doing toolkit install only? See topic ap03985 considering security for the workbench.

On Windows systems, you can define user IDs up to 12 characters long. On Linux systems and on z/OS, user IDs are restricted to eight characters. Some databases also restrict user IDs (for example, user IDs that access DB2 must be eight characters only). If you have a mixed environment, ensure that your user IDs are not more than eight characters long to provide compatibility.

* If you are installing on a Linux system, go to "Security on Linux systems."
* If you are installing on Windows, go to "Security on Windows systems" on page 22.

Security on Linux systems

If you choose to install the Message Brokers Toolkit on Linux for Intel, read this section.

> **Check for V6**
>
> Is this required for just the tooling?

Security control of WebSphere Business Integration Message Broker components, resources, and tasks depends on the definition of users and groups of users (principals) to the security subsystem of the operating system. The installation program does not create these principals; you must complete this task yourself:

Linux

1. Create the **mqbrkrs** group:
   a. Enter the following command:
      ```
      groupadd mqbrkrs
      ```
   b. Edit the file `etc/group` to add root to the **mqbrkrs** group:
      1) Locate the line defining the **mqbrkrs** group
      2) Type `root` after the last colon. For example:
         ```
         mqbrkrs::42428:root
         ```
2. Create a user:
   a. Enter the following command to create a user ID and add it to the groups **mqbrkrs** and **mqm**:
      ```
      useradd -G mqbrkrs,mqm -c "WBIMB User" mqsiuser
      ```
      where `mqsiuser` is the user ID and `-c "WBIMB User"` is a comment that describes the user. The **useradd** command creates a locked account by default.

b. Enter the following command to unlock the account to enable it to be used:

```
passwd <mqsiuser>
```

Enter a new password for the user at the prompt.

The user ID that you use to install the must be no more than eight characters in length.

Security on Windows systems

If you choose to install the Message Brokers Toolkit on Windows, read this section.

Choosing a user ID for installation

Ensure that the user ID with which you log on has the following characteristics

- **Administrator** authority on the machine that you are using. You cannot complete the installation without this authority.

  You cannot use the **Administrator** ID itself.

- A maximum of eight characters

  If you log on with a user ID that is more than eight characters long, you might have problems when you create databases during verification.

Creating groups during installation

You can add these principals manually in the Local Users and Groups management console, which you can access with the following steps:

1. Click **Start > Settings > Control Panel > Users and Passwords**.
2. Select the **Advanced** tab and click the **Advanced** button in the Advanced User Management section.
3. Follow the management console instructions to create users and groups.
4. If you prefer, you can use the mqsisetsecurity command, which configures the Windows system with the required security principals. If the User ID that you have used to install has Administrator authority, this command is automatically launched by the installation program.

If you intend to install in a domain environment, review these additional considerations:

- If you intend to install WebSphere Business Integration Message Broker on the domain controller system:
  1. Install on the domain controller before you install on any of the domain workstations.

     The WebSphere Business Integration Message Broker installation program does not create the **mqbrkrs** local group; create this group manually.

     In a domain environment, WebSphere Business Integration Message Broker also requires a global group, **Domain mqbrkrs**, which you must create manually. You must also add **Domain mqbrkrs** to the local group **mqbrkrs**.
  2. Install on each workstation that is a member of the same domain. The WebSphere Business Integration Message Broker installation program does not create the **mqbrkrs** local group; you can launch the Security Wizard, or create this group manually. Add the **Domain mqbrkrs** global group to the local **mqbrkrs** group.

- If you do not intend to install WebSphere Business Integration Message Broker on the domain controller system:
  1. Create the **Domain mqbrkrs** global group on the domain controller system.
  2. Install on each workstation. The WebSphere Business Integration Message Broker installation program does not create the **mqbrkrs** local group. Ensure that you create this group and add the **Domain mqbrkrs** global group to the local group.

Security on z/OS systems

> **Check for V6**
> Is information needed here; none about this appears to be included in the Program Directory?

The user ID that you use to install the product must be no more than eight characters in length.

Chapter 8. Preparing the Linux system

> **Check for V6**
>
> Content needs checking for V6 accuracy.

If you install the Message Brokers Toolkit on Linux, create or mount a file system of your chosen name in preparation for installation.

- Create a new directory anywhere on your system that has sufficient space for the product. For example:

  `mkdir -p /bigdisk/mqsi`

  See "Disk space" on page 4 for details of how much space is required.

- Mount a file system on a remote network device, for example with NFS, to make this accessible to the system on which you are installing.

Mounting CDs on a Linux system

These instructions are a guide to mounting CDs. Always consult your Linux operating system documentation for exact details of this task.

Linux

1. Log on as `root`.
2. To set up a mount point for the CD-ROM device (if one does not already exist), run the following command:

   `mkdir -p /mnt/cdrom`

3. To mount a CD, insert the CD and run the following command:

   `mount -t iso9660 /dev/cdrom device /mnt/cdrom`

   where `cdrom device` is the name of your CD device, for example `hdc`. Change the `/mnt/cdrom` mount point as appropriate from step 2. On some systems it is sufficient to insert the CD and type `mount cdrom` at root.

Chapter 9. Migrating from Version 5

> **Approach for migration**
>
> This book will cover a minimum of information, only those tasks that must be completed before installation and any necessary conceptual stuff.
>
> The concepts, preparation, strategy, whatever will be in the information center only.

This chapter covers the tasks that you must complete before you install WebSphere Business Integration Message Broker.

1. Details to follow

After installation, refer to the online information center to complete migration.

Considerations for the Rules and Formatter Extension

> **Check for V6**
>
> What is the situation wrt migrating New Era from V2.1 to V6? These statements are taken from V5 chapter and perhaps are not true for this scenarios?

Migration from WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 2.1 WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 6 does not require any changes to the rules and formats database, and no additional tasks beyond those required for WebSphere Business Integration Message Broker without the Rules and Formatter Extension. The .FIE or .RIE data files used to hold rules and formats data do not change.

Chapter 10. Migrating from Version 2.1

> **Approach for migration**
>
> This book will cover a minimum of information, only those tasks that must be completed before installation and any necessary conceptual stuff.
>
> The concepts, preparation, strategy, whatever will be in the information center only.

This chapter covers the tasks that you must complete before you install WebSphere Business Integration Message Broker.

1. Details to follow

After installation, refer to the online information center to complete migration.

Considerations for the Rules and Formatter Extension

> **Check for V6**
>
> What is the situation wrt migrating New Era from V2.1 to V6? These statements are taken from V5 chapter and perhaps are not true for this scenarios?

Migration from WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 2.1 WebSphere Business Integration Message Broker with Rules and Formatter Extension Version 6 does not require any changes to the rules and formats database, and no additional tasks beyond those required for WebSphere Business Integration Message Broker without the Rules and Formatter Extension. The .FIE or .RIE data files used to hold rules and formats data do not change.

Part 3. Installation

The third part of the book describes how you install the product, or its components, on the supported operating systems. It contains the following chapters:
- Chapter 11, "Choosing what to install," on page 33
- Chapter 12, "Choosing how to install," on page 35
- Chapter 13, "Installing the toolkit on Linux," on page 41
- Chapter 14, "Installing the toolkit on Windows," on page 43

Complete the tasks described in this part if you are upgrading from WebSphere Business Integration Event Broker to WebSphere Business Integration Message Broker.

Chapter 11. Choosing what to install

> **Updates for V6**
> Further updates required to reflect feature 37224 and the runtime/tooling split.

Two installation programs are supplied for WebSphere Business Integration Message Broker

Runtime components

The runtime components are:
- Broker
- Configuration Manager
- User Name Server

You can install any combination of these components, and you can install them more than once on any system; you must create each installation as an instance, and specify a unique name and installation directory. For more details, see Chapter 5, "Coexistence," on page 15.

Youo must choose between a typical and a custom installation:

- A typical installation installs all the runtime components into the default directory xxxxxx, and sets the defautl instance name xxxxx. This is the default action.

- A custom installation prompts you to select the components that you want to install, and to specify the isntance name and the directory into which the code is installed.

Message Brokers Toolkit

The toolkit is available only on Linux on Intel and Windows.

If you want to install the toolkit, you must locate the correct CD for the system on which you want to install it, and insert that into the CD drive.

If you install the runtime components on Windows, the Launchpad provides a link for you to start the toolkit installation program before (or after) you install the runtime components. It prompts you to enter the toolkit installation CD.

No firm details available yet about multiple instances for the toolkit.

Table 9 summarizes the choices that you can make for each operating system.

Table 9. Installation choices

Operating system	Broker	Configuration Manager	User Name Server	Message Brokers Toolkit
Linux on Intel	✔	✔	✔	✔
Linux on zSeries	✔	✔	✔	
Windows	✔	✔	✔	✔
z/OS	✔	✔	✔	

Database requirements

If you install a broker, a database is required. The runtime installation program checks your system to determine if you have a suitable database product installed. If you do not, it offers you the option to install DB2 Enterprise Edition or DB2 Run-Time Client. You can continue with the installation without a database, but you must install one before you can use the broker. For more details about supported databases, see "Databases" on page 5.

Chapter 12. Choosing how to install

- You can choose to set up a server and install remotely from the server on multiple systems. "Choosing local or remote installation" provides further details.
- You can choose to install in one of three modes; graphical, console, and silent. These are described in "Choosing your installation mode" on page 37.

Choosing local or remote installation

Access the product media locally or remotely:

Local access
> Load the product CD in the drive of the system on which you want to install one or more product components.

Remote access

> **Linux** To enable a remote installation, you must complete tasks on both the server and target systems. For details of the commands used in these examples, refer to the operating system documentation.
>
> - **Setting up the server system**
>
>   On AIX, you can share the CD drive.
>
>   On all UNIX systems, you can copy the files from the CD:
>
>   1. Create a directory on the server to store the installation files. For example:
>
>   `mkdir /instwbib`
>
>   2. Mount the appropriate CD in the drive (the installation programs for the runtime components and the Message Brokers Toolkit are on separate CDs; insert the correct CD for the components you want to install from a remote location).
>
>   3. Copy the complete contents of the CD to the new directory. For example:
>
>   `cp -rf /cdrom. /instwbib`
>
>   4. Grant users access to the directory that now contains the CD image.
>
>   5. Make the directory shareable:
>
>   - **On Linux:** use the **exportfs** command. The example below gives all users read-only access using NFS:
>
>        ```
>        exportfs -i -o ro /instwbib
>        exportfs -a
>        ```
>
> - **Setting up the target system**
>
>   Complete these steps:
>
>   1. Create a new directory to mount the shared directory. For example:
>
>   `mkdir /remotewbibimage`
>
>   where `remotewbibimage` is the name of the new directory.
>
>   2. Mount the remote directory. For example:
>
>   `<machine name>:instwbib /remotewbibimage`

where <machine name> is the name of the system on which you created the CD copy.

3. Change to the remote image directory.

4. Display the product license agreement:

```
./mqsilicense [-text_only]
```

where [-text_only] is an optional parameter that displays the license agreement in text mode. By default, the license agreement is displayed in a graphical user interface.

5. Select the appropriate number for your language.

6. Read the license agreement, then press **1** to accept it, or **2** to decline it. You cannot continue with the installation until you have read and accepted the license agreement.

7.
   – **On Linux:** enter the following command:

   ```
   swinstall -s remotewbibimage WBIB
   ```

Windows

Choose one of the following two methods to make the WebSphere Business Integration Message Broker installation files accessible on a LAN server:

- Make the WebSphere Business Integration Message Broker CD drive shareable.

- Copy the product files from the CD to a server:

  1. Create a folder on the LAN server to store the installation files. For example:

     ```
     md  m:\instmqsi
     ```

  2. Load the product CD. If autorun is enabled, the initial window appears; cancel this window.

  3. Copy the entire CD to the new folder. For example:

     ```
     xcopy e:\*.* m:\instmqsi /e
     ```

     This copies the complete contents of the CD to the specified location on the server.

  4. Database products DB2 Enterprise Edition and DB2 Run-Time Client are available on CD in the product package. If you also want to make one or both of these available for installation from this server (or from another server):

     a. Create a new folder, for example:

        ```
        md: m:\instmqsi\DB2
        ```

     b. Copy the contents of the database CD to the new folder, for example:

        ```
        xcopy x:\*.* m:\instmqsi\DB2 /e
        ```

  5. Give all licensed users access to the folder that now contains the CD image (in this example, the m: drive). You must also add the users to the appropriate Windows groups (for example, the Administrators group).

  6. Make the drive shareable using Windows Explorer.

  7. From a command prompt on the target machine, connect to the appropriate drive and folder using the net use command, for example:

```
net use x: \\wmqint\instmqsi
```

where x: is the required mapped drive on the target machine.

If your shared installation directory name contains spaces (for example, WBIMB install), enclose it in quotes.

If your server is protected, you might need to specify a user ID and password on this command (see the Windows online help for more information about `net use`). Alternatively, use Windows Explorer or some other method to map the shared resource to a drive letter.

You cannot enter a UNC path (`\\server\drive`) to access the installation program; you must map the drive, as shown, otherwise the Java process times out. If you cannot map the drive, or choose not to, copy the CD contents to a local drive and install from that drive.

Now complete the installation instructions given in the appropriate chapter:
- Chapter 13, "Installing the toolkit on Linux," on page 41
- Chapter 14, "Installing the toolkit on Windows," on page 43

Choosing your installation mode

The installation programs for the runtime components and for the Message Brokers Toolkit provide three modes; the way in which you invoke the program determines the mode in which it operates.

Graphical mode

This is the default mode. An installation wizard guides you through the installation process with a series of dialogs that present options and defaults. You can change those defaults to values that suit your environment. On Windows, there is also a pre-install LaunchPad in this mode that provides additional information about prerequisite software, and gives access to online documentation.

If you click **Cancel** before the **Install Progress** panel appears, you can exit the setup. If you choose to exit, your system returns to its state before launching the install wizard. However, if you cancel the install wizard after the Install Progress panel appears, your system is not restored to its previous state: the install wizard stops immediately.

When you use the wizard, you might have to wait a few seconds to move to the next panel after clicking the **Next >** button. Progress is not always displayed on all panels. If you click **Next >** twice, you might skip an entire panel. To ensure the installer is progressing, you can monitor your CPU usage: CPU usage increases greatly during installation.

Console mode

This is a text based interface with which you interact in a command window. It presents the same options as the graphical interface, and you can choose values and navigate through the process using the keyboard only. You can specify an accessibility option that provides additional audible information for visually impaired users.

Use these prompts to navigate through the installation:

1 to move to the next panel
2 to return to the previous panel
3 to cancel and terminate the install program
4 to redisplay the current screen

The default option is always displayed within brackets, for example [1]. If this is the correct choice, press Enter to continue.

Table 10. Console mode options

Command line option	Description	Invocation
-console -is:javaconsole	Specifies the console interface mode. Messages are displayed on the console during installation. You must specify both options.	`<installer> -console -is:javaconsole`
-accessibility	Provides additional audible information for visually-impaired users. This option sets the installation automatically to console mode so you do not need the -console option as well.	`<installer> -accessibility`

Silent mode

> **Check for V6**
>
> 35031 says silent will NOT allow readme display and tooling launch at end. Check details.

This is an unattended interface that is recommended for automated installs over a large number of identical systems.

You can perform a silent installation:

- With default settings. This results in these actions:
  - Accept the license agreement.
  - Install to the default directory.
  - Install all selectable features.
  - Perform no prerequisite software checking.
- With one or more non-default settings. If you want the installation program to use non-default values for one or more values, generate a response file to define those values, and specify that file when you install in silent mode.

  A sample response file is provided in the sample scripts directory of root cd image directory. You can tailor this file to your requirements, or you can generate a new response file, as described below.

Table 11. Silent mode options

Command line option	Description	Invocation
-options <responsefile>	Specifies that the wizard executes a response file. A response file contains command line options, each line contains one, that set specified install wizard instructions. Use the full path to the <responsefile>.	`<installer> -silent -options <responsefile>`
-options-record <responsefile>	Specifies that the installation program generates a response file, <responsefile>, for the project after completion. Use the full path to the <responsefile>.	`<installer> -options-record <responsefile>`
-options-template <responsefile>	Specifies that the installation program generates a response "options" file, <responsefile>, for the project while running, which you can edit and use to provide input during a later run. Use the full path to the <responsefile>.	`<installer> -options-template <responsefile>`
-silent	Specifies an installation in silent mode which is performed with no user interaction; the default settings are used for all optional values.	`<installer> -silent`

Refer to "Response files" for details of how to create and edit these files.

Response files

If you want to use silent mode, but want to use values other than the defaults, generate a response file. This is a text file that contains options that describe the choices that the installation program makes. For example, it contains the following line to define the components that you want installed:

```
-W featureSelectionIB.suiteFeatures=
```

To complete the setting for this option, enter the components that you want installed when the program runs. For example, if you want both the Configuration Manager and broker components installed (but not the User Name Server), complete this option as follows:

```
-W featureSelectionIB.suiteFeatures="config_mgr,broker"
```

Note that the list separator in a response file is a comma (in previous releases, this has been a semicolon). Refer to the sample response file for more details about its content, and how you can tailor it for your installation.

To generate a response file, use one of these two methods:

1. Run the installation program indicating that you want a response file generated, and specify your required input values. The response file is generated and records your input; installation is performed. The invocation for this method is:

   ```
   path <installer> -options-record responsefile
   ```

   where `responsefile` is the full path and name of your chosen response file. You are recommended to create this in a directory different to the one in which you will install the product.

2. The second method generates a template response file that you can edit, with your chosen options, without performing an installation. The invocation for this method is:

   ```
   path <installer> -options-template responsefile
   ```

   where `responsefile` is the full path and name of your chosen response file. The template response file contains full instructions on how to enter your specific options.

In the silent mode of install there is no user input, except when a response file is used. Silent install is recommended for automated installs over a large number of identical systems. Enter the following command:

```
<installer> -silent
```

Recording

> Response files are used to feed options, made during an installation in graphical or console mode, into a silent install run. To record a response in a console install, enter the following command:
>
> ```
> <installer> -options-record responsefile -console -is:javaconsole
> ```
>
> where `responsefile` is the full path and file name of the response file.
>
> To record a response during an installation in graphical mode, enter the following command:
>
> ```
> <installer> -options-record responsefile
> ```
>
> where `responsefile` is the full path and file name of the response file.

Using

> To feed recorded options made during an install into a silent install, enter the following command:
>
> ```
> <installer> -options responsefile -silent
> ```
>
> where `responsefile` is the full path and file name of the response file.

Generating

> The response file template does not contain preset install options, and is generated to allow you to edit it for later use. The file can be generated without running the installation program. To do this, enter the following command:
>
> ```
> <installer> -options-template responsefile
> ```
>
> where `responsefile` is the full path and file name of the response file.

Chapter 13. Installing the toolkit on Linux

> **New prereq to document**
>
> Some Linux's do not install a Web browser (Mozilla) by default. Therefore installation program needs to check that this is installed before completing. See note from James Taylor.

> **New install process for toolkit - feature 37669**
>
> Toolkit install is to be done with CDI, feature 37669. No details are yet known about the process or how it will affect this book.

If you want to install only the Message Brokers Toolkit, choose the toolkit option on the launchpad. Alternatively, insert the toolkit CD. When the installation program starts, follow the instructions below.

1. To be developed.

Chapter 14. Installing the toolkit on Windows

> **New install process for toolkit - feature 37669**
>
> Toolkit install is to be done with CDI, feature 37669. No details are yet known about the process or how it will affect this book.

If you want to install only the Message Brokers Toolkit, choose the toolkit option on the launchpad. Alternatively, insert the toolkit CD. When the installation program starts, follow the instructions below.

1. To be developed.

Part 4. After installation

This part of the book discusses what to do after installation. It contains the following chapters:

Chapter 15. Registering product use (Windows only)

Run the Product Registration Tool (PRT) to register your company with IBM Software Delivery and Fulfillment. You can run the PRT from two locations:

1. The prt directory on your CD. Run PRT5724J05.exe (if you have installed WebSphere Business Integration Message Broker) or PRT5724J06.exe (if you have installed WebSphere Business Integration Message Broker with Rules and Formatter Extension).

2. The prt\message directory in the product installation directory. Run PRT5724J05.exe (if you have installed WebSphere Business Integration Message Broker) or PRT5724J06.exe (if you have installed WebSphere Business Integration Message Broker with Rules and Formatter Extension).

Complete the registration process:

- **Contact Information**. Enter your name and address details. Click **Your Privacy** to view how these details might be used for marketing purposes by IBM. Clear the option if you do not want your details used in this way. Click **Next** to continue.

- **System Information**. Your current system's specifications are displayed. Select **Yes** or **No** to include or exclude these details with your registration. Click **Next** to continue.

- **Additional Information**. Add further optional information about your business (for example, number of employees). When have completed entering your information, click **Submit** to send your registration information.

- If your connection to the Internet is not currently active, you are offered these options:

  1. **Prompt me to register in the future**. The tool will run the next time your machine is restarted.

  2. **Submit now**. Start your connection before you select this option.

  3. **Print and register by mail or fax**. On the Print panel, choose a suitable print format (you are recommended to select single sided, portrait) and printer. The printed document includes fax and mail address details.

Click **Back** at any time to review your entries. If you click **Exit**, you are offered the choice to complete registration in the future. Make your selection and click **Yes** to exit or **No** to return to the registration tool.

If you have upgraded from WebSphere Business Integration Event Broker to WebSphere Business Integration Message Broker, you must now register WebSphere Business Integration Message Broker.

Chapter 16. Licensing product use

> **Check for V6**
>
> Content of this chapter to be created wrt feature 35208, removal of LUM support and switch to ITLM. 35208.4 specifically says not to describe license file in the docs. Just a statement that the product is ITLM enabled. Follow up with KGT and install team.

Chapter 17. Verifying your system

> **Work not started yet**
>
> Details to follow. **Some/all information under ah01850 Configuring for first use. And maybe more**
>
> Discussion of verification Keren/Katja/Kate 17Nov04. We agreed that we should keep this as simple as possible and ensure that full instructions are in the info center. Simple as possible means
>
> - describe for Windows and Linux/Intel only, assuming a full install has been done
> - on Windows assume DB2 RT Client
> - on Linux, provide minimum DB2 setup for samples
> - assume Windows and Linux are the same ie single instruction set noting differences if there are any

Part 5. Appendixes

Appendix A. Installation problems

> **Check for V6**
>
> Relevant scenarios included from install.html. Check that these are still valid for V6. Check if others need to be added for V6!
>
> Scenarios from au18430_ all also included here for relevant platforms.

If you have problems during installation, check the following scenarios:

- The log `mqsi6.log` indicates a failure:

  This file contains details of the success or failure of the installation, and is primarily intended for use by IBM Service.

  For a successful installation, the last few lines are similar to the following:

  ```
  [date/time] ---> Function: ExitSetup()
  [date/time] Done: Setup successful - Return Code 0
  [date/time] <--- Function: ExitSetup()
  [date/time] Log stopped.
  Log Flush = 0.
  ```

  For an unsuccessful installation, the last few lines might be similar to the following:

  ```
  [07-13 10:22:25] ---> Function: DoMessageBox()
  [07-13 10:22:25]    !!! Silent Install - Message Box Intercept !!!
  [07-13 10:22:25]     Message was: Unable to create target directory
  [07-13 10:22:25]     Severity was: SEVERE, ErrNo was: -30008
  [07-13 10:22:25]     ABORT was set - ABORT was set
  [07-13 10:04:51] ---> Function: ExitSetup()
  [07-13 10:04:51] Done: Setup unsuccessful - Return Code -30008
  [07-13 10:04:51] <--- Function: ExitSetup()
  [07-13 10:04:51] Log stopped.
  ```

  In this example, the silent installation has failed because the target directory is not valid on this machine. Although a non-silent installation would not fail for this reason (the installation simply does not proceed until the user chooses a valid target directory), a silent installation fails because the response file value is fixed.

  The following table lists all possible return codes:

Return code	Explanation
-30000	User cancelled the installation (should never be seen on silent installation)
-30001	There is another installation, or uninstallation, running
-30002	User ID attempting to perform the installation does not have Administrator authority
-30003	installation is being attempted on a non-Win32 system
-30004	Attempting to install a WebSphere MQ Integrator CSD for the wrong version/release
-30005	Attempting to install a fix pack (CSD) when no base product is installed
-30006	Attempting to install a fix pack (CSD) lower (or equal) to the currently installed fix pack
-30007	Not enough disk space available to perform installation

-30008	Unable to create the target directory
-30009	The target directory found in the registry does not exist (fix pack (CSD) installation)
-30010	Failure in creating backup directory (fix pack (CSD) installation)
-30011	Registry key creation failure
-30012	Registry key value setting failure
-30013	Failure in creating a program folder entry
-30014	InstallShield error
-30015	Failure in backing up a file (fix pack (CSD) installation)
-30016	Invalid operating system detected

- The silent installer returns a return code of 0, but the installation fails:

  Solution: Check mqsi6.log for errors each time you complete a silent installation to ensure it completed with no errors.

  An example log for a successful silent installation is shown below:

  ```
  [InstallSheild Silent]
  Version=v6.00.000
  File=LogFile
  [Application]
  Name=IBM WebSphere MQ Integrator Version 6.0
  Version=2
  Company=IBM
  Lang=0009
  [ResponseResult]
  ResultCode=0
  ```

  Non-zero result code values are shown in the following table:

Result code	Explanation
-1	General error
-2	Invalid mode
-3	Required data not found in the setup.iss file
-4	Not enough memory available
-5	File does not exist
-6	Cannot write to the response file
-7	Unable to write to the log file
-8	Invalid path to the InstallShield Silent response file
-9	Not a valid list type (string or number)
-10	Data type is invalid
-11	Unknown error during setup
-12	Dialog boxes are out of order
-51	Cannot create the specified folder
-52	Cannot access the specified file or folder
-53	Invalid option selected

- **On Windows and Linux only:**You get the following message when you start, or use, the Message Brokers Toolkit:

  ```
  The licence cannot be found or has expired. The features that do not have the valid
  license will be disabled.
  ```

Solution: Parts of the Message Brokers Toolkit require a license to be enrolled. The license is normally enrolled automatically, but if you see this error message, you must run `enroll.exe` manually:

1. Check that your system date is correct.
2. At a command prompt, enter the following command:

   ```
   enroll.exe -debug <install_dir>\config\product.lic
   ```

   If your install directory name contains spaces, enclose the complete path in quotes.

   If you prefer, you can change directory to the config directory and enter:

   ```
   enroll.exe -debug .\product.lic
   ```

- You get the following error message when you install in console mode, and the installation terminates:

  ```
  Error: Please read the information below. Note: You must ensure any
  prerequisite software listed on this panel is installed. It is possible that compatible
  versions are installed, but you should check
  http://www.ibm.com/software/ts/mqseries/integrator/support/
  for more information before continuing.
  Errors occurred during the installation.
  - Unresolved dependency: MQSI MQ Prerequisite has an unresolved dependency on WebSphere
  MQ Version 5.3.
  - Unresolved dependency: MQSI Java Messaging Prerequisite has an unresolved dependency
  on WebSphere MQ Version 5.3 Java Messaging Component.
  Errors occurred during the installation.<ul><li>Unresolved dependency: MQSI MQ
  Prerequisite has an unresolved dependency on WebSphere MQ Version 5.3.<li>Unresolved
  dependency: MQSI Java Messaging Prerequisite has an unresolved dependency on
  WebSphere MQ Version 5.3 Java Messaging Component.</ul>
  ```

  Solution: The HTML tags are part of the error message that you see. You are recommended to install in silent install or graphical mode rather than console mode. Alternatively, turn off the prerequisites checks to stop the installation terminating. This stops any prerequisite checking, so you must ensure you have the correct levels of WebSphere MQ and JMS installed. To turn off the prerequisite checks, append the following flag to the command when you invoke the installation program:

  ```
  -P mqPrerequisite.active=false -P javaMessagingPrerequisite.active=false
  ```

- **On Windows only:** You get a wizard.inf error when trying to install over a network:

  ```
  The wizard cannot continue because of the following error:
    could not load wizard specified in /wizard.inf (104)
  ```

  Solution: Map the network drive to enable the IBM Runtime Environment for Java to find the setup.jar file, which contains the wizard.inf file. This error is because the IBM Runtime Environment for Java cannot resolve Windows UNC paths.

Appendix B. System changes after installation

The installation program makes changes to your system; this includes the creation of directories and the creation and modification of environment variables. Details are provided of these changes:
- "Directory structures"
- "Registry entries" on page 61
- "Environment variables" on page 62
- "Default WebSphere MQ resources" on page 62

> **Check for V6**
>
> Reconfirm these listings on all platforms; are directories correct and complete, are reg entries and env vars still valid, any more MQ queues etc created (aggregation? control node?)?

Directory structures

When you installWebSphere Business Integration Message Broker, the installation program creates a structure of subdirectories under the directory that you specify as the installation directory (*<install_dir>*). This directory is qualified by the name of the instance you are installing (see Chapter 5, "Coexistence," on page 15 for details about instances). The default home directory is `<install_root>/mqsi_<instance_name>` where <install_root> is different for each operating system.

The structure also depends on the components that you select, if your instance is one of type Custom. For example, directories `eclipse` and `studio` are not created if you do not install the Message Brokers Toolkit.

Linux on Intel

On Linux, the default home directory <install_dir> is `/opt/mqsi_<instance_name>`.

Directories are created in two locations:

Directories under <install_dir>	Contents
_uninst	Uninstall programs
bin	Executable binaries
catalina	Web Services support files
classes	Java class files
docs	Java API files
eclipse	Toolkit files
errors	Error files
event	Event Broker license files
include	Header and other files for samples
installdocs	Product install documents
jplugin	Java plug-in files (user-created)

Directories under <install_dir>	Contents
jre	IBM Runtime Environment for the Java Platform
ibdeps	Message Broker extension point
ibtoolkit	Message Broker extension point
lib	Shared library files
lil	Executable binaries
message	Message Broker license files
messages	Description files for messages and exceptions
migration	Migration files
readmes	Product readme files
sample	C, C++, and Java sample files
studio	Toolkit files
template	Templates and examples

Directories under /var/mqsi	Contents
brokers	Broker resources
config	License files
errors	Error files
lib	Shared library files
locks	Resource locks
log	Trace files
odbc	ODBC files
registry	Registry information
users	Users directory
xmlt	XML transformation files

After installation on Linux, the userID root in group root owns the directories, user mqm owns the files in <install_dir> and user bin owns the files in /var/mqsi.

Windows

On Windows, the default home directory <install_dir> is C:\Program Files\IBM\mqsi_<instance_name>.

Directory name	Contents
_uninst	Uninstall programs
bin	Executable files; .exe, .dll, .lil
catalina	Web Services support files
classes	Java class files
config	License files
docs	Java API files
eclipse	Toolkit files
errors	Error files
evdeps	Event Broker extension point

Directory name	Contents
event	Event Broker license files
evtoolkit	Event Broker extension point
ibdeps	Message Broker extension point
ibtoolkit	Message Broker extension point
include	Header and other files for samples
installdocs	Product install documents
jplugin	Java plug-in files
jre	IBM Runtime Environment for the Java Platform
lib	Shared library files
log	Trace files
message	Message Broker license files
messages	Description files for messages and exceptions
migration	Migration files
primitives	Message flow node files
prt	Product registration files
readmes	Product readme files
sample	C, C++, and Java sample files
studio	Toolkit files

Registry entries

When you install , the install program creates a number of entries in a registry. Further changes are made by some configuration updates (for example, when you create a broker).

On Windows, the system registry is used; on UNIX systems, equivalent values are stored within /var/mqsi/registry. Do not alter or remove these entries unless instructed to do so by IBM Service.

The table below describes the main Windows registry entries. These are created under HKEY_LOCAL_MACHINE\SOFTWARE\IBM\WebSphereMQIntegrator.

Location	Entry	Description
	InstallDir	The home directory of the installation
\2	FilePath	Default: C:Program Files/IBM/<setup_type>
\2	ProgramFolder	Default: IBM WebSphere Business Integration Message Brokers
\2	WorkPath	Default: C:Program Files/IBM/<setup_type>
\Components		Contents depend on components installed and configuration created
\CurrentVersion	MQSeriesIntegratorVersion	6
\CurrentVersion	MQSeriesIntegratorRelease	Contents depend on service installed
\CurrentVersion	MQSeriesIntegratorUpdate	Contents depend on service installed
\CurrentVersion\PID		Contents depend on product installed

Entries are also created under `HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI` for the installed database drivers for Oracle and Sybase, which contain driver locations and parameters, and an entry is added under `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Eventlog\Application\BIPv600` for Event Log information.

Environment variables

On Windows, environment variables PATH, INCLUDE, and LIB are updated by the installation program; the exact updates made depend on the components that you have installed and the directories into which you have installed them.

On UNIX systems, the install program does not update variables. Sample profile files are provided with WebSphere Business Integration Message Broker, and you must check their content to ensure the variables are set correctly for your environment before you use the product or configure any resources. The path and filename of the profile is dependent on your platform:

AIX   `<install_dir>/<setup_type>/sample/profiles/profile.aix`

HP-UX
      `<install_dir>/<setup_type>/sample/profiles/profile.hpux`

Linux on Intel
      `<install_dir>/<setup_type>/sample/profiles/profile.lnx`

Solaris
      `<install_dir>/<setup_type>/sample/profiles/profile.sol`

Check the readme file (`readme.html`) to ensure you have the latest version of the profile.

Default WebSphere MQ resources

When you install WebSphere Business Integration Message Broker and create components, WebSphere MQ resources are created for use by those components.

The resources created have names that begin with the reserved characters SYSTEM. The table below lists the resources and indicates the component queue manager with which they are associated.

Resource name	Type	Queue manager	Description
SYSTEM.BROKER.ADMIN.QUEUE	Queue	Broker	Target for messages sent by the Configuration Manager and commands to modify the broker's configuration and operation.
SYSTEM.BROKER.ADMIN.REPLY	Queue	Configuration Manager	Target for messages sent by the Configuration Manager to the broker.
SYSTEM.BROKER.CONFIG.QUEUE	Queue	Configuration Manager	Target for messages sent to the Configuration Manager from the toolkit.
SYSTEM.BROKER.CONFIG.REPLY	Queue	Configuration Manager	Target for messages sent to the toolkit by the Configuration Manager.

Resource name	Type	Queue manager	Description
SYSTEM.BROKER.CONTROL.QUEUE	Queue	Broker	Target for publish/subscribe control requests sent to the broker by applications.
SYSTEM.BROKER.EXECUTIONGROUP.QUEUE	Queue	Broker	Target for messages sent by the Configuration Manager to the broker.
SYSTEM.BROKER.EXECUTIONGROUP.REPLY	Queue	Broker	Target for response messages from the User Name Server to the broker.
SYSTEM.BROKER.INTERBROKER.MODEL.QUEUE	Queue	Broker	Model for dynamic publication queues.
SYSTEM.BROKER.INTERBROKER.QUEUE	Queue	Broker	Target for publish/subscribe messages sent by neighbor brokers.
SYSTEM.BROKER.MODEL.QUEUE	Queue	All	Model for dynamic response queues.
SYSTEM.BROKER.SECURITY.QUEUE	Queue	User Name Server	Target for messages to the User Name Server from the Configuration Manager, brokers, and the toolkit.
SYSTEM.BROKER.SECURITY.REPLY	Queue	Configuration Manager and broker	Target for response messages from the User Name Server to its requestor.
SYSTEM.BROKER.WS.ACK	Queue	Broker	Used internally for Web Services client support.
SYSTEM.BROKER.WS.INPUT	Queue	Broker	Used internally for Web Services client support.
SYSTEM.BROKER.WS.REPLY	Queue	Broker	Used internally for Web Services client support.
SYSTEM.BKR.CONFIG	SVRCONN	Configuration Manager	A connection channel for toolkit clients.

These resources are defined in addition to the default WebSphere MQ objects that are created when that product is installed.

Appendix C. Integrating with WebSphere Studio Application Developer

> **Updates for V6**
> The content of this chapter is subject to specification of feature 37669.

You can integrate the Message Brokers Toolkit with the WebSphere Studio Application Developer Toolkit if you choose. This is independent of which product you install first; however the process required to complete the integration differs for the two scenarios. Refer to the information below that is relevant for the system on which you are installing.

WebSphere Studio Application Developer installed first
> If you already have WebSphere Studio Application Developer installed, and you want to integrate its workbench with the Message Brokers Toolkit, complete the tasks described here.
>
> 1. To be developed

WebSphere Business Integration Message Broker installed first
> If you do not have WebSphere Studio Application Developer installed, but expect to install it after you have installed WebSphere Business Integration Message Broker, complete the tasks described here.
>
> 1. To be developed

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Glossary of terms and abbreviations

This glossary defines WebSphere Business Integration Message Broker terms and abbreviations used in this book. If you do not find the term you are looking for, see the index or the *IBM® Dictionary of Computing*, New York: McGraw-Hill, 1994.

This glossary includes terms and definitions from the *American National Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute. Copies may be ordered from the American National Standards Institute, 11 West 42 Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.

A

access control list (ACL).   In computer security, a list associated with an object that identifies all the subjects that can access the object and their access rights. Subjects are principals that have explicit permissions (to publish, to subscribe to, and to request persistent delivery of, a publication message) against a topic in the topic tree. The ACLs define the implementation of topic-based security.

ACL.   See access control list.

B

broker.   A set of execution processes that host one or more message flows. Also known as message broker.

broker domain.   A collection of brokers that share a common configuration, together with the Configuration Manager that controls them.

C

Configuration Manager.   The component that provides an interface between the Message Brokers Toolkit and a set of runtime brokers. It provides brokers with their initial configuration, and updates them with any subsequent changes. It maintains the broker domain configuration.

D

deploy.   To make operational the configuration and topology of the broker domain.

E

execution group.   A named process or set of processes within a broker in which message flows are executed. The broker is guaranteed to enforce some degree of isolation between message flows in distinct execution groups because it ensures that they execute in separate address spaces, or as unique processes.

I

instance.   To be defined.

L

local error log.   A generic term that refers to the logs to which WebSphere Business Integration Message Broker writes records on the local system. Also known as system log.

M

message broker.   See broker.

P

principal.   An individual user ID (for example, a login ID) or a group. A group can contain individual user IDs and other groups, to the level of nesting supported by the underlying facility.

S

system log.   See *local error log*.

T

topology.   The brokers and collectives (and connections between them) in the broker domain.

U

User Name Server.   A component that interfaces with operating system facilities to determine valid users and groups.

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Installation Guide for z/OS

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