WebSphere Application Server

Enterprise Services Installation Guide

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices”on page 33 .

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What are enterprise services?

Enterprise services are one of four components that comprise WebSphere Application Server Enterprise Edition. The other components are **TXSeries** (used for high-performance procedural applications), **MQSeries** (a messaging service that allows applications to communicate across platforms), and **WebSphere Application Server Advanced Edition**.

While Advanced Edition provides a full implementation of J2EE 1.2 and Web services, these two specifications are themselves limited in terms of providing enterprise-class functionality. To fill the gap left by J2EE and Web services, WebSphere Application Server Enterprise Edition provides a collection of plug-ins, called enterprise services, which extend the capabilities of Advanced Edition to meet the broader functional demands of an enterprise system.

The following list describes typical enterprise requirements and the corresponding solution offered in this release of enterprise services:

- Integration of externally administered business rules that encapsulate variable business practices and promote consistent policy.

  Solution: Business Rule Beans (BRBeans)

- Integration between messaging and component-based paradigms, including a blending of synchronous and asynchronous communication patterns (both inbound and outbound); mappings between message elements and component attributes; and declarative transactional support.

  Solution: Extended messaging support

- Global integration that accommodates different cultural conventions and accounts for varying geographical boundaries.

  Solution: Internationalization Service

- Application integration through transparent access to shared information across a distributed computing environment.

  Solution: WorkArea Service

- Application integration through CORBA services, including bi-directional connectivity to third-party ORBs and the ability to leverage programming assets written in C++.

  Solution: CORBA support

- Component model integration, including client- and server-based access to enterprise beans from ActiveX environments.

  Solution: ActiveX client to EJB bridge

- Application development based on Java components that use extended transaction processing paradigms including the ability to initiate work automatically, to define compensation processing for chains of J2EE transactions, and so on.

  Technology preview: Business Process Beans (BPBeans)

Overview: Installing enterprise services

Enterprise services are a set of components that plug into your existing J2EE environment in order to provide enterprise-class functionality. Enterprise services support a wide range of system configurations that can include EJB servers; CORBA C++ servers; ActiveX clients; third-party ORBs, and so on.

Your Enterprise Edition box contains a CD labelled **Enterprise Edition Server and Client**. This CD contains the server installation program for one platform (Windows, AIX, Solaris, HP-UX, or Linux). This CD also contains client installation programs for all supported platforms (Windows, AIX, and Solaris). HP-UX and Linux are not supported as client platforms in this release.

The Enterprise Edition server is an *upgrade* to the Advanced Edition server; therefore, you must install the Advanced Edition server as a base before you can install the Enterprise Edition server.

Similarly, you must install the Advanced Edition J2EE client before installing enterprise services on an ActiveX or Java client. (CORBA C++ client support does not depend on Advanced Edition).

The Advanced Edition server and application clients are included as two separate CDs in your Enterprise Edition package.

Note: Because Enterprise Edition is an *upgrade* to Advanced Edition, all Advanced Edition components are removed when you uninstall Enterprise Edition.

Before proceeding to the installation steps for enterprise services, consider the following:

- **Location of *WAS_HOME*** . Throughout this documentation, the WebSphere Application Server installation directory is referred as *WAS_HOME*. The default path for *WAS_HOME* is as follows:

  Server home:

  - Windows: c:\WebSphere\AppServer
  - AIX: /usr/WebSphere/AppServer
  - Solaris, HP-UX, or Linux: /opt/WebSphere/AppServer

  Client home:

  - Windows: c:\WebSphere\AppClient
  - AIX: /usr/WebSphere/AppClient
  - Solaris: /opt/WebSphere/AppClient

- **Limitations, problems, and workarounds**. Limitations, problems, and workarounds are captured in the enterprise services "Release Notes". Review the Release Notes before proceeding, and keep a copy available during your installation.

The steps for installing enterprise services vary according to the role each machine plays in your system configuration. Determine whether your machine plays the role of a Java server; a CORBA C++ server; an ActiveX client; a Java client; or a CORBA C++ client (or multiple roles), then complete the appropriate steps for your machine as listed here:

To install on a Java server... This option includes server-side code for:

- Business Rule Beans
- Extended messaging support

- Internationalization Service
- WorkArea Service

1. “Installing the Advanced Edition server base” on page 4.
2. “Installing Java server support” on page 9

To install on a CORBA C++ server...

1. “Installing the Advanced Edition server base” on page 4.
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To install on an ActiveX client (Windows only)...

1. “Installing the Advanced Edition client base” on page 6.
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To install on a Java client... This option includes client-side code for:

- Business Rule Beans
- Internationalization Service
- WorkArea Service

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To install on a CORBA C++ client...

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1. “Migrating from a Version 4.0.x installation” on page 24

Installing the Advanced Edition server base

Enterprise services are plug-ins to the J2EE base provided by the Advanced Edition application server. Prior to installing enterprise services on a Java or CORBA C++ server, you must install the Advanced Edition application server or Advanced Edition for Developers (AEd).

The Advanced Edition CD is included in your Enterprise Edition package. The following steps explain how to install the server in a default environment (using DB2 and IBM HTTP Server). If you have a different configuration (for example, a non-IBM database or Web server), or if you want to install AEd, refer to the “Advanced Edition installation guides” in the WebSphere Application Server Advanced Edition infocenter.

1. Ensure that you have the correct “prerequisite software” installed.
2. If you have a version of IBM HTTP Server earlier than Version 1.3.19, uninstall it now.
3. If DB2 is installed as your database, configure your JDBC driver levels as follows:
   - Windows: Complete the following steps:
     1. Stop the following two Windows services:
        - DB2 JDBC Applet Server
        - DB2 JDBC Applet Server - Control Center
     2. Run the following command at a DOS prompt:

```
DB2_InstallDir\java12\usejdbc2.bat
```

- AIX: Add the following two lines to your DB2 user profile:

```
. /usr/lpp/db2_07_01/java12/usejdbc1
. /usr/lpp/db2_07_01/java12/usejdbc2
```

- Solaris, HP-UX, Linux: Add the following two lines to your DB2 user profile:

```
. /opt/IBMdb2/V7.1/java12/usejdbc1
. /opt/IBMdb2/V7.1/java12/usejdbc2
```

4. Insert the **WebSphere Application Server** CD into your CD-ROM drive.
5. AIX only: If you have not mounted the CD-ROM drive enter the following mount command now:.

```
mount -r -v cdrfs <CD_device> cdrom
```

6. Change to the installation image directory on the CD:

   Windows:

```
cd CDROM_drive\windows
```

   Unix:

```
cd /cdrom/your_platform
```

7. Enter the installation command:

   Windows:

```
setup
```

   Unix::

```
./install.sh
```

8. Accept the installation defaults, assuming that DB2 is your database and IBM HTTP server is your Web server. If you have a different database or Web server, consult the “Advanced Edition installation guides” in the WebSphere Application Server Advanced Edition infocenter.

   Note:

- Ensure that you enter the correct user ID and password for DB2. Use the ID that was provided when you installed DB2.
- Ignore message `INST0351` regarding JDBC Drivers at a 1.0 level. This was corrected when you invoked usejdbc*, as explained previously.

9. From the “Websphere Application Server support” Web page, download Fixpack 2 (Version 4.0.2) and install it according to the instructions provided with the download.

Before installing enterprise services, see the topic “Testing your Advanced Edition server installation” on page 5.

Testing the Advanced Edition server installation

After installing the Advanced Edition application server base, and prior to installing enterprise services, you should test your Advanced Edition server installation as follows:

1. Start the application server:

- Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Start Application Server**.
- UNIX: At a command prompt, change to the *WAS_HOME*/bin directory and run the following command:

```
./startupServer.sh
```

When the server has started successfully, the last line in the command window should indicate that your server is "open for e-business".

2. Start the administrative console:
   - Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Administrator's Console**.
   - UNIX: Change to the *WAS_HOME*/bin directory and run the following command:

```
./adminclient.sh
```

3. If the administrative console reports an error regarding the classpath of your DB2JdbcDriver, correct the problem as follows:
   a Select **Resources > JDBC Drivers > DB2JdbcDriver**.
   b Save your configuration, accepting the default filename of **server-cfg.xml**
   c Specify the server classpath appropriate to your platform (your path can vary depending on where DB2 is installed):
      - Windows: `c:\SQLLIB\java\db2java.zip`
      - AIX: `/usr/lpp/db2_07_01/java12/db2java.zip`
      - Solaris: `/opt/IBMdb2/V7.1/java12/db2java.zip`
4. In the administrative console, select **Nodes > *your_node* > Application Server > Default Server**. If the **Execution State** is Stop, click the drop-down menu and select **Start**.
5. Click **OK**.
6. Ensure that your Web server is running.
7. Enter the following URL in your Web browser:

```
http://localhost/servlet/snoop
```

   This URL calls a standard sample servlet. You should see information about the servlet displayed in your Web browser.

8. Save any changes you want to keep before exiting the administrative console.

Additional validation samples can be found at the following URL:

```
http://localhost/webapp/examples
```

You are now ready to install enterprise services on this machine.

Installing the Advanced Edition client base

Prior to installing enterprise services on an ActiveX or Java client, you must install the Advanced Edition application client (not the "thin client") as a base. On top of this base apply Fixpack 2, which brings your Advanced Edition client up to a Version 4.0.2 level. This level is required in order to install Version 4.1 enterprise services.

Note: For this release, enterprise services are not supported on HP-UX or Linux clients.

Complete the following steps to install the Advanced Edition client base, followed by Fixpack

2:

1. Find the CD labelled **WebSphere Application Server Advanced Edition Application Clients for Windows NT, Windows 2000, AIX and Solaris**. Insert this CD into your CD-ROM drive.
2. AIX only: If you have not mounted your CD-ROM drive, enter the following mount command now:

   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```

3. At a command prompt, change to the installation image directory on the CD:
   - Windows:

     ```
     cd cdrom_drive\windows
     ```

   - Unix:

     ```
     cd /cdrom/your_platform
     ```

4. Enter the installation command:
   - Windows:

     ```
     setup
     ```

   - Unix:

     ```
     ./install.sh
     ```

5. Accept the installation defaults.

   If you see a message stating that you already have a J2EE application client installed on this machine, click **Yes** to install another copy of the client to a different directory. Accept the default directory.

6. From the "Websphere Application Server support" Web page, download Fixpack 2 (Version 4.0.2) and install the fixpack according to the instructions provided with the download.

Your Advanced Edition J2EE client should now be at a Version 4.0.2 level. Before installing any enterprise services on this client, see the topic "Testing your Advanced Edition client installation" on page 7to be sure that your client is communicating properly with the application server.

Testing the Advanced Edition client installation

After installing the Advanced Edition application client, test that your installation was successful prior to installing enterprise services on the client. Complete the following steps to test your Advanced Edition client installation:

1. On your server machine, start the WebSphere application server:
   - Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Start Application Server**.
   - UNIX: At a command prompt, change to the *WAS_HOME*/bin directory then run the following command:

     ```
     ./startupServer.sh
     ```

2. On your server machine, start the administrative console:
   - Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Administrator's Console**.
   - UNIX: Change to the *WAS_HOME*/bin directory and run the following command:

     ```
     ./adminclient.sh
     ```

3. In the administrative console, select **Nodes > *your_host* > Application Server > Default Server**. If the **Execution State** is Stop, click the drop-down menu and select **Start**.
4. Click **OK**.
5. Ensure that your Web server is running.
6. On your client machine, open a command window.
7. Enter the following command (all one line):

```
./launchClient.sh
 WAS_HOME/AppClient/WSsamples/Client/J2EE/Hello/HelloJ2EESample.ear
-CCBootstrapHost=hostname
```

   where *hostname* = the hostname of your WebSphere default server.

You should see output ending with "Hello Client ran successfully".

Having confirmed that your Advanced Edition J2EE client is successfully installed, you can now install enterprise services on this client.

Installing Java server support (Typical)

Java server support is the "typical" installation option for enterprise services. This option installs server-side code for the following components:

- Business Rule Beans
- Extended messaging support
- Internationalization Service
- WorkArea Service

You can also install any of the above components individually by selecting **Custom** rather than Typical on the **Setup type** page of the installation wizard.

To install enterprise services on a Java server, complete the following steps:

1. Install the Advanced Edition Version 4.0 server base, followed by Fixpack 2. This brings your application server up to a Version 4.0.2 level.

   Instructions are provided in the topic “Installing the Advanced Edition server base” on page 4 .

2. Install enterprise services according to the platform-specific instructions in one of the following topics:
   - “Installing Java server support on Windows” on page 9
   - “Installing Java server support on Unix” on page 10

Installing Java server support on Windows

To install Java server support on Windows NT or Windows 2000, complete the following steps:

1. If you have not already installed Advanced Edition, see the topic “installing the Advanced Edition server base” on page 4 .
2. Insert the **Enterprise Edition Server and Client** CD into your CD-ROM drive.
3. At a DOS prompt, change to the installation image directory on the CD-ROM:

   ```
   cd windows\EnterpriseEdition
   ```

4. Run the installation program:

   ```
   setup
   ```

5. On the **Language selection** page, select your language, then click **Next**.
6. On the **Welcome** page, click **Next**.
7. On the **Setup type** page, select **Typical**.

   The Typical option includes all Java services (Business Rule Beans, Extended messaging support, Internationalization Service, and WorkArea Service). If you prefer to install these components individually, select **Custom** on the Setup type page.

8. Click **Next**.

   The installation program finds the directory where the Advanced Edition server is installed and tells you that Enterprise Edition will be installed under the same directory. This message also tells you that Enterprise Edition will be added to the same Windows program folder. You cannot change the installation directory or program folder.

9. Click **OK**.

10. On the **Start copying files** page, click **Next**.

    The installation program copies files to your machine and sets environment variables. All JAR files are copied to *WAS_HOME*\lib, and all other files are copied to subdirectories under *WAS_HOME*\Enterprise. A log file named install_en.log is written to *WAS_HOME*\Enterprise.

11. On the **Setup complete** page, click **Finish**. Review the README file.

To validate that enterprise services were successfully installed on your system, open the product.xml file, located in the following directory:

```
WAS_HOME\properties\com\ibm\websphere
```

Your product.xml file should contain an entry similar to the following:

```
Advanced Edition for Multiplatforms with Enterprise Edition Services
```

There should also be an entry for each of the enterprise services you installed.

Installing Java server support on UNIX

To install Java server support on AIX, Solaris, HP-UX, or Linux systems, complete the following steps:

1. Log in as root.
2. Install the Advanced Edition Version 4.0 server base, followed by Fixpack 2. This brings your application server up to a Version 4.0.2 level. Instructions are provided in the topic “Installing the Advanced Edition server base” on page 4 .
3. AIX only: If you have not mounted the CD-ROM drive enter the following mount command now:

   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```

4. Insert your **Enterprise Edition Server and Client** CD into your CD-ROM drive.
5. At a command prompt, change to the installation image directory on the CD:

   ```
   cd /cdrom/enterprise/your_platform/EnterpriseEdition
   ```

6. Enter the installation command:

   ```
   ./setup
   ```

7. On the **Welcome** page, click **Next**.
8. On the **Setup type** page, select **Typical**.

   The Typical option includes all Java services (Business Rule Beans, Extended messaging support, Internationalization Service, and WorkArea Service). If you prefer to install these components individually, select **Custom** on the Setup type page.

9. Click **Next**.

   The installation program finds the directory where the Advanced Edition server is installed and tells you that Enterprise Edition will be installed under the same directory. You cannot change the installation directory.

10. Click **Next**.
11. On the **Install options selected** page, click **Next**.

    The installation program copies files to your machine. All JAR files are copied to WAS_HOME/lib, and all other files are copied to subdirectories under *WAS_HOME*/Enterprise. A log file named install_en.log is written to

/Enterprise.

12. When the installation completes, click **Finish**. Review the README file.

To validate that enterprise services were successfully installed on your system, open the product.xml file, located in the following directory:

```
WAS_HOME/properties/com/ibm/websphere
```

Your product.xml file should contain an entry similar to the following:

```
Advanced Edition for Multiplatforms with Enterprise Edition Services
```

There should also be an entry for each of the enterprise services you installed.

Configuring enterprise services on an existing server

To configure an enterprise service on an existing server (so that it shows up on the **Custom** tab of the server properties), complete the following steps:

1. Select the **Custom** tab for the server to which you want to add an enterprise service.
2. Click **Add**.
3. On the **Custom service** popup menu, select the **General** tab.

   Add the properties for each service, as shown below:

   - WorkArea service:

     ```
     displayName="WorkArea Service"
     description="The WorkArea service enables the definition and
      implicit propagation of serializable properties"
     externalConfigURL=""
     classname="com.ibm.ws.workarea.WorkAreaServerFactory"
     enable="true"
     ```

     On the **Custom** tab, enter the following values:

     ```
     name="maxSendSize"     value="10000"
     name="maxReceiveSize"  value="10000"
     ```

   - Internationalization service

     ```
     displayName="Internationalization Service"
     description="The Internationalization service enables remote
      localization in distributed application components."
     externalConfigURL=""
     classname="com.ibm.ws.i18n.context.ServiceInit"
     enable="true"
     ```

   - Extended Messaging Support service

     ```
     displayName="Extended Messaging Support Service"
     description="Extended Messaging Support enables automatic
      asynchronous deliver of messages to an enterprise application"
     externalConfigURL=""
     classname="com.ibm.cmm.listener.JMSListenerStub"
     enable="true"
     ```

Installing CORBA C++ server support

Support for CORBA C++ servers and clients in WebSphere is provided by way of the CORBA C++ Software Development Kit (SDK).

To install the CORBA C++ SDK on a server, complete the following steps:

1. Install the Advanced Edition Version 4.0 server base, followed by Fixpack 2. This brings your application server up to a Version 4.0.2 level. Instructions are provided in the topic "Installing the Advanced Edition server base" on page 4 .
2. Install enterprise services according to the platform-specific instructions in one of the following topics:
   - "Installing CORBA C++ server support on Windows" on page 12
   - "Installing CORBA C++ server support on Unix" on page 13

Installing CORBA C++ server support on Windows

To install CORBA C++ server support on Windows NT or Windows 2000, complete the following steps:

1. Install the Advanced Edition Version 4.0 server base, followed by Fixpack 2. This brings your application server up to a Version 4.0.2 level.

   Instructions are provided in the topic "Installing the Advanced Edition server base" on page 4 .

2. Insert the **Enterprise Edition Server and Client** CD into your CD-ROM drive.
3. At a DOS prompt, change to the installation image directory:

   ```
   cdrom_drive\Windows\EnterpriseEdition
   ```

4. Enter the installation command:

   ```
   setup
   ```

5. On the **Language selection** page, select your language, then click **Next**.
6. On the **Welcome** page, click **Next**.
7. On the **Setup type** page, select **Custom**, then click **Next**.
8. On the **Select components** page, select **CORBA C++ SDK**, then click **Next**.

   The installation program finds the directory where the Advanced Edition server is installed and tells you that Enterprise Edition will be installed under the same directory. This message also tells you that Enterprise Edition will be added to the same Windows program folder. You cannot change the installation directory or program folder.

9. Click **OK**.
10. On the **Start copying files** page, click **Next**.

    The installation program copies files to your machine and sets environment variables. All JAR files are copied to *WAS_HOME*\lib, and all other files are copied to subdirectories under *WAS_HOME*\Enterprise. A log file named install_en.log is written to *WAS_HOME*\Enterprise.

11. On the **Setup complete** page, click **Finish**. Review the README file.

To validate that enterprise services were successfully installed on your system, open the product.xml file, located in the following directory:

```
WAS_HOME\properties\com\ibm\websphere
```

Your product.xml file should contain an entry similar to the following:

```
Advanced Edition for Multiplatforms with Enterprise Edition Services
```

There should also be an entry for each of the enterprise services you installed.

Installing CORBA C++ server support on UNIX

To install CORBA C++ server support on AIX or Solaris systems, complete the following steps.

Note: For this release, the CORBA C++ SDK cannot be installed on an HP-UX or Linux server.

1. Log in as root.
2. Insert your **Enterprise Edition Server and Client** CD into the CD-ROM drive.
3. AIX only: If you have not mounted the CD-ROM drive enter the following mount command now:

   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```

4. At a command prompt, change to the installation image directory on the CD:

   ```
   cd /cdrom/enterprise/your_platform/EnterpriseEdition
   ```

5. Enter the installation command:

   ```
   ./setup
   ```

6. On the **Welcome** page, click **Next**.
7. On the **Setup type** page, select **Custom**, then click **Next.**
8. On the **Select components** page, select **CORBA C++ SDK**, then click **Next**.

   The installation program finds the directory where the Advanced Edition server is installed and tells you that Enterprise Edition will be installed under the same directory. You cannot change the installation directory.

9. Click **Next**.
10. On the **Install options selected** page, click **Next**.

    The installation program begins copying files to your machine. All JAR files are copied to *WAS_HOME*/lib, and all other files are copied to subdirectories under *WAS_HOME*/Enterprise. A log file named install_en.log is written to *WAS_HOME*/Enterprise.

11. When the installation completes, click **Finish**. Review the README file.

To validate that enterprise services were successfully installed on your system, open the product.xml file, located in the following directory:

```
 WAS_HOME/properties/com/ibm/websphere
```

Your product.xml file should contain an entry similar to the following:

```
Advanced Edition for Multiplatforms with Enterprise Edition Services
```

There should also be an entry for each of the enterprise services you installed.

On AIX only, complete the following additional steps to manually install the latest IBM Open Class libraries:

1. In a command window, change to the following directory

   ```
   /cdrom/enterprise/AIX/patches/AIX/ioc
   ```

2. Enter the smit command :

   ```
   smitty
   ```

3. On the **System Management** panel, select **Software Installation and Maintenance**.
4. On the **Software Installation and Maintenance** panel, select **Install and Update Software**.
5. On the **Install and Update Software** panel, select **Install and Update from LATEST Available Software**.
6. On the **Install and Update from LATEST Available Software** screen, enter the following:

   ```
   /cdrom/enterprise/AIX/patches/your_platform/ioc
   ```

7. The path you entered should appear to the right of **INPUT device / directory for software**. Press **Enter**. Press **Enter** again when asked ARE YOU SURE?
8. Select to install the following filesets, and their prereqs and coreqs, where *YY* is a two-digit string appropriate for your AIX OS version and release:
   - vacpp.ioc.aix*YY*.rte
   - vacpp.ioc.aix*YY*.lib
   - X1C.C

Installing ActiveX client support (Windows only)

Complete the following steps to install the ActiveX client to EJB bridge, which enables your ActiveX client to interact with WebSphere EJB servers.

1. Install the Advanced Edition Version 4.0 client base, followed by Fixpack 2. This brings your Advanced Edition client up to a Version 4.0.2 level.

   Instructions are provided in the topic "Installing the Advanced Edition client base" on page 6 .

2. Insert your **Enterprise Edition Server and Client** CD into the CD-ROM drive.
3. At a DOS prompt, change to the installation image directory on the CD-ROM:

   ```
   cd cdrom_drive\Windows\EnterpriseEdition\client\Windows
   ```

4. Enter the following command:

   ```
   setup
   ```

5. On the **Language selection** page, select your language, then click **Next**.
6. On the **Welcome** page, click **Next**.
7. On the **Select components** page, select **ActiveX to EJB Bridge**.

   By default, the ActiveX client samples package (which contains sample code and documentation), is also installed. If you prefer not to install the samples package, click **Change**. Clear the **ActiveX to EJB Bridge Samples** option, then click **Continue**.

8. Click **Next**.

   The installation program finds the directory where the Advanced Edition J2EE client is installed and tells you that Enterprise Edition will be installed under the same directory. This message also tells you that Enterprise Edition will be added to the same Windows program folder. You cannot change the installation directory or program folder.

9. Click **OK**.
10. On the **Start copying files** page, click **Next**.

    The installation program copies files to your machine. All JAR files are copied to the *WAS_HOME*\lib directory, and all other files are copied to subdirectories under *WAS_HOME*\Enterprise. A log file named install_en.log is written to *WAS_HOME*\Enterprise.

11. On the **Setup complete** page, click **Finish**. Review the README file.

Proceed to the topic, "Validating the ActiveX client installation" on page 15

Validating an ActiveX client installation

To validate your ActiveX client installation, run the following test:

Note: You need Visual Basic installed to run this validation test.

1. On your server machine, start the WebSphere application server:
   - Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Start Application Server**.
   - UNIX: At a command prompt, change to the *WAS_HOME*/bin directory and enter the following command:

     ```
     ./startupServer.sh
     ```

2. On your server machine, start the administrative console:
   - Windows: Select **Start > Programs > IBM WebSphere > Application Server V4.0 > Administrator's Console**.
   - UNIX: Change to the *WAS_HOME*/bin directory and enter the following command:
     ```
     ./adminclient.sh
     ```
3. In the administrative console, select **Nodes > *your_host* > Application Server > Default Server**. If the **Execution State** is Stop, click the drop-down menu and select **Start**.
4. Click **OK**.
5. Ensure that your Web server is running.
6. On the ActiveX client, open a DOS window.
7. Change to the HelloEJB sample directory:
   ```
   cd WAS_HOME\Enterprise\samples\xjb\wshelloejb_activex
   ```
8. Enter the following command to open the sample in VisualBasic:
   ```
   launchClientXJB WSHelloEJB_ActiveX.vbp
   ```
9. In the Visual Basic window, select **Run > Start**.
10. Change the value of **BootstrapHost** to be the name of the WebSphere server where HelloEJB is installed.
11. Click **Run Sample**.

You should see HTML output that displays the following message:

```
EJB Message:  Hello from Hello EJB Sample!
```

Installing Java client support

The following Java components of enterprise services have client-side code that must be installed on any Java client that interacts with these services:

- Business Rule Beans
- Internationalization Service
- WorkArea Service

To install any of these services on a Java client, complete the following steps:

1. Install the Advanced Edition Version 4.0 client base, followed by Fixpack 2. This brings your Advanced Edition client up to a Version 4.0.2 level.

   Instructions are provided in the topic “Installing the Advanced Edition client base” on page 6 .

2. Install enterprise services for your Java client according to the platform-specific instructions in one of the following topics:
   - “Installing Java client support on Windows” on page 17
   - “Installing Java client support on Unix” on page 18

Installing Java client support on Windows

Complete the following steps to install Java client support on Windows NT or Windows 2000:

1. Install the Advanced Edition Version 4.0 client base, followed by Fixpack 2. This brings your Advanced Edition client up to a Version 4.0.2 level.

   Instructions are provided in the topic “Installing the Advanced Edition client base” on page 6 .

2. Insert your **Enterprise Edition Server and Client** CD into the CD-ROM drive.
3. At a DOS prompt, change to the installation image directory on your CD-ROM:

   ```
   cd cdrom_drive\Windows\EnterpriseEdition\client\Windows
   ```

4. Enter the installation command:

   ```
   setup
   ```

5. On the **Language selection** page, select your language, then click **Next**.
6. On the **Welcome** page, click **Next**.
7. On the **Select components** page, select any or all of the following Java components:

   - Business Rule Beans
   - Internationalization Service
   - WorkArea Service

8. Click **Next**.

   The installation program finds the directory where the Advanced Edition application client is installed and tells you that Enterprise Edition will be installed under the same directory. This message also tells you that Enterprise Edition will be added to the same Windows program folder. You cannot change the installation directory or program folder.

9. Click **OK**.
10. On the **Start copying files** page, click **Next**.

The installation program copies files to your machine. All JAR files are copied to WAS_HOME\lib, and all other files are copied to subdirectories under WAS_HOME\Enterprise. A log file named install_en.log is written to *WAS_HOME*\Enterprise.

11. On the **Setup complete** page, click **Finish**. Review the README file.

Installing Java client support on UNIX

To install Java client support on UNIX, complete the following steps.

Note: Enterprise services can be installed only on AIX and Solaris clients. HP-UX and Linux are not supported as client platforms for this release.

1. Log in as root.
2. Install the Advanced Edition Version 4.0 server base, followed by Fixpack 2. This brings your application server up to a Version 4.0.2 level.

   Instructions are provided in the topic "Installing the Advanced Edition server base" on page 6 .

3. AIX only: If you have not mounted your CD-ROM drive, enter the following mount command now:

   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```

4. Insert your **Enterprise Edition Server and Client** CD into your CD-ROM drive.
5. At a command prompt, change to the client installation image directory on the CD:

   ```
   cd /cdrom/Enterprise/your_platform/EnterpriseEdition/
    client/your_platform
   ```

6. Enter the installation command: `./setup`
7. On the **Welcome** page, click **Next**.
8. On the **Select components** page, select any or all of the following Java components:

   - Business Rule Beans
   - Internationalization Service
   - WorkArea Service

9. Click **Next**.

   The installation program finds the directory where the Advanced Edition J2EE client is installed and tells you that Enterprise Edition will be installed under the same directory. You cannot change the installation directory.

10. Click **Next**.
11. On the **Install options selected** page, click **Next**.

    The installation program copies files to your machine. All JAR files are copied to WAS_HOME/lib, and all other files are copied to subdirectories under WAS_HOME/Enterprise. A log file named install_en.log is written to *WAS_HOME*/Enterprise.

12. When the installation completes, click **Finish**. Review the README file.

Installing CORBA client support

Enterprise services enable your CORBA C++ client to interact with a WebSphere EJB server or a WebSphere CORBA C++ server. The CORBA support in enterprise services (both server and client) is provided by way of the CORBA C++ Software Development Kit (SDK).

Install the CORBA C++ SDK on a CORBA C++ client according to the platform-specific steps in one of the following topics:

- "Installing CORBA C++ client support on Windows" on page 19
- "Installing CORBA C++ client support on Unix" on page 19

Installing CORBA C++ client support on Windows

Complete the following steps to install CORBA C++ client support on Windows NT or Windows 2000.

1. Insert your **Enterprise Edition Server and Client** CD into the CD-ROM drive.
2. At a DOS prompt, change to the installation image directory on your CD-ROM:
   ```
   cd cdrom_drive\Windows\EnterpriseEdition\client\Windows
   ```
3. Enter the installation command:
   ```
   setup
   ```
4. On the **Language selection** page, select your language, then click **Next**.
5. On the **Welcome** page, click **Next**.
6. On the **Select components** page, select **CORBA C++ SDK**.
7. Click **Next**.
8. On the **Destination location** page, type a directory path, then click **Next**.
9. On the **Start copying files** page, click **Finish**.

   The installation program copies files to your machine. All JAR files are copied to *WAS_HOME*\lib, and all other files are copied to subdirectories under *WAS_HOME*\Enterprise. A log file named install_en.log is written to *WAS_HOME*\Enterprise.

10. On the **Setup complete** page, click **Finish**. Review the README file.

Installing CORBA C++ client support on UNIX

To install CORBA C++ client support on UNIX, complete the following steps.

Note: Enterprise services can only be installed on AIX and Solaris clients. HP-UX and Linux are not supported as client platforms for this release.

1. Log in as root.
2. AIX only: If you have not mounted your CD-ROM drive, enter the following mount command now:
   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```
3. Insert your **Enterprise Edition Server and Client** CD into your CD-ROM drive.
4. At a command prompt, change to the client installation image directory on the CD (all one line):
   ```
   cd /cdrom/enterprise/your_platform/EnterpriseEdition/
   ```

```
client/your_platform
```

5. Enter the installation command:

```
./setup
```

6. On the **Welcome** page, click **Next**.
7. On the **Select components** page, select **CORBA C++ SDK**, then click **Next**.
8. On the **Destination location** page, type a directory path, then click **Next**.
9. Click **Next**.
10. On the **Install options selected** page, click **Next**.

    The installation program begins copying files to your machine. All files are copied to subdirectories under *WAS_HOME*/Enterprise. A log file named install_en.log is written to *WAS_HOME*/Enterprise.

11. When the installation completes, click **Finish**. View the README file.

On AIX only, complete the following additional steps to manually install the latest IBM Open Class libraries:

1. In a command window, change to the following directory

```
/cdrom/enterprise/AIX/patches/AIX/ioc
```

2. Enter the smit command :

```
smitty
```

3. On the **System Management** panel, select **Software Installation and Maintenance**.
4. On the **Software Installation and Maintenance** panel, select **Install and Update Software**.
5. On the **Install and Update Software** panel, select **Install and Update from LATEST Available Software**.
6. On the **Install and Update from LATEST Available Software** screen, enter the following:

```
/cdrom/enterprise/AIX/patches/your_platform/ioc
```

7. The path you entered should appear to the right of **INPUT device / directory for software**. Press **Enter**. Press **Enter** again when asked ARE YOU SURE?
8. Select to install the following filesets, and their prereqs and coreqs, where *YY* is a two-digit string appropriate for your AIX OS version and release:
   - vacpp.ioc.aix*YY*.rte
   - vacpp.ioc.aix*YY*.lib
   - X1C.C

Performing an unattended (silent) installation

If you have several machines that require an *identical* installation of enterprise services (for example, several ActiveX clients), you can save time by performing unattended installations on those machines. You do this by running a script that inputs everything the installation program needs. Scripted installations are also useful if you have a disability that makes it difficult for you to interact with the installation program.

Perform an unattended installation of enterprise services according to the platform-specific instructions in one of the following topics:

- "Performing an unattended installation on Windows" on page 21
- "Performing an unattended installation on Unix" on page 22

Performing an unattended installation on Windows

Sample response files are provided on your **Enterprise Edition Server and Client** CD. Use the file named setup.iss for first-time installations. Use the file named setup_migrate.iss on systems that already have Version 4.0.x enterprise services installed.

The sample response files contain options for installing all server, or all client, components of enterprise services. If you want to install all components you can simply use the sample response files as they are. If you want to install some components and not others (for example, ActiveX client support only), modify the setup.iss or setup_migrate.iss files as explained below.

Note: For any server installation, you must already have the Advanced Edition application server installed as a base. For Java and ActiveX client installations, you must already have the Advanced Edition application client installed (not the thin client). The CORBA client installation requires no Advanced Edition base.

To perform an unattended installation on Windows, complete the following steps. These steps assume that you have already installed Advanced Edition, where necessary, at a Version 4.0.2 level:

1. Insert your **Enterprise Edition Server and Client** CD into your CD-ROM drive.
2. At a DOS prompt, change to the installation image directory on your CD:
   For a server installation:

   ```
   cd cdrom_drive\Windows\EnterpriseEdition
   ```

   For a client installation:

   ```
   cd cdrom_drive\Windows\EnterpriseEdition\Client\Windows
   ```

3. **Optional:** If you intend to modify the sample response file, copy it from the installation image directory to a local temporary directory. For example:

   ```
   copy setup.iss c:\temp
   ```

   or

   ```
   copy setup_migrate.iss c:\temp
   ```

   To use the sample response file "as is", leave it in the installation directory.
4. **Optional:** In your temporary directory, modify the sample response file to include only those components that you want to install, as explained below:
   a Open the sample response file in a text editor
   b For any component that you do NOT want installed, delete its entire line starting with "Component- " and ending with the component name.

c Renumber the remaining components in sequence, starting with 0.

d For "Component-count", enter the number of components you have in your modified list.

e Save and exit the file.

Example: setup.iss file before modification:

```
...
 Component-count=6
 Component-0=Business Rule Beans
 Component-1=CORBA C++ SDK
 Component-2=Internationalization Service
 Component-3=Extended Messaging Support
 Component-4=WorkArea Service
 Component-5=Samples
 ...
```

Example: setup.iss file after modification:

```
...
 Component-count=4
 Component-0=Business Rule Beans
 Component-1=Internationalization Service
 Component-2=Extended Messaging Support
 Component-3=WorkArea Service
 ...
```

5. To start the unattended installation, enter one of the following commands:

   If using the modified response file in the temporary directory:

   ```
   setup -s -f1c:\temp\setup.iss -f2c:\temp\setup.log
   ```

   or

   ```
   setup -s -f1c:\temp\setup_migrate.iss -f2c:\temp\setup.log
   ```

   If using the sample response file in the installation image directory:

   ```
   setup -s setup.iss -f2c:\temp\setup.log
   ```

   or

   ```
   setup -s setup_migrate.iss -f2c:\temp\setup.log
   ```

An alternative method for generating the setup.iss file is to perform an interactive installation on one machine using the -record parameter. This is done by entering the following command in the installation image directory:

```
setup -r
```

This installation generates a setup.iss file in your Windows installation directory (for example, c:\WINNT). You can copy this setup.iss file to other machines in order to run unattended installations.

Performing an unattended installation on UNIX

Two sample installation scripts, both named **install.script**, are provided on your Enterprise Edition Server and Client CD; one is for server installations and one is for client installations. To perform an unattended installation on UNIX platforms, copy the relevant install.script file to a temporary directory and modify it as explained below.

Note: For any server installation, you must already have the Advanced Edition application server installed as a base. For Java and ActiveX client installations, you must already have the Advanced Edition J2EE application client installed. The CORBA client installation does

not require an Advanced Edition base.

To perform an unattended installation on UNIX, complete the following steps. These steps assume that you have already installed Advanced Edition where necessary (on Java servers, CORBA C++ servers, and Java or ActiveX clients). These steps apply to both new installations, and migration from an existing Version 4.0.x installation.

1. Insert your **Enterprise Edition Server and Client** CD into the CD-ROM drive.
2. AIX only: If you have not mounted the CD-ROM drive enter the following mount command now:

   ```
   mount -r -v cdrfs <CD_device> cdrom
   ```

3. Change to the installation image directory on the CD:
   - Unix server:

     ```
     cd /cdrom/enterprise/your_platform/EnterpriseEdition
     ```

   - Unix client (all one line):

     ```
     cd /cdrom/enterprise/your_platform/EnterpriseEdition/
     client/your_platform
     ```

4. Locate the sample response file, **install.script** in the installation image directory, and copy this file to a temporary directory. For example:

   ```
   cp install.script /tmp
   ```

5. **Optional:** Modify the install.script file in your temporary directory to include only the enterprise services that you want to install. If you are migrating from an existing Version 4.0.x installation, you must include all existing enterprise services, but you can also add new ones at this time:
   a. Open install.script in a text editor.
   b. Near the top of the install.script file is a section marked "User modifiable area." Within this section is a list of installable packages, in the format `package_XXX=false`, where XXX is the name of the package. For each package (service) that you want to install, change the value from false to true. Do not change anything below the line marked as "END User modifiable area".
   c. Save and exit the file.
6. To start the unattended installation, enter the following command in your installation image directory:

   ```
   ./setup /p /tmp/install.script
   ```

An alternative method for generating the modified install.script file is to run the desired installation in interactive mode using the record parameter. For example:

```
./setup /r /tmp/install.script
```

This generates an install.script file that you can copy to other machines in order to run identical unattended installations.

Migrating from a Version 4.0.x installation

If you already have Version 4.0 or 4.0.1 enterprise services installed on your server or client, the Version 4.1 installation program automatically migrates those services. In addition, you can add new services during the Version 4.1 installation.

To migrate your existing enterprise services to a Version 4.1 level, complete the following steps:

1. Install Fixpack 2 on top of your existing Advanced Edition server or client installation.

   Fixpack 2, and instructions for installing it, can be downloaded from the "Websphere Application Server support" Web page.

   This brings your Advanced Edition server or client up to a Version 4.0.2 level.

2. Migrate your enterprise services according to the platform-specific instructions in one of the following topics:
   - "Migrating enterprise services on Windows" on page 24
   - "Migrating enterprise services on Unix" on page 25

Migrating from a Version 4.0.x installation on Windows

To migrate your existing enterprise services to a Version 4.1 level on Windows NT or Windows 2000, complete the following steps:

1. If you have not already done so, install Fixpack 2 on top of your existing Advanced Edition server or client installation, according to the instructions on the "Websphere Application Server support" Web page.
2. Insert the **Enterprise Edition Server and Client** CD into your CD-ROM drive.
3. At a command prompt, change to the appropriate installation image directory on the CD-ROM:
   - Server:

     ```
     cd cdrom_drive\Windows\EnterpriseEdition
     ```

   - Client:

     ```
     cd cdrom_drive\Windows\EnterpriseEdition\client\Windows
     ```

4. Enter the installation command:

   ```
   setup
   ```

5. On the **Language selection** page, select your language, then click **Next**.
6. On the **Select Components** page, your existing Version 4.0 services are selected and marked with an asterisk (*). You cannot deselect any of these components, but you can select additional components to install. Click **Next**.

   The installation path remains the same as it was for your Version 4.0 enterprise services. You cannot change this path.

7. Confirm your choices, then click **Next**.

The installation program copies files to your machine. Only those files that have changed between Versions 4.0 and 4.1 are copied. A log file named install_en.log is created in the *WAS_HOME*/Enterprise directory.

If you installed any new Java services during the installation, you may need to configure

those services on your existing application servers. See the topic “Configuring enterprise services on an existing server” on page 11 .

Migrating from a Version 4.0.x installation on Unix

To migrate your existing enterprise services to a Version 4.1 level on AIX or Solaris, complete the following steps:

1. If you have not already done so, install Fixpack 2 on top of your existing Advanced Edition server or client installation, according to the instructions on the “Websphere Application Server support” Web page.
2. Insert the **Enterprise Edition Server and Client** CD into your CD-ROM drive.
3. At a command prompt, change to the appropriate installation image directory on the CD-ROM:
   - Server:

     ```
     cd cdrom\enterprise\your_platform\EnterpriseEdition
     ```

   - Client:

     ```
     cd cdrom\enterprise\your_platform\EnterpriseEdition\
      client\your_platform\
     ```

4. Enter the installation command:

   ```
   ./setup
   ```

5. On the **Select Components** page, your existing Version 4.0 services are selected and marked with an asterisk (*). You cannot deselect any of these components, but you can select additional components to install. Click **Next**.

   The installation path remains the same as it was for your Version 4.0 enterprise services. You cannot change this path.

6. Confirm your choices, then click **Next**.

The installation program copies files to your machine. Only those files that have changed between Versions 4.0 and 4.1 are copied. A log file named install_en.log is created in the *WAS_HOME*/Enterprise directory.

If you installed any new Java services during the installation, you may need to configure those services on your existing application servers. See the topic “Configuring enterprise services on an existing server” on page 11 .

Deploying applications that use flows

The WebSphere Studio Enterprise Developer (WSED) enables you to build and deploy applications that use flows. Deployment of these applications, however, depends on run-time functionality provided only by enterprise services. If you intend to deploy applications that use flows, you need to install at least one enterprise service in order to establish the necessary run-time environment.

Flows that use connectors require J2C support. J2C support is not provided by Advanced Edition for Developers (AEd); therefore, any deployment testing of applications that use connectors must be performed in a full Advanced Edition plus Enterprise services environment.

For detailed information about building and deploying applications that use flows, refer to the WebSphere Studio Application Developer documentation.

Installing samples

There are two sets of samples included with enterprise services. One set applies only to ActiveX clients, and is installed by default whenever you perform an ActiveX client installation.

The second set provides comprehensive sample code and documentation for the following services:

- Business Rule Beans
- CORBA support
- Extended messaging support
- Internationalization Service
- WorkArea Service

The samples are installed to your *WAS_HOME*/Enterprise/samples directory. To access documentation for the samples, open the Samples Gallery homepage in your Web browser:

```
File://WAS_HOME/Enterprise/samples/index.html
```

Installing documentation (InfoCenter)

Documentation for enterprise services is located within the Enterprise Edition InfoCenter. You can view the InfoCenter online or download and install it locally.

Several WebSphere Application Server products use the InfoCenter (Advanced Edition, Enterprise Edition, and so on). Each of these products provides a separately-downloadable and installable JAR file containing product documentation. The contents of each JAR file are installed as a single InfoCenter on your machine. This enables you to simultaneously navigate, link, and search across all of your WebSphere Application Server documentation. The InfoCenter JAR files can be installed in any order.

To download and install the Enterprise Edition JAR file, complete the following steps:

1. To a machine that has the Java 2 SDK installed, download InfoCenter_<locale>_wasee.jar.zip from the "IBM WebSphere Application Server InfoCenter" Web page.
2. Remove the .zip extension (that is, rename the file to **InfoCenter_*locale*_wasee.jar**
3. Run the following command:

   ```
   java -jar InfoCenter_<locale>_wasee.jar
   ```

4. Follow the installation prompts.

   The InfoCenter installation program reports status as it runs. An InfoCenterInstall.Log file is produced in the InfoCenter installation directory. Use this file to verify what has been installed, and to review the report and error messages that are displayed in the command window during the installation.

   If you already have an InfoCenter installed on this machine, the new version is automatically installed to the same directory. The default installation directories for the InfoCenter are:

   - AIX: `/usr/WebSphere/<locale>/InfoCenter`
   - Solaris, HP-UX, Linux: `/opt/WebSphere/<locale>/InfoCenter`
   - Windows: `x:\WebSphere\<locale>\InfoCenter`

5. Unix only: Complete the following post-installation steps
   a. Change to the installation directory (as listed in the previous step)
   b. Change to the /temp subdirectory.
   c. Enter the following command to give yourself execute permission on the file InstallUnix.sh:

      ```
      chmod a+x InstallUnix.sh
      ```

   d. Enter the following command to run the script:

      ```
      ./InstallUnix.sh
      ```

To access the InfoCenter home page, open the file **InfoCenter/index.html** in your Web browser.

Uninstalling enterprise services

If you uninstall enterprise services, all components of WebSphere Application Server are uninstalled, including Advanced Edition. This is true for both server and client uninstallations. You cannot, for example, uninstall only Fixpack 2 for Advanced Edition after you have installed enterprise services.

To uninstall WebSphere Application Server Enterprise Edition, complete the steps for your platform:

- "Uninstalling enterprise services on Windows" on page 29
- "Uninstalling enterprise services on Unix" on page 30

Uninstalling enterprise services on Windows

Recall that uninstalling enterprise services will uninstall Advanced Edition as well. To uninstall WebSphere Application Server (Advanced and Enterprise editions) on Windows NT or Windows 2000, complete the following steps:

1. Stop all servers.
2. Select **Settings > Control Panel > Add/Remove Programs**
3. From the list of programs to remove, select **IBM WebSphere Application Server (Advanced and Enterprise)**.
4. Click **OK**.

If your uninstallation does not complete, refer to the topic "Recovering from a failed uninstallation on Windows" on page 29

You can perform an unattended (silent) uninstallation on Windows by running the uninstallation program from the command line using the -s parameter. For example:

- Server uninstallation:

```
c:\winnt\uninsteexs.exe  -s
```

- Client uninstallation:

```
c:\winnt\uninsteexc.exe  -s
```

Recovering from a failed uninstallation on Windows

To recover from a failed uninstallation on Windows, complete the following steps:

1. Change to your system directory. For example:

```
cd c:\winnt
```

2. In a DOS window, enter the Advanced Edition uninstallation command:

   Server:

```
uninstWAS40
```

   Client:

```
uninstj2ee
```

3. After the uninstallation program has finished running, delete it.
4. Delete the installation directory, *WAS_HOME*, and all of its subdirectories.
5. Delete all WebSphere Application Server (*WAS_HOME*) entries from your environment variables.

6. From your system directory, delete the Enterprise Edition uninstallation program:
   - Server: **uninsteexs.exe**
   - Client: **uninsteexc.exe**
7. Delete the following registry keys:
   - Server:

     ```
     HKEY_LOCAL_MACHINE\SOFTWARE\IBM\WebSphere Application Server

     HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\
      Uninstall\IBMWebAppServer Deinstall
     ```

   - Client:

     ```
     HKEY_LOCAL_MACHINE\SOFTWARE\IBM\WebSphere Application Client

     HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\
      Uninstall\IBMWebAppClient Deinstall
     ```

8. Remove the program folder **IBM WebSphere > Application Server V4.0** or **IBM WebSphere > Application Client V4.0**.
9. If the **IBM WebSphere** program folder is now empty, delete that folder as well.

Uninstalling enterprise services on Unix

Recall that uninstalling enterprise services will uninstall Advanced Edition as well. To uninstall WebSphere Application Server (Advanced and Enterprise editions) on a Unix platform, complete the following steps:

1. Log in as root.
2. Stop all servers.
3. Change to the *WAS_HOME*/Enterprise directory.
4. Enter the uninstallation command:

   ```
   ./uninstall.sh
   ```

   You can perform an unattended (silent) uninstallation on Unix by adding the -s parameter to the uninstallation command. For example:

   ```
   ./uninstall.sh -s
   ```

To verify that your uninstallation was successful, enter one of the following commands:

- AIX:

  ```
  lslpp -L | grep WAS
  ```

- Solaris:

  ```
  pkginfo | grep WAS
  ```

The above commands should return nothing if the uninstallation was successful. If a value is returned, refer to the topic “Recovering from a failed uninstallation on Unix” on page 30

.

Recovering from a failed uninstallation on Unix

1. Change to your *WAS_HOME* directory.
2. Run the Advanced Edition uninstallation command:

   ```
   ./uninstall.sh
   ```

3. After the uninstallation program has finished running, delete it.

4. Delete the installation directory, *WAS_HOME*, and all of its subdirectories.
5. Delete all WebSphere Application Server (*WAS_HOME*) entries from your user profile.

Environment variables (Windows)

During a server installation of enterprise services on Windows NT or Windows 2000, the following environment variables are set. The variables are set by the file *WAS_HOME*\bin\setupCmdLine.bat.

PATH

Updated to include *WAS_HOME*\Enterprise\bin.

LIB

Updated to include *WAS_HOME*\Enterprise\lib

CLASSPATH

Updated to include *WAS_HOME*\lib\iwstools.jar and *WAS_HOME*\lib\somshcl.zip

INCLUDE

Updated to include *WAS_HOME*\Enterprise\include

LOCPATHCBM

Created as *WAS_HOME*\Enterprise\localem

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