WebSphere® Application Server Network Deployment for Distributed Platforms, Version 6.1

IBM

Installing your application serving environment

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Contents

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- To send comments on articles in the WebSphere Application Server Information Center
  1. Display the article in your Web browser and scroll to the end of the article.
  2. Click on the **Feedback** link at the bottom of the article, and a separate window containing an e-mail form appears.
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  Be sure to include the document name and number, the WebSphere Application Server version you are using, and, if applicable, the specific page, table, or figure number on which you are commenting.

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Chapter 1. Overview and new features for installing an application serving environment

Use the links provided in this topic to learn about the installation features.

"What is new for installers"

> This topic provides an overview of new and changed features in installation, migration, coexistence, and interoperability support.

Chapter 5, "Planning the installation," on page 81
> This topic describes common topologies that you can install with this product.

What is new for installers

Installation is an easier, more consistent, and functionally rich experience across platforms, installable components, and types of installations.

> **New in Version 6.1!** indicates new features or changes implemented at the Version 6.1 level. Unmarked items are Version 6.0 improvements that apply also to Version 6.1, which should interest anyone migrating to Version 6.1 from Version 5.x.

Platform support is described on the Detailed system requirements page. A quick summary of new platform support is provided in the Support announcement.

Improved ease of use

Simplified setup and prerequisites	Redesigned product features simplify operating system setup and reduce prerequisites.
	See Chapter 6, "Preparing the operating system for product installation," on page 107.
Redesigned launchpad to plan and start installation	A redesigned launchpad on the product disc launches one of the installation programs. The launchpad also provides product solution roadmap diagrams to let you decide what to install, and where.
	See "Using the launchpad to start the installation" on page 24.
Better indicators of installation status	Improved logging and status indicators let you easily determine the success or failure of an installation.
	Improved installation verification tools help you verify that the installation succeeded. See "Using the installation verification tools" on page 186.
Verify installation across all installation packages	The installver tool introduced in Version 6.0.2 enables you to perform checksum calculations to verify installed file sets on all platforms.
Separate installer for the Update Installer	**New in Version 6.1!** A separate installer is used to install the Update Installer. At the end of the installation, launch the Update Installer to apply maintenance.
	See "Updating the Update Installer for WebSphere Software" on page 219.
Improved installation documentation	New installation documentation helps you retrieve relevant information.

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Improved capabilities

Security enabled by default; installation requires a user ID

New in Version 6.1! Security now is enabled by default at installation time.

For a silent or graphical installation to succeed, you must either provide a user ID and password or disable security.

Perform non-root installations

New in Version 6.1! Non-root installations are supported by all WebSphere Application Server installation packages in both silent and interactive mode for full installation and removal, incremental feature installations, and edition updates. In particular, root access is not required to install and evaluate IBM HTTP Server. The user who owns the currently installed files is the only user who can perform subsequent installation and update operations on that installation. Many installation operations are not permitted unless the installer also owns the file sets.

▶ Windows   Non-root support includes non-administrator group installations on supported Windows operating systems.

See "Limitations of non-root installers" on page 175.

Smaller footprint

A redesigned installer simplifies the installation of the core product files. You do not have to install the core product files multiple times to create multiple stand alone application servers. Instead, use the Profile Management tool GUI or the **manageprofiles** command to create an application server run-time environment that has its own administrative interface.

See Chapter 8, "Configuring the product after installation," on page 181.

Install only what you need

New, more granular installation procedures simplify installation and improve installation reliability. Installation routines exist for the following components.

*   WebSphere Application Server products
*   IBM HTTP Server
*   Web Server plug-ins
*   Application clients
*   Update Installer

Separate installation procedures let you install only what you need on a particular machine.

Installation factory enhancements

New in Version 6.1! The installation factory creates a customized, distributable installation image tailored to your specific needs. Now, while in connected mode, you can create the installation packages on one operating system and distribute them to another system.

For example, you can create a customized installation package (CIP) for Windows from your Linux system. Support is also expanded to 64-bit platforms.

zLinux continues to be supported only in command-line mode.

See "Installation Factory overview" on page 248.

Create customized installation packages (CIP)	The installation factory provides the ability to:
	• Choose Eclipse-based GUI or CLI
	• Create a "custom refresh," which is an ISMP-based installation package at any given level of maintenance, such as 6.0.2.1 plus interim fixes
	• Prune unwanted features from the custom installation package
	• Use the custom install package to do a full scratch installation as well as update an existing installation (slip install)
	See Chapter 11, "Developing and installing customized installation packages," on page 247.
Support for specific 64-bit platforms	You can deploy into an expanded memory space, for consolidating servers and handling applications with higher memory bandwidth requirements. Applications developed on 32-bit platforms can be deployed onto 64-bit platforms without special consideration during application development. The exception is that applications using Java Native Interface (JNI) code could require recompilation in the 64-bit environment if they do not start.
	Supported 64-bit operating systems and processors are formally documented on the Supported Hardware and Software Web site.
IPv6 support and considerations	This product version introduces selective support for Internet Protocol Version 6 (IPv6). IPv6 is the next evolution in Internet Protocol beyond the IPv4 standard currently in use in most networks today. The key IPv6 enhancement is the expansion of the IP address space from 32 bits to 128 bits, enabling virtually unlimited IP addresses. This addressing capability, along with new functions enabling end-to-end security, improved mobility support, simplified address configuration and management, make IPv6 a critical component in the evolution of e-business and the next generation internet.
	IPv6 client workload can be distributed to back end WAS servers. The proxy server supports IPv6 clients and servers. The new IPv6 network support extends Load Balancer to IPv6 clients, enabling their workload to be distributed to backend WebSphere application servers for increased flexibility. And with proxy server support for IPv6 clients and upstream server connections, you get added network reach and flexibility. See the Edge Component Information Center.
Changed product installation root	The installation root varies by operating system, as before, but now includes IBM in the path. The installation root is the same for all three product editions now -- there is no longer a separate installation root for the Network Deployment product edition.
	Additional directory structure changes are introduced.
	See "Directory conventions" on page 18.

Introducing ″profiles″

Consider profiles during product installation

You can install one copy of the core files (binary system files and such) on a machine or partition, then use *profiles* to define multiple application server runtime environments -- each with its own administrative interfaces -- that share the core files. The use of profiles provides many enhancements for preparing, installing, maintaining, and removing installations, including a decreased footprint.

Installing the product is a two-step process. The first step is using the installation wizard to install a shared set of core product files. The second step to create a *deployment manager profile*, an *application server profile*, or a *custom profile*.

Optionally create a profile during installation to have a working environment.

Create a profile after installation at any time using the Profile Management tool GUI or the manageprofiles command line interface. Available profiles include:

- Cell, which includes a deployment manager and a federated application server
- Deployment manager, which provides centralized management of application servers
- Application server, which can stand alone or run as part of the deployment manager cell
- Custom, which must be federated and then customized through the deployment manager

Profile enhancements

New in Version 6.1! Now you can create a cell (deployment manager and a federated node) in a single pass during the installation, or in a single use of the Profile Management tool. The tool also offers typical and advanced paths. The typical path expedites your creation of a profile by requesting only mandatory parameters, such as the profile type and core security settings. You have additional options during profile creation, such as whether to deploy the samples.

Silent and command line installations

Simpler command line installation

New in Version 6.1! The standard ISMP option format (-W *option=value* and –P *option=value*) is being replaced with an -OPT option that takes "sub-options" whose names are simpler and more meaningful, and less subject to change from one release to another. The same options are used in the command line invocation of the wizard and in the silent installation parameters in the response files.

Silent installation requires license acceptance

You must set the License Acceptance property to ″true″ in the silent installation response file.

See "responsefile.nd.txt" on page 154.

Migration, upgrade, and change management

Tivoli License Management (ITLM)	**New in Version 6.1!** This product is enabled for management with IBM Tivoli License Management (ITLM). Tivoli software meets today's business requirements for software license management and asset tracking.
	For more information about ITLM, see http://www.ibm.com/software/tivoli/products/license-mgr/.
Query product version information	You can query product version information.
Migration wizard	A migration wizard collects data for the migration command line tools. It also monitors and reports migration status. The installation program no longer performs the migration.
Robust product migration support	**New in Version 6.1!** To protect your investment defining and tuning your configuration, a number of migration paths are supported among versions and editions. The overall migration is easier and more seamless because many of the migration tools can be integrated into your installation scripts. You can choose from a variety of tools, including:
	• GUI based migration on the same machine using the migration wizard
	• Command based migration on the same machine using the migration scripts
	• Command based migration across different machines using the migration scripts
	• Command based migration for OS update using the migration scripts
	• Command based application migration for client resources
Incremental cell upgrade	You can incrementally upgrade nodes in a cell.
Simplified service	The installation program installs the system files (shared binary files), which you do not update until you install a service fix. Creation and configuration of application servers do not change the system files.
	See Chapter 9, "Installing maintenance packages," on page 211.
Easier removal and reinstallation	Removal and reinstallation of application server environments is simplified and faster. Application server environments are much easier to install and much easier to uninstall than in previous version. Uninstalling an application server profile does not change the shared system files of the product.
	Now you can leave profiles installed when uninstalling the product and its core product files.
	See Chapter 10, "Uninstalling the product," on page 229.

Web serving capability

Installing IBM HTTP Server	The installation wizard for IBM HTTP Server has been redesigned. At the end of the Web server installation, launch the new plug-ins installation wizard to configure the IBM HTTP Server and the application server.

When you install IBM HTTP Server, its plug-in is installed	**New in Version 6.1!** The IBM HTTP Server installation now includes the Web server plug-in for IBM HTTP Server, eliminating an extra step. You can enter information in just one place when setting up the Web server environment.
Separate installer for Web server plug-ins	**New in Version 6.1!** The separate plug-ins installer installs the Web server plug-ins on a machine on which WebSphere Application Server is not installed, without incurring the overhead of running the WebSphere Application Server installation.
Configure the Web server more easily	**New in Version 6.1!** New convenience scripts have been added to the installation package, enabling you to configure another instance of the Web server post-installation. Version 6.0 required running the Plug-ins installer again in order to accomplish this.

Installable components in the integrated platform

MQ Series integrated JMS removed from product installation	WebSphere Application Server no longer uses MQ Series to support the embedded JMS function contained in the application server. The MQ Series product is not included any more.
	You can use either a separate WebSphere MQ license or the new service integration bus architecture for messaging services. If you set up the integrated JMS under Version 5.0 or Version 5.1, you can continue to use any JMS servers on nodes which have not yet migrated to Version 6.1.
Installing the client	The application client installation is no longer a feature under the application server install. A separate application client installation program is delivered on its own disc.
More usability in selecting application clients to install	**New in Version 6.1!** J2EE clients and pluggable clients are no longer exclusive features placed on the same feature panel. They are separate setup types that have separate feature panels.
Improved update installer for Application Server Toolkit (AST)	**New in Version 6.1!** In Version 6, Application Server Toolkit (AST) used the Eclipse Update Manager to retrieve and apply maintenance. In Version 6.1, it uses the Rational Product Updater (RPU), which is built on top of the Update Manager. RPU is able to update the JRE that is bundled with AST, whereas Update Manager knew only how to update Eclipse plug-ins. RPU runs as a separate process from the code it updates, whereas Update Manager runs within AST itself.

IPv6 support

This product version introduces selective support for Internet Protocol Version 6 (IPv6). IPv6 is the next evolution in Internet Protocol beyond the IPv4 standard currently in use in most networks today. IPv6 client workload now can be distributed to back end application servers, and proxy server support is extended to new IPv6 clients and servers.

The key IPv6 enhancement is the expansion of the IP address space from 32 bits to 128 bits, enabling virtually unlimited IP addresses. This addressing capability, along with new functions enabling end-to-end security, improved mobility support, simplified address configuration and management, make IPv6 a critical component in the evolution of e-business and the next generation internet.

The new IPv6 network support extends Load Balancer to IPv6 clients, enabling their workload to be distributed to back end WebSphere application servers for increased flexibility. With proxy server support for IPv6 clients and upstream server connections, you get added network reach and flexibility. For details, see the Edge Component documentation.

IPv6 addresses are supported in JMS connection factories, but require square brackets to distinguish the IPv6 address from the rest of the providerEndpoints string. This is because the colon separator (:) used by the providerEndpoints string is also used as the separator in IPv6 network addresses. The standard format for provider endpoints is host:port:chain, and an IPv6 address might appear as follows:

```
2002:914:fc12:179:9:20:141:42
```

Therefore, an IPv6 provider endpoint setting might be written as:

```
2002:914:fc12:179:9:20:141:42:7276:BootstrapBasicMessaging
```

An IPv6 address can be of variable length; therefore, it is impossible to know where the IPv6 address ends and the port begins. The solution is to surround the IPv6 address with square brackets, as described in RFC2732 on the Internet Engineering Task Force Web site (http://www.ietf.org). For example, the previous providerEndpoints string becomes:

```
[2002:914:fc12:179:9:20:141:42]:7276:BootstrapBasicMessaging
```

IPv6 is now supported for Tivoli Access Manager, Version 6.0. IPv6 was not supported on Tivoli Access Manager Version 5.1 or previous versions.

See also the following Web pages:
- Security evaluations for IBM products
- IPv6 enablement at IBM - Overview
- IPv6 enablement at IBM - Products

Packaging

WebSphere Application Server is a family of similar products designed to deliver the right combination of economy and application serving power for your business demands. The contents of the product packages are similar, but each package has unique elements. Use this topic to familiarize yourself with the various products so that you can determine the offering that best fits your needs.

The WebSphere software platform for e-business starts with a foundation that is formed from Web application serving and integration. IBM WebSphere Application Server software provides the core software to deploy, integrate, and manage your e-business applications.

WebSphere Application Server software supports custom-built applications that are either based on integrated WebSphere software platform products or on other third-party products. Such applications can range from dynamic Web presentations to sophisticated transaction processing systems.

IBM WebSphere Application Server for z/OS is a full-function version of the Network Deployment product. WebSphere Application Server for z/OS can support e-business on any scale.

The management interface for all WebSphere Application Server product offerings includes a scripting interface and the administrative console, which is a Web application.

The scripting interface and the administrative console of the deployment manager are enhanced for managing all of the Application Server nodes in a distributed network cell. From the single point of control of the deployment manager, you can define servers, Web server processes, and clusters. You can start and stop servers and cluster members and deploy applications anywhere in the cell.

Product offerings

IBM WebSphere Application Server products provide a next-generation application server on an industry-standard foundation. Each product addresses a distinct set of scenarios and needs. WebSphere Application Server includes the following product offerings:

- WebSphere Application Server
- WebSphere Application Server Network Deployment
- WebSphere Application Server for z/OS

WebSphere Application Server

This product offering addresses the basic programming and run-time needs of desktop developers and single-server production scenarios. The run-time environment addresses standards-based programming for Web and component-based programming, as well as Web services.

The administration model is a single-server environment without clustering, and without centralized administration of multiple server instances.

The development environment offering is the Application Server Toolkit and a trial version of a Rational Tool product.

WebSphere Application Server Network Deployment

This product offering addresses WebSphere Application Server processes that run in multiple-server production scenarios. Use the Network Deployment product to create:

- Cells

  The cell profile is an ease-of-use enhancement that provides a deployment manager profile that contains a federated application server on the same machine or partition.

- Deployment managers

  The deployment manager provides centralized administration of managed Application Server nodes and custom nodes as a single cell. The deployment manager provides basic clustering and caching support, including failover support and workload balancing. Use the Edge components in the Network Deployment package to further extend the environment with sophisticated caching, load balancing, and enhanced security functions.

- Application servers

  The application server profile in the Network Deployment product can run in a deployment manager cell as a managed node or on its own as a stand-alone application server.

- Custom

  A custom profile has an empty node that you must add to a deployment manager cell to customize and use. Use the administrative console of the deployment manager to create servers and clusters on the custom managed node. Consider the custom node as a production-ready shell, ready for customization to contain your production-level servers and applications.

See "Planning to install Network Deployment" on page 83 for examples of common topologies that you can create with the Network Deployment product.

WebSphere Application Server for z/OS

This product offering addresses WebSphere Application Server processes that run in multiple-server production scenarios in a UNIX space in z/OS regions. Use WebSphere Application Server for z/OS to create:

- Deployment managers

  The deployment manager provides centralized administration of federated application server nodes and managed nodes as a single cell. The deployment manager provides basic clustering and caching support, including failover support and workload balancing.

- Application servers

The application server profile in WebSphere Application Server for z/OS can run in a deployment manager cell as a federated node or on its own as a stand-alone application server.

- Custom

  A custom or managed node is an empty node until you add it to the deployment manager cell for customization. Use the administrative console of the deployment manager to create servers and clusters on the managed node. Consider the managed node as a production-ready shell, ready for customization to contain your production-level servers and applications.

New installation and operating model

In Version 6.x, the core product binary data is separate from the data that you create as you define and customize your WebSphere Application Server run-time environment. You can have multiple sets of customized run-time environments. Each environment is known as a *profile*.

Application server environments that are created during product installation

Product	Default environments	Application server processes created during installation
WebSphere Application Server	One stand-alone application server profile and the Profile Management tool for creating other application server profiles on the same machine.	server1
Network Deployment	One cell that contains a deployment manager profile and a federated application server profile and the Profile Management tool for creating other profiles.	• Deployment manager profile: Dmgr01 • Federated application server profile: server1

Install the Network Deployment product on each machine in a multiple-machine, distributed environment to give each server process access to a local copy of the core product files.

Launchpad console

The launchpad is the focal point for installing from the product compact disc, with important guidance for creating typical topology scenarios. Diagrams help you identify the types of systems that you can create. The launchpad is in the root directory of the product CD.

The launchpad works on installable components in the primary packet of compact discs. Select and launch any of the components on the product disc or view their HTML documentation on the disc.

Use the **launchpad** command if the program does not start automatically when you insert the product disc:

- Linux   `./launchpad.sh`
- Windows   `launchpad.bat`

See "Using the launchpad to start the installation" on page 24 for more information.

If you cannot start the launchpad, see the appropriate locale-specific readme file in the root directory on the disc. You can also launch the installation programs directly, using the information in the following table:

Table 1. Installable components on the product disc and the supplements disc

Launch command	Documentation	Name of installable component

`WAS/install`	`WAS/readme/readme_en.html`
	
	`WAS/docs/InstallGuide_en.html`
		The name of the component varies per product offering:
		• WebSphere Application Server
		• WebSphere Application Server Network Deployment

`IHS/install`	`IHS/readme/readme_en.html`
	
	`IHS/docs/InstallGuide_en.html`
		IBM HTTP Server

`plugin/install`	`plugin/readme/readme_en.html`
	
	`plugin/docs/InstallGuide_en.html`
		Web server plug-ins for WebSphere Application Server

`AppClient/ install`	`AppClient/readme/readme_en.html`
	
	`AppClient/docs/InstallGuide_en.html`
		Application Client for WebSphere Application Server
		
		Available on 32-bit operating system platforms only.

`InstallationFactory` compressed `file`
 	
Decompress the file onto your system to install the Installation Factory.
	`InstallationFactory/readme/readme_en.html`
	
	`InstallationFactory/docs/InstallGuide_en.html`
		IBM Installation Factory for WebSphere Application Server

`UpdateInstaller/ install`	`UpdateInstaller/readme/readme_en.html`
	
	`UpdateInstaller/docs/InstallGuide_en.html`
		IBM Update Installer for WebSphere Software

`ISA/install`	`ISA/readme/readme_en.html`
	
	`ISA/docs/InstallGuide_en.html`
		IBM Support Assistant

Other directories on the product and supplements discs contain components that are automatically installed during one or more of the installation procedures for the installable components.

▶ Linux   Set the umask to 022 for security purposes after logging on as root before you install:

`umask 022`

Set file permissions to 755 after installation, as in the following example for one file:

`chmod 755 setupCmdLine.sh`

The IBM HTTP Server tolerates a non-root installation, but you cannot install the Global Services Kit 7 (GSKit 7) that is required for HTTPS security. You can install IBM HTTP Server as a non-root user, then log on as root to install the GSKit program from the directory on the product disc.

Package descriptions

Each product package contains several compact discs, or CDs. You can also order Digital Versatile Discs, or DVDs. DVDs hold more information, which allows the product package to have fewer discs.

The product discs are always in the primary disc packet.

Each product package and its installable components are described in detail in the following sections:

- Packaging information for IBM WebSphere Application Server
- Packaging information for IBM WebSphere Application Server Network Deployment

Figure 1. Installation images in WebSphere Application Server packages

Packaging information for IBM WebSphere Application Server

The WebSphere Application Server package contains the following sets of discs:

- Discs in the primary Application Server packet
- Discs in the supplemental packet

The product disc for the WebSphere Application Server product is in the primary package.

Discs in the primary Application Server packet: The primary Application Server packet contains the compact discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each 32-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.
WebSphere Application Server (64-bit)	CDs are available for the following 64-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Each 64-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server Supplements (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each platform-specific image contains the following installable components: • Update Installer • Installation Factory • Migration tools • IBM Support Assistant • IBM HTTP Server in the IHS directory. • Web server plug-ins in the plugin directory. • Application Client in the AppClient directory. (32-bit only) ► Windows In addition, the Windows platform CD has the Data Direct Java Database Connectivity (JDBC) drivers. In the CD package, the Application Server Toolkit is on separate CDs in the primary packet. The Application Server Toolkit is also available on a separate DVD. Install the Update Installer into the root directory of the product that you intend to update. For example, install the Update Installer into the *app_server_root* to use it to install maintenance for the WebSphere Application Server - Express product.
WebSphere Application Server Supplements (64-bit)	Several 64-bit platform-specific CDs are available, or one DVD with platform-specific directories: • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Solaris (Opteron / EM64T 64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Use the migration tools from the disc image, or copy the tools to your system. The IBM Support Assistant has its own installation program. The fonts mentioned below are on available on their own CD. They are also available on the Linux DVDs Use your Linux system utilities to install the World Type fonts or the Devanagari fonts. Use your operating system utilities to install the Devanagari fonts on other operating systems. The fonts support Hindi, Sanskrit and some other languages. The launchpad application in the root directory of the disc lets you install and view information about the components on the disc.
WebSphere Application Server Application Server Toolkit	Two different 32-bit platform versions of this CD are available, or one DVD with platform specific directories: • Linux (Intel) • Windows	The Application Server Toolkit is an Eclipse-based tool for deploying and debugging applications on WebSphere Application Server. Application Server Toolkit contains a subset of the function provided in the Rational Application Developer tool that is included with this product. The difference is that the license for the Application Server Toolkit is an unlimited use license whereas the Rational Application Developer is a trial license for a single user.

Discs in the supplemental packet: The supplemental Application Server packets contain the compact discs in the following table:

Disc label	Versions of the disc	Comments
DB2 Universal Database Express Edition V8.2 (32-bit) Developer use only	Three 32-bit platform-specific CDs are available: • Linux (Intel) • Linux (PowerPC) • Windows Server 2003	IBM DB2 Universal Database Express Edition is the lowest-priced, full-function relational database. DB2 UDB Express Edition is designed to meet the needs of small and medium businesses. DB2 UDB Express Edition features self-tuning and self-configuring capabilities for ease of manageability, Linux or Windows platform choices, and support for transparent installation with business partner applications.
DB2 Universal Database Express Edition V8.2 (64-bit) Developer use only	Two 64-bit platform-specific CDs are available: • Linux (PowerPC) • Windows Server 2003	See IBM DB2 Universal Database Express Edition for more information. The IBM DB2 Universal Database Express Edition included with this product has a restricted use license. You are authorized to install and use one copy of DB2 Express for use only as a data repository for data generated and managed by WebSphere Application Server.
Rational Application Developer Trial for WebSphere Application Server	Eight 32-bit platform CDs are available for two operating system platforms: • Linux (Intel - 4 CDs) • Windows (4 CDs)	Rational Application Developer is the next generation of the award-winning IBM WebSphere Studio Application Developer. Rational Application Developer is a comprehensive integrated development environment for visually designing, constructing, testing, and deploying Web services, portals, and Java 2 Platform Enterprise Edition (J2EE) applications. Rational Application Developer accelerates J2EE development with a complete set of high-productivity tools, templates, and wizards. See the Application Server Toolkit in the primary package for an integrated development environment that includes an unlimited use license.

Disc label	Versions of the disc	Comments
Rational Agent Controller	One CD that provides support for each of the following 32-bit operating system platforms: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Solaris on Sparc • Windows	The Rational Agent Controller provides a technology for problem determination. The Rational Agent Controller is an enhancement to the Agent Controller from the Autonomic Computing Toolkit, which IBM donated in large part to the Hyades Project. Install the Rational Agent Controller on one of the supported machine environments. Another machine (perhaps an administrator workstation) can use the Log and Trace Analyzer to establish communication with the agent on the remote machine. The Analyzer can request a specific log file from the Rational Agent Controller. The agent uses the appropriate log file parser to normalize the native log to a Common Base Event format and transfers the log file to the Log and Trace Analyzer. Create log file parsers for the Rational Agent Controller with the Common Base Event model builder, which is included in the Autonomic Computing Toolkit.

Packaging information for IBM WebSphere Application Server Network Deployment

The Network Deployment package contains the following sets of discs:

• Discs in the primary Network Deployment packet
• Discs in the supplemental packet

The product disc for the WebSphere Application Server Network Deployment product is in the primary package.

Discs in the primary Network Deployment packet: The primary Network Deployment packet contains the discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each 32-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server (64-bit)	CDs are available for the following 64-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Each 64-bit platform-specific image contains the following installable components: • WebSphere Application Server in the `WAS` directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server Supplements (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each platform-specific image contains the following installable components: • Update Installer • Installation Factory • Migration tools • IBM Support Assistant • IBM HTTP Server in the IHS directory. • Web server plug-ins in the plugin directory. • Application Client in the AppClient directory. (32-bit only) ▶ Windows In addition, the Windows platform CD has the Data Direct Java Database Connectivity (JDBC) drivers. In the CD package, the Application Server Toolkit is on separate CDs in the primary packet. The Application Server Toolkit is also available on a separate DVD. Install the Update Installer into the root directory of the product that you intend to update. For example, install the Update Installer into the *app_server_root* to use it to install maintenance for the WebSphere Application Server - Express product.
WebSphere Application Server Supplements (64-bit)	Several 64-bit platform-specific CDs are available, or one DVD with platform-specific directories: • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Solaris (Opteron / EM64T 64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Use the migration tools from the disc image, or copy the tools to your system. The IBM Support Assistant has its own installation program. The fonts mentioned below are on available on their own CD. They are also available on the Linux DVDs Use your Linux system utilities to install the World Type fonts or the Devanagari fonts. Use your operating system utilities to install the Devanagari fonts on other operating systems. The fonts support Hindi, Sanskrit and some other languages. The launchpad application in the root directory of the disc lets you install and view information about the components on the disc.
WebSphere Application Server Application Server Toolkit	Two different 32-bit platform versions of this CD are available, or one DVD with platform specific directories: • Linux (Intel) • Windows	The Application Server Toolkit is an Eclipse-based tool for deploying and debugging applications on WebSphere Application Server. Application Server Toolkit contains a subset of the function provided in the Rational Application Developer tool that is included with this product. The difference is that the license for the Application Server Toolkit is an unlimited use license whereas the Rational Application Developer is a trial license for a single user.

Discs in the supplemental packet: The supplemental Network Deployment packet contains the discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server Network Deployment Edge Components	Seven different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	Network Deployment addresses the needs of highly available, high-volume environments with the Edge components. The Edge components include sophisticated load balancing, caching, and centralized security capabilities. See WebSphere Application Server Network Deployment Edge components for more information.
Rational Application Developer Trial for WebSphere Application Server	Eight 32-bit platform CDs are available for two operating system platforms: • Linux (Intel - 4 CDs) • Windows (4 CDs)	Rational Application Developer is the next generation of the award-winning IBM WebSphere Studio Application Developer. Rational Application Developer is a comprehensive integrated development environment for visually designing, constructing, testing, and deploying Web services, portals, and Java 2 Platform Enterprise Edition (J2EE) applications. Rational Application Developer accelerates J2EE development with a complete set of high-productivity tools, templates, and wizards. See the Application Server Toolkit in the primary package for an integrated development environment that includes an unlimited use license.
Rational Agent Controller	One CD that provides support for each of the following 32-bit operating system platforms: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Solaris on Sparc • Windows	The Rational Agent Controller provides a technology for problem determination. The Rational Agent Controller is an enhancement to the Agent Controller from the Autonomic Computing Toolkit, which IBM donated in large part to the Hyades Project. Install the Rational Agent Controller on one of the supported machine environments. Another machine (perhaps an administrator workstation) can use the Log and Trace Analyzer to establish communication with the agent on the remote machine. The Analyzer can request a specific log file from the Rational Agent Controller. The agent uses the appropriate log file parser to normalize the native log to a Common Base Event format and transfers the log file to the Log and Trace Analyzer. Create log file parsers for the Rational Agent Controller with the Common Base Event model builder, which is included in the Autonomic Computing Toolkit.

Disc label	Versions of the disc	Comments
DB2 Universal Database Enterprise Server Edition V8.2 (32-bit) for WebSphere Application Server Network Deployment	Nine different platform versions of this CD are available for these operating systems: • AIX • AIX for DBCS platforms • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	DB2 Universal Database V8.2 has numerous innovative enhancements. Improved integration with WebSphere Application Server Network Deployment, key development tools, and platforms help make programmers more efficient than ever. A broad array of autonomic or self-managing capabilities can free more administrator time to focus on driving business value. The ease of use in DB2 V8.2 and the self-managing characteristics might even eliminate the need for dedicated administrators in smaller implementations.
DB2 Universal Database Enterprise Server Edition V8.2 (64-bit) for WebSphere Application Server Network Deployment	Nine different platform versions of this CD are available for these operating systems: • AIX • AIX for DBCS platforms • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	
IBM Tivoli Directory Server for WebSphere Application Server	Seven different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	The IBM Tivoli Directory Server product is a powerful Lightweight Directory Access Protocol (LDAP) infrastructure. Tivoli Directory Server provides a foundation for deploying comprehensive identity management applications and advanced software architectures. See IBM Tivoli Directory Server for more information.
IBM Tivoli Access Manager for WebSphere Application Server	Six different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on zSeries • Solaris on Sparc • Windows	IBM Tivoli Access Manager for e-business integrates with e-business applications right out of the box, to deliver a secure, unified, and personalized e-business experience. By providing authentication and authorization APIs and integration, Tivoli Access Manager for e-business helps you secure access to business-critical applications and data that might be spread across the extended enterprise. See IBM Tivoli Access Manager for e-business for more information.

Directory conventions

References in product information to *app_server_root*, *profile_root*, and other directories infer specific default directory locations. This topic describes the conventions in use for WebSphere Application Server Network Deployment.

Default product locations when the root user or an administrator user installs the product

The root user or administrator user (on a Windows system) is capable of registering shared products and installing into system-owned directories. The following default directories are system-owned directories.

These file paths are default locations. You can install the product and other components in any directory where you have write access. You can create profiles in any valid directory where you have write access. Multiple installations of WebSphere Application Server Network Deployment products or components, of course, require multiple locations.

app_server_root - the install_root for WebSphere Application Server

The following list shows default installation root directories for WebSphere Application Server Network Deployment:

> `AIX` /usr/IBM/WebSphere/AppServer

> `HP-UX` /opt/IBM/WebSphere/AppServer

> `Linux` /opt/IBM/WebSphere/AppServer

> `Solaris` /opt/IBM/WebSphere/AppServer

> `Windows` C:\Program Files\IBM\WebSphere\AppServer

profile_root

The following list shows the default directory for a profile named *profile_name* on each distributed operating system:

> `AIX` /usr/IBM/WebSphere/AppServer/profiles/*profile_name*

> `HP-UX` /opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> `Linux` /opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> `Solaris` /opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> `Windows` C:\Program Files\IBM\WebSphere\AppServer\profiles*profile_name*

plugins_root

The following default installation root is for the Web server plug-ins for WebSphere Application Server:

> `AIX` /usr/IBM/HTTPServer/Plugins

> `HP-UX` /opt/IBM/HTTPServer/Plugins

> `Linux` /opt/ibm/HTTPServer/Plugins

> `Solaris` /opt/IBM/HTTPServer/Plugins

> `Windows` C:\Program Files\IBM\HTTPServer\Plugins

web_server_root

The following default installation root directories are for the IBM HTTP Server:

> `AIX` /usr/IBM/HTTPServer

> `HP-UX` /opt/IBM/HTTPServer

> `Linux` /opt/ibm/HTTPServer

> `Solaris` /opt/IBM/HTTPServer

> `Windows` C:\Program Files\IBM\HTTPServer

gskit_root

The following list shows the default installation root directories for Version 7 of the IBM Global Security Kit (GSKit):

> `AIX` /usr/ibm/gsk7

> `HP-UX` /opt/ibm/gsk7

> `Linux` /opt/ibm/gsk7

> `Solaris` /opt/ibm/gsk7

> `Windows` C:\Program Files\IBM\GSK7

app_client_root

The following default installation root directories are for the WebSphere Application Client:

> `AIX` /usr/IBM/WebSphere/AppClient (J2EE Application client only)

> `HP-UX` /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> `Linux` /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> `Solaris` /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> `Windows` C:\Program Files\IBM\WebSphere\AppClient

updi_root

The following list shows the default installation root directories for the Update Installer for WebSphere Software:

> `AIX` /usr/IBM/WebSphere/UpdateInstaller

> `HP-UX` /opt/IBM/WebSphere/UpdateInstaller

> `Linux` /opt/IBM/WebSphere/UpdateInstaller

> `Solaris` /opt/IBM/WebSphere/UpdateInstaller

> `Windows` C:\Program Files\IBM\WebSphere\UpdateInstaller

cip_app_server_root

The following list shows the default installation root directories for a customized installation package (CIP) produced by the Installation Factory.

A CIP is a WebSphere Application Server Network Deployment product bundled with one or more maintenance packages, an optional configuration archive, one or more optional enterprise archive files, and other optional files and scripts:

> `AIX` /usr/IBM/WebSphere/AppServer/cip/*cip_uid*

> `HP-UX` /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> `Linux` /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> `Solaris` /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> `Windows` C:\Program Files\IBM\WebSphere\AppServer\cip*cip_uid*

The *cip_uid* variable is the CIP unique ID generated during creation of the build definition file. You can override the generated value in the Build definition wizard. Use a unique value to allow multiple CIPs to install on the system.

component_root

> The component installation root directory is any installation root directory described in this topic. Some programs are for use across multiple components. In particular, the Update Installer for WebSphere Software is for use with WebSphere Application Server Network Deployment, Web server plug-ins, the Application Client, and the IBM HTTP Server. All of these components are part of the product package.

Default product locations when a non-root user or a non-administrator user installs the product

The non-root user or non-administrator user (on a Windows system) is not capable of registering shared products and installing into system-owned directories. The following default directories are user-owned directories in the home directory of the non-root installer as opposed to being globally shared resources that are available to all users.

app_server_root

> The following list shows the default installation directories for non-root installation of WebSphere Application Server Network Deployment:

>> ▶ AIX *user_home*/IBM/WebSphere/AppServer

>> ▶ HP-UX *user_home*/IBM/WebSphere/AppServer

>> ▶ Linux *user_home*/IBM/WebSphere/AppServer

>> ▶ Solaris *user_home*/IBM/WebSphere/AppServer

>> ▶ Windows C:\IBM\WebSphere\AppServer

profile_root

> The following list shows the default directories for creating profiles:

>> ▶ AIX *user_home*/IBM/WebSphere/AppServer/profiles/

>> ▶ HP-UX *user_home*/IBM/WebSphere/AppServer/profiles/

>> ▶ Linux *user_home*/IBM/WebSphere/AppServer/profiles/

>> ▶ Solaris *user_home*/IBM/WebSphere/AppServer/profiles/

>> ▶ Windows C:\IBM\WebSphere\AppServer\profiles\

web_server_root

> The following default installation root directories are for the IBM HTTP Server:

>> ▶ AIX *user_home*/IBM/HTTPServer

>> ▶ HP-UX *user_home*/IBM/HTTPServer

>> ▶ Linux *user_home*/ibm/HTTPServer

>> ▶ Solaris *user_home*/IBM/HTTPServer

>> ▶ Windows C:\IBM\HTTPServer

plugins_root

> The following list shows the default installation root directories for the Web server plug-ins for WebSphere Application Server:

>> ▶ AIX *user_home*/IBM/HTTPServer/Plugins

>> ▶ HP-UX *user_home*/IBM/HTTPServer/Plugins

Linux	*user_home*/ibm/HTTPServer/Plugins
Solaris	*user_home*/IBM/HTTPServer/Plugins
Windows	C:\IBM\HTTPServer\Plugins

app_client_root

The following list shows the default installation root directories for the WebSphere Application Client:

AIX	*user_home*/IBM/WebSphere/AppServer/AppClient (J2EE Application client only)
HP-UX	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Linux	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Solaris	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Windows	C:\IBM\WebSphere\AppClient

updi_root

The following list shows the default installation directories for non-root installation of WebSphere Application Server Network Deployment:

AIX	*user_home*/IBM/WebSphere/UpdateInstaller
HP-UX	*user_home*/IBM/WebSphere/UpdateInstaller
Linux	*user_home*/IBM/WebSphere/UpdateInstaller
Solaris	*user_home*/IBM/WebSphere/UpdateInstaller
Windows	C:\Program Files\IBM\WebSphere\UpdateInstaller

cip_app_server_root

The following list shows the default installation root directories for a WebSphere Application Server Network Deployment product CIP:

AIX	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
HP-UX	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Linux	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Solaris	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Windows	C:\IBM\WebSphere\AppServer\cip*cip_uid*

Hardware and software requirements

The official statements of support for WebSphere Application Server products are provided online at the Supported hardware and software Web page.

See Supported hardware and software Web page for the complete up-to-date listings on what is supported.

If there is a conflict between the information provided in the information center and the information on the Supported hardware and software pages, the information at the Web site takes precedence. Prerequisites information in the information center is provided as a convenience only.

Required disk space

Disk space requirements vary by operating system and hardware platform. See the following topics for information about required disk space and how to prepare your operating system for installation:

- **AIX** "Preparing AIX systems for installation" on page 107
- **HP-UX** "Preparing HP-UX systems for installation" on page 112
- **Linux** "Preparing Linux systems for installation" on page 117
- **Solaris** "Preparing Solaris systems for installation" on page 125
- **Windows** "Preparing Windows systems for installation" on page 129

Space is also required for the installable components in the secondary packet of the product package. Refer to the documentation for each installable component to determine exact space requirements.

Supported operating systems

As mentioned, the official statements of support for operating systems are on the Supported hardware and software site.

The installation programs for WebSphere Application Server products verify that a supported operating system is installed. The verification includes checking for required patches with the prereqChecker application.

Although the Installation wizard checks for prerequisite operating system patches, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

Always consult the Supported hardware and software Web site to determine whether your operating system is supported when you receive a message from the prereqChecker program. In some cases, the Web site will be more current than the prereq checker on a product disc. For example, IBM often declares support for new versions of operating systems for a product that is already released. The prereqChecker might issue a message when, in fact, a new version of an operating system is supported.

The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

If you get an error from the prereqChecker program, you can continue the installation. PrereqChecker errors do not prevent you from installing. The messages are notifications of potential problems that you can ignore if the Web site lists your operating system as supported.

Refer to the product documentation for non-IBM prerequisite and corequisite products, such as browsers, to learn how to migrate to supported versions.

Supported languages

The WebSphere Application Server Version 6.x distributed product is supported on these native languages:

- Brazillian-Portuguese
- English
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Simplified Chinese

*   Traditional Chinese

Using the launchpad to start the installation

The launchpad console is the starting point for installing IBM WebSphere Application Server Network Deployment.

The launchpad is a Web application. Before using the launchpad, you must have a supported Web browser. The launchpad supports the following browsers:
*   Mozilla
*   Mozilla Firefox
*   Internet Explorer

The launchpad program is available in the root directory of the product disc or the downloaded installation image. The launchpad is named:
*   ▶ Linux   launchpad.sh
*   ▶ Windows   launchpad.bat

Start the launchpad if it does not launch automatically.

If the launchpad cannot run remotely on a particular server, run the launchpad locally. Only local use of the launchpad is supported.

WebSphere Application Server is an integrated platform that contains an Application Server, a set of Web development tools, a Web server, and additional supporting software and documentation. The launchpad is the single point of reference for installing the entire Application Server environment.

The launchpad opens in the language of the locale setting of the machine. The launchpad identifies components on the product disc that you can install (launch).

Solution installation diagrams show application server topologies that you create using links to component installation programs.

There is no WebSphere launchpad for the discs in the secondary packet, such as the DB2 product disc.

Links in the navigation frame of the product disc launchpad enable you to:
*   View the Solution installation diagrams
*   Launch the installation wizard for WebSphere Application Server Network Deployment
*   Launch the installation wizard for IBM HTTP Server
*   Launch the installation wizard for Web server plug-ins
*   Launch the installation wizard for WebSphere Application Client

Note: IBM HTTP Server, Web server plug-ins, and WebSphere Application Client are now contained on the ″WAS Tools CD.″ This CD will be required to install these products from Launchpad.

Links in the navigation frame of the tools disc launchpad enable you to launch the installation wizard for Application Server Toolkit on Linux (Intel) and Windows platforms.

Links in the navigation frame of the supplements disc launchpad enable you to
*   Launch the installation wizard for the Update Installer
*   Launch the installation program for the IBM Support Assistant (ISA)
*   Access the Installation Factory in the ifactory directory

- Access the migration tools in the migration directory
- Access the World Type fonts in the fonts directory
- Access the Devanagari font in the fonts directory

Each launchpad panel for an installable component includes a link to the component installation program and to component documentation for installation and configuration. For example, links on the WebSphere Application Server Network Deployment panel enable you to:

- Launch the Installation wizard
- View the product overview
- View the installation guide
- View the readme file

Perform the following procedure to use the launchpad.

1. Install the Internet Explorer Web browser or a Mozilla Web browser if one is not installed.
   - **Windows** Install a browser for the Windows operating system.
     - Download and install the latest supported version of Internet Explorer.
       Download Internet Explorer from the following location: http://www.microsoft.com/windows/ie/default.mspx
     - Download and install the latest supported version of Mozilla Firefox.
       Download Mozilla Firefox from the following location: http://www.mozilla.org/products/firefox/.
   - **AIX** Install a browser for AIX.
     Install the two prerequisite packages that Mozilla on AIX requires, and install Mozilla as described in "Preparing AIX systems for installation" on page 107.
   - **Solaris** **Linux** **HP-UX** Install a Mozilla browser.
     a. Download Mozilla Firefox from the following location: http://www.mozilla.org/products/firefox/.
     b. Export the location of the supported browser.
        Export the location of the supported browser using the following command:
        ```
        export BROWSER=/usr/bin/mozilla
        ```
2. Start the launchpad.
   You can start the launchpad manually using a fully qualified command instead of changing directories to the disc and running the command locally from the root directory:
   - **Linux** Mount the disc drive if necessary. This procedure varies per platform. See "Mounting disc drives on Linux and UNIX operating systems" on page 171.
   - Open a shell window and issue a fully qualified command to start the launchpad:
     - **Linux** `launchpad.sh`
     - **Windows** `launchpad.bat`
3. Use the launchpad to access the product overview, the readme file, and the installation guide.
4. Click **Launch the installation wizard for ...** to launch the installation wizard for the installable component that you select.

This procedure results in using the launchpad to start the installation and to access information through a browser.

Troubleshooting

To use the Launchpad application to install products from a network share, the contents of the ″WAS CD″ and ″WAS Supplement CD″ must be copied into separate directories. The Launchpad application uses the ~/launchpad/diskinfo/thisDisk.properties file to identify the correct location for the install files.

If you can start the launchpad, but clicking a link does not resolve to a page in the launchpad, you might have the media for the wrong operating system in the disc drive. Check the validity of the media.

Use the following procedure to correct any error that is preventing the launchpad from displaying. Then, try to start the launchpad again:

1. Install Mozilla or Internet Explorer as described in the procedure.
2. If the product disc is no longer accessible, insert the disc.
3. ▶ Linux ▬ Mount the drive as necessary on Linux and UNIX platforms.
4. Enable the JavaScript function in your browser.

   ▶ Linux ▬ Mozilla: Click **Edit > Preferences > Advanced > Scripts & Plugins**:
   - Enable JavaScript for: Navigator.
   - Allow scripts to ... (Select all boxes.)

   ▶ Windows ▬ Internet Explorer: Click **Tools > Internet Options > Security > Custom Level for Internet > Scripting > Active scripting > Enable**.
5. Restart the launchpad by issuing the following command:

   - ▶ Linux ▬ ./launchpad.sh

   - ▶ Windows ▬ launchpad.bat

▶ Windows ▬ If you are attempting to use the Mozilla browser on a Windows system, Internet Explorer might open instead. The launchpad does not recognize Mozilla as the default browser if Internet Explorer is also installed on the same system. The launchpad is fully functional with Internet Explorer, so no action is required.

Issue the following case-specific command at a command prompt, to create an environment variable that forces the use of Mozilla:

```
set BROWSER=Mozilla
```

If the links still do not work after following this procedure, refer to the following locations of the component installation programs and launch the programs directly:

Solution installation diagrams
> See the installation scenarios in "Planning to install Network Deployment" on page 83.

WebSphere Application Server Network Deployment installation
> Links on the page include:

> **Launch the installation wizard...**

Installable component	Directory	Program
WebSphere Application Server Network Deployment	WAS	install

> **View the product overview...**
> > /WAS/docs/InstallGuide_en.html#over

> > This is a section of the *Getting Started* guide. Language versions of this information are available only in the online information center.

> **View the installation guide...**
> > /WAS/docs/InstallGuide_en.html#install

> > This is the *Getting Started* guide.

> **View the readme file...**
> > /WAS/readme/readme_en.html

The *Getting Started* guide is also available in Adobe PDF format. Viewing this document requires that you have Adobe Acrobat Reader, which is a free download from the Adobe Acrobat Web site. Download the installation guide from: ftp://ftp.software.ibm.com/software/webserver/appserv/library/

IBM HTTP Server installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
IBM HTTP Server	IHS	install

View the installation guide...
/IHS/docs/InstallGuide_en.html

View the readme file...
/IHS/readme/readme_en.html

Web server plug-ins installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
Web server plug-ins	plugin	install

View the installation roadmap...
/plugin/index_roadmap_en.html

View the installation guide...
/plugin/docs/InstallGuide_en.html

View the readme file...
/plugin/readme/readme_en.html

Application Client installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
Application Client	AppClient	install

View the installation guide...
/AppClient/docs/InstallGuide_en.html

View the readme file...
/AppClient/readme/readme_en.html

Go to Chapter 7, "Installing the product and additional software," on page 137 to continue installing your application serving environment.

Chapter 2. How do I install an application serving environment?

Plan your installation of WebSphere Application Server	Documentation
Review the Release Notes	Documentation
Review the software and hardware prerequisites	Detailed system requirements page
Use the launch pad to explore options and start the installation	Documentation
Choose a product edition	Documentation
Plan your application serving environment	Documentation
Review the Release Notes	Documentation
Review the software and hardware prerequisites	Documentation
Obtain an overview of installation	Documentation
Installing the product	Documentation
Take your first steps in using the product	Documentation
Create application server environments (required for Network Deployment)	Documentation
Install IBM HTTP Server as your Web server	

Plan the Web server plug-ins in your application serving environment	
Install plug-ins for communicating with Web servers	
Configure communication with the Web server	
Configure the HTTP channel within the application server	
Enable your Web server to use HTTPS in addition to HTTP	
Establish virtual hosts	
Configure Edge Side Include (ESI) for performance	
Troubleshoot Web server plug-in configurations	
Apply maintenance	Documentation
Uninstall the product	Documentation
Troubleshoot installation problems	Documentation
Review the software and hardware prerequisites	Documentation

Chapter 3. Release notes

The Release Notes summarize late-breaking news and product limitations. Ideally, review them prior to installing the product, as addendums to the installation and configuration instructions.

Review the **Release Notes**.

IBM WebSphere Application Server release notes

Links are provided to the product support Web site, to product documentation, and to last minute updates, limitations, and known problems for the WebSphere® Application Server Version 6.x products.

transition: Release notes for the Version 6.1 beta program can be found in the beta package.
- "Accessing last-minute updates, limitations, and known problems"
- "Accessing hardware and software requirements"
- "Accessing product documentation"
- "Accessing the product support Web site" on page 32
- "Contacting IBM Software Support" on page 32

Accessing last-minute updates, limitations, and known problems

Release notes are available on the product support Web site.
- Version 6.1 for distributed platforms

Accessing hardware and software requirements
- The hardware and software requirements for the WebSphere Application Server products are provided on the Detailed system requirements page.

Accessing product documentation

The following documentation is installed with this product.

The readme file.

Several readme files are provided:
- The readme_en.html file in the root directory of the product CD-ROM is a shadow of the Launchpad application. It provides links to the installation procedures and documentation for all of the installable components on the product CD. Translated versions of the file are in the launchpad directory.
- The readme.html file in the WAS directory points to this more detailed readme in the WAS directory and to the Getting Started Guide in the WAS/docs directory. This file is not translated.
- The readme_en.html in the readme directory of each installable component, such as this file. The Launchpad links to this file for a description of installing the WebSphere Application Server - Express product. This file is also available from the readme directory in the root directory of the product CD-ROM.

Getting Started Guide

The InstallGuide_en.pdf and InstallGuide_en.html files in the WAS/docs directory provide detailed instructions for installing the product. The information in the guide is derived from information in the online information center. The guide is not translated on the product CD; however, translated versions of the information center are available online.

Help files

The help files provide detailed instructions for completing tasks and for specifying settings in the graphical systems management tools. Use the help menus, links, or buttons provided in the tool interfaces to access the help files.

Documentation on the Web

For the entire documentation set for all WebSphere Application Server products, including the information center and Adobe Acrobat PDF versions of the information, go to the WebSphere Application Server library page. All product documentation is in the information center, including versions of the installed help files.

Accessing the product support Web site
- To search for the latest troubleshooting tips, downloads, fixes, and other support-related information, go to the WebSphere Application Server support page.

Contacting IBM® Software Support

If you encounter a problem with this product, first try the following actions:
- Following the steps described in the product documentation
- Looking for related documentation in the online help
- Looking up error messages in the message reference

If you cannot resolve your problem by any of the preceding methods, contact IBM Technical Support.

Purchase of IBM WebSphere Application Server entitles you to one year of telephone support under the Passport Advantage® program. For details about Passport Advantage, visit the Passport Advantage page.

The number for Passport Advantage members to call for WebSphere Application Server support is 1-800-426-7378. Have the following information available when you call:
- Your contract or Passport Advantage number.
- Your WebSphere Application Server version and revision level, plus any installed fixes.
- Your operating system name and version.
- Your database type and version.
- Basic topology data: how many machines are running, how many application servers, and so on.
- Any error or warning messages that are related to your problem.

Chapter 4. Task overview: Installing

This topic describes installing IBM WebSphere Application Server on AIX, HP-UX, Linux, Solaris, and Windows operating systems.

Use this procedure to install and customize all of the installable components that are on the IBM WebSphere Application Server Network Deployment product disc.

This topic also describes installing a customized installation package (CIP) of the IBM WebSphere Application Server Network Deployment product and one or more maintenance packages using the Installation Factory.

You can obtain the product code for distributed platforms in one of the following ways:
- From the product disc
- From the Passport Advantage site, where licensed customers can download installation images
- From a customized installation package created with the Installation Factory

The launchpad application is available on the product disc and on downloaded installation images. The launchpad is the recommended method of installing components that are on the product disc or on the Install and Migration Tools disc. See "Using the launchpad to start the installation" on page 24 for more information about the launchpad.

A customized installation package does not include the launchpad.

If you cannot use the launchpad for some reason, examine the information center version of the installation solution diagrams that are in the launchpad. The planning diagrams help you to verify your product selection and to identify and select your installation path. See Chapter 5, "Planning the installation," on page 81 for more information.

If you are already familiar with the types of topologies that you can create with WebSphere Application Server products, you can use the installation links on the launchpad to begin installing components that are on the product disc. If you cannot use the launchpad for some reason, you can find the installation programs for installable components in the following locations:

Installable component	Directory	Program
WebSphere Application ServerNetwork Deployment	WAS	install
IBM HTTP Server	IHS	install
Web server plug-ins	plugin	install
Application Clients	AppClient	install

A customized installation package from the Installation Factory has just one installable component in the image:

Installable component	Directory	Program
WebSphere Application ServerNetwork Deployment	WAS	install

See the description of the product "Packaging" on page 7 for more information about installable components on the product discs.

Trial downloads are available for WebSphere Application Server, Application Server Toolkit, IBM HTTP Server, Web server plug-ins for WebSphere Application Server, and WebSphere Application Client.

The information center for WebSphere Application Server products includes information about the Update Installer for WebSphere Software, the Installation Factory for WebSphere Application Server, IBM HTTP Server, the application clients, and the Web server plug-ins. The information center also includes some information about Application Server Toolkit.

Perform the following procedure to learn about and to create a running version of the product components on your machine. Plan to read through the major topics in the Welcome, Learn about, and Product overview sections of the information center before beginning the installation. If you are planning to migrate from an earlier version, you can install the WebSphere Application Server product before migrating.

1. Review the installation solution diagrams to help you plan a design for your application serving topology.

   Use the diagrams to identify and select your installation path. See Chapter 5, "Planning the installation," on page 81 for more information.

   Before you start installing products with the launchpad, verify that your operating system is supported and that you have installed all of the prerequisite patches.

   As of V6.1, administrative security is a selectable installation option that is enabled by default. Plan to record your administrative user ID and password so that you can use the administrative console and start and stop application servers.

2. Prepare your operating platform for installation.

   Use the information in Chapter 6, "Preparing the operating system for product installation," on page 107 to verify that your operating system is able to run the WebSphere Application Server products.

   After preparing your operating system, you are ready to install the WebSphere Application Server products.

3. Install your WebSphere Application Server product.

   See Chapter 7, "Installing the product and additional software," on page 137 for specific installation procedures for installing a component from the product disc.

   See Chapter 11, "Developing and installing customized installation packages," on page 247 for information about using the Installation Factory to create and install customized installation packages (CIPs). The rest of the steps in this procedure do not apply to installing the product with the Installation Factory because a CIP can include maintenance and configured profiles.

   Continue to follow this procedure if you are installing one of the components from the product package so that you install the most current maintenance and configure the product.

4. Install the most current refresh pack, as described in Chapter 9, "Installing maintenance packages," on page 211.

5. Install the most current fix pack, as described in Chapter 9, "Installing maintenance packages," on page 211.

6. Install the recommended interim fixes. The procedure for installing an interim fix is described in Chapter 9, "Installing maintenance packages," on page 211. The list of recommended updates is maintained on the Support site.

7. Configure the product after installation.

   See Chapter 8, "Configuring the product after installation," on page 181.

   Create a cell during installation. The cell includes a deployment manager profile and a federated application server profile.

   The Installation wizard uses the Profile Management tool in silent mode to create and configure the profiles.

8. **Optional:** Consider migrating a previous installation to Version 6.x.

   You can migrate the configuration and applications from a previous installation of another version of WebSphere Application Server. Version 6.x has a utility to help you perform the migration.

You can install the WebSphere Application ServerNetwork Deployment product.

Packaging

WebSphere Application Server is a family of similar products designed to deliver the right combination of economy and application serving power for your business demands. The contents of the product packages are similar, but each package has unique elements. Use this topic to familiarize yourself with the various products so that you can determine the offering that best fits your needs.

The WebSphere software platform for e-business starts with a foundation that is formed from Web application serving and integration. IBM WebSphere Application Server software provides the core software to deploy, integrate, and manage your e-business applications.

WebSphere Application Server software supports custom-built applications that are either based on integrated WebSphere software platform products or on other third-party products. Such applications can range from dynamic Web presentations to sophisticated transaction processing systems.

IBM WebSphere Application Server for z/OS is a full-function version of the Network Deployment product. WebSphere Application Server for z/OS can support e-business on any scale.

The management interface for all WebSphere Application Server product offerings includes a scripting interface and the administrative console, which is a Web application.

The scripting interface and the administrative console of the deployment manager are enhanced for managing all of the Application Server nodes in a distributed network cell. From the single point of control of the deployment manager, you can define servers, Web server processes, and clusters. You can start and stop servers and cluster members and deploy applications anywhere in the cell.

Product offerings

IBM WebSphere Application Server products provide a next-generation application server on an industry-standard foundation. Each product addresses a distinct set of scenarios and needs. WebSphere Application Server includes the following product offerings:
- WebSphere Application Server
- WebSphere Application Server Network Deployment
- WebSphere Application Server for z/OS

WebSphere Application Server
This product offering addresses the basic programming and run-time needs of desktop developers and single-server production scenarios. The run-time environment addresses standards-based programming for Web and component-based programming, as well as Web services.

The administration model is a single-server environment without clustering, and without centralized administration of multiple server instances.

The development environment offering is the Application Server Toolkit and a trial version of a Rational Tool product.

WebSphere Application Server Network Deployment
This product offering addresses WebSphere Application Server processes that run in multiple-server production scenarios. Use the Network Deployment product to create:
- Cells

  The cell profile is an ease-of-use enhancement that provides a deployment manager profile that contains a federated application server on the same machine or partition.
- Deployment managers

The deployment manager provides centralized administration of managed Application Server nodes and custom nodes as a single cell. The deployment manager provides basic clustering and caching support, including failover support and workload balancing. Use the Edge components in the Network Deployment package to further extend the environment with sophisticated caching, load balancing, and enhanced security functions.

- Application servers

  The application server profile in the Network Deployment product can run in a deployment manager cell as a managed node or on its own as a stand-alone application server.

- Custom

  A custom profile has an empty node that you must add to a deployment manager cell to customize and use. Use the administrative console of the deployment manager to create servers and clusters on the custom managed node. Consider the custom node as a production-ready shell, ready for customization to contain your production-level servers and applications.

See "Planning to install Network Deployment" on page 83 for examples of common topologies that you can create with the Network Deployment product.

WebSphere Application Server for z/OS

This product offering addresses WebSphere Application Server processes that run in multiple-server production scenarios in a UNIX space in z/OS regions. Use WebSphere Application Server for z/OS to create:

- Deployment managers

  The deployment manager provides centralized administration of federated application server nodes and managed nodes as a single cell. The deployment manager provides basic clustering and caching support, including failover support and workload balancing.

- Application servers

  The application server profile in WebSphere Application Server for z/OS can run in a deployment manager cell as a federated node or on its own as a stand-alone application server.

- Custom

  A custom or managed node is an empty node until you add it to the deployment manager cell for customization. Use the administrative console of the deployment manager to create servers and clusters on the managed node. Consider the managed node as a production-ready shell, ready for customization to contain your production-level servers and applications.

New installation and operating model

In Version 6.x, the core product binary data is separate from the data that you create as you define and customize your WebSphere Application Server run-time environment. You can have multiple sets of customized run-time environments. Each environment is known as a *profile*.

Application server environments that are created during product installation

Product	Default environments	Application server processes created during installation
WebSphere Application Server	One stand-alone application server profile and the Profile Management tool for creating other application server profiles on the same machine.	server1
Network Deployment	One cell that contains a deployment manager profile and a federated application server profile and the Profile Management tool for creating other profiles.	• Deployment manager profile: Dmgr01 • Federated application server profile: server1

Install the Network Deployment product on each machine in a multiple-machine, distributed environment to give each server process access to a local copy of the core product files.

Launchpad console

The launchpad is the focal point for installing from the product compact disc, with important guidance for creating typical topology scenarios. Diagrams help you identify the types of systems that you can create. The launchpad is in the root directory of the product CD.

The launchpad works on installable components in the primary packet of compact discs. Select and launch any of the components on the product disc or view their HTML documentation on the disc.

Use the **launchpad** command if the program does not start automatically when you insert the product disc:

- Linux `./launchpad.sh`
- Windows `launchpad.bat`

See "Using the launchpad to start the installation" on page 24 for more information.

If you cannot start the launchpad, see the appropriate locale-specific readme file in the root directory on the disc. You can also launch the installation programs directly, using the information in the following table:

Table 2. Installable components on the product disc and the supplements disc

Launch command	Documentation	Name of installable component
WAS/install	WAS/readme/readme_en.html WAS/docs/InstallGuide_en.html	The name of the component varies per product offering: • WebSphere Application Server • WebSphere Application Server Network Deployment
IHS/install	IHS/readme/readme_en.html IHS/docs/InstallGuide_en.html	IBM HTTP Server
plugin/install	plugin/readme/readme_en.html plugin/docs/InstallGuide_en.html	Web server plug-ins for WebSphere Application Server
AppClient/install	AppClient/readme/readme_en.html AppClient/docs/InstallGuide_en.html	Application Client for WebSphere Application Server Available on 32-bit operating system platforms only.
InstallationFactory compression file Decompress the file onto your system to install the Installation Factory.	InstallationFactory/readme/readme_en.html InstallationFactory/docs/InstallGuide_en.html	IBM Installation Factory for WebSphere Application Server
UpdateInstaller/install	UpdateInstaller/readme/readme_en.html UpdateInstaller/docs/InstallGuide_en.html	IBM Update Installer for WebSphere Software
ISA/install	ISA/readme/readme_en.html ISA/docs/InstallGuide_en.html	IBM Support Assistant

Other directories on the product and supplements discs contain components that are automatically installed during one or more of the installation procedures for the installable components.

▷ Linux   Set the umask to 022 for security purposes after logging on as root before you install:
`umask 022`

Set file permissions to 755 after installation, as in the following example for one file:
`chmod 755 setupCmdLine.sh`

The IBM HTTP Server tolerates a non-root installation, but you cannot install the Global Services Kit 7 (GSKit 7) that is required for HTTPS security. You can install IBM HTTP Server as a non-root user, then log on as root to install the GSKit program from the directory on the product disc.

Package descriptions

Each product package contains several compact discs, or CDs. You can also order Digital Versatile Discs, or DVDs. DVDs hold more information, which allows the product package to have fewer discs.

The product discs are always in the primary disc packet.

Each product package and its installable components are described in detail in the following sections:
*   Packaging information for IBM WebSphere Application Server
*   Packaging information for IBM WebSphere Application Server Network Deployment

Figure 2. Installation images in WebSphere Application Server packages

Packaging information for IBM WebSphere Application Server

The WebSphere Application Server package contains the following sets of discs:
*   Discs in the primary Application Server packet
*   Discs in the supplemental packet

The product disc for the WebSphere Application Server product is in the primary package.

Discs in the primary Application Server packet: The primary Application Server packet contains the compact discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each 32-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.
WebSphere Application Server (64-bit)	CDs are available for the following 64-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Each 64-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server Supplements (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each platform-specific image contains the following installable components: • Update Installer • Installation Factory • Migration tools • IBM Support Assistant • IBM HTTP Server in the IHS directory. • Web server plug-ins in the plugin directory. • Application Client in the AppClient directory. (32-bit only) ▶ Windows In addition, the Windows platform CD has the Data Direct Java Database Connectivity (JDBC) drivers. In the CD package, the Application Server Toolkit is on separate CDs in the primary packet. The Application Server Toolkit is also available on a separate DVD. Install the Update Installer into the root directory of the product that you intend to update. For example, install the Update Installer into the *app_server_root* to use it to install maintenance for the WebSphere Application Server - Express product.
WebSphere Application Server Supplements (64-bit)	Several 64-bit platform-specific CDs are available, or one DVD with platform-specific directories: • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Solaris (Opteron / EM64T 64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Use the migration tools from the disc image, or copy the tools to your system. The IBM Support Assistant has its own installation program. The fonts mentioned below are on available on their own CD. They are also available on the Linux DVDs Use your Linux system utilities to install the World Type fonts or the Devanagari fonts. Use your operating system utilities to install the Devanagari fonts on other operating systems. The fonts support Hindi, Sanskrit and some other languages. The launchpad application in the root directory of the disc lets you install and view information about the components on the disc.
WebSphere Application Server Application Server Toolkit	Two different 32-bit platform versions of this CD are available, or one DVD with platform specific directories: • Linux (Intel) • Windows	The Application Server Toolkit is an Eclipse-based tool for deploying and debugging applications on WebSphere Application Server. Application Server Toolkit contains a subset of the function provided in the Rational Application Developer tool that is included with this product. The difference is that the license for the Application Server Toolkit is an unlimited use license whereas the Rational Application Developer is a trial license for a single user.

Discs in the supplemental packet: The supplemental Application Server packets contain the compact discs in the following table:

Disc label	Versions of the disc	Comments
DB2 Universal Database Express Edition V8.2 (32-bit) Developer use only	Three 32-bit platform-specific CDs are available: • Linux (Intel) • Linux (PowerPC) • Windows Server 2003	IBM DB2 Universal Database Express Edition is the lowest-priced, full-function relational database. DB2 UDB Express Edition is designed to meet the needs of small and medium businesses. DB2 UDB Express Edition features self-tuning and self-configuring capabilities for ease of manageability, Linux or Windows platform choices, and support for transparent installation with business partner applications.
DB2 Universal Database Express Edition V8.2 (64-bit) Developer use only	Two 64-bit platform-specific CDs are available: • Linux (PowerPC) • Windows Server 2003	See IBM DB2 Universal Database Express Edition for more information. The IBM DB2 Universal Database Express Edition included with this product has a restricted use license. You are authorized to install and use one copy of DB2 Express for use only as a data repository for data generated and managed by WebSphere Application Server.
Rational Application Developer Trial for WebSphere Application Server	Eight 32-bit platform CDs are available for two operating system platforms: • Linux (Intel - 4 CDs) • Windows (4 CDs)	Rational Application Developer is the next generation of the award-winning IBM WebSphere Studio Application Developer. Rational Application Developer is a comprehensive integrated development environment for visually designing, constructing, testing, and deploying Web services, portals, and Java 2 Platform Enterprise Edition (J2EE) applications. Rational Application Developer accelerates J2EE development with a complete set of high-productivity tools, templates, and wizards. See the Application Server Toolkit in the primary package for an integrated development environment that includes an unlimited use license.

Disc label	Versions of the disc	Comments
Rational Agent Controller	One CD that provides support for each of the following 32-bit operating system platforms: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Solaris on Sparc • Windows	The Rational Agent Controller provides a technology for problem determination. The Rational Agent Controller is an enhancement to the Agent Controller from the Autonomic Computing Toolkit, which IBM donated in large part to the Hyades Project. Install the Rational Agent Controller on one of the supported machine environments. Another machine (perhaps an administrator workstation) can use the Log and Trace Analyzer to establish communication with the agent on the remote machine. The Analyzer can request a specific log file from the Rational Agent Controller. The agent uses the appropriate log file parser to normalize the native log to a Common Base Event format and transfers the log file to the Log and Trace Analyzer. Create log file parsers for the Rational Agent Controller with the Common Base Event model builder, which is included in the Autonomic Computing Toolkit.

Packaging information for IBM WebSphere Application Server Network Deployment

The Network Deployment package contains the following sets of discs:

• Discs in the primary Network Deployment packet
• Discs in the supplemental packet

The product disc for the WebSphere Application Server Network Deployment product is in the primary package.

Discs in the primary Network Deployment packet: The primary Network Deployment packet contains the discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each 32-bit platform-specific image contains the following installable components: • WebSphere Application Server in the WAS directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server (64-bit)	CDs are available for the following 64-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Each 64-bit platform-specific image contains the following installable components: • WebSphere Application Server in the `WAS` directory. Use the launchpad application in the root directory to install and view information about any of the installable components in the primary packet.

Disc label	Versions of the disc	Comments
WebSphere Application Server Supplements (32-bit)	CDs are available for the following 32-bit platforms: (Platform specific DVDs are also available. Each DVD contains the product and supplements disc content for 32-bit and 64-bit architectures.) • AIX • HP-UX • Linux/Intel • Linux (PowerPC 32-bit kernel) • Linux on iSeries and pSeries • Linux on zSeries • Solaris on Sparc • Windows 2000 Server and Windows Server 2003	Each platform-specific image contains the following installable components: • Update Installer • Installation Factory • Migration tools • IBM Support Assistant • IBM HTTP Server in the IHS directory. • Web server plug-ins in the plugin directory. • Application Client in the AppClient directory. (32-bit only) ▶ Windows In addition, the Windows platform CD has the Data Direct Java Database Connectivity (JDBC) drivers. In the CD package, the Application Server Toolkit is on separate CDs in the primary packet. The Application Server Toolkit is also available on a separate DVD. Install the Update Installer into the root directory of the product that you intend to update. For example, install the Update Installer into the *app_server_root* to use it to install maintenance for the WebSphere Application Server - Express product.
WebSphere Application Server Supplements (64-bit)	Several 64-bit platform-specific CDs are available, or one DVD with platform-specific directories: • AIX 5L (i5, p4, and p5 64-bit kernel) • HP-UX (Itanium 64-bit kernel) • Linux (Opteron / EM64T 64-bit kernel) • Linux (PowerPC 64-bit kernel) • Linux for zSeries (64-bit kernel) • Solaris (Opteron / EM64T 64-bit kernel) • Windows (Opteron / EM64T 64-bit kernel)	Use the migration tools from the disc image, or copy the tools to your system. The IBM Support Assistant has its own installation program. The fonts mentioned below are on available on their own CD. They are also available on the Linux DVDs Use your Linux system utilities to install the World Type fonts or the Devanagari fonts. Use your operating system utilities to install the Devanagari fonts on other operating systems. The fonts support Hindi, Sanskrit and some other languages. The launchpad application in the root directory of the disc lets you install and view information about the components on the disc.
WebSphere Application Server Application Server Toolkit	Two different 32-bit platform versions of this CD are available, or one DVD with platform specific directories: • Linux (Intel) • Windows	The Application Server Toolkit is an Eclipse-based tool for deploying and debugging applications on WebSphere Application Server. Application Server Toolkit contains a subset of the function provided in the Rational Application Developer tool that is included with this product. The difference is that the license for the Application Server Toolkit is an unlimited use license whereas the Rational Application Developer is a trial license for a single user.

Discs in the supplemental packet: The supplemental Network Deployment packet contains the discs in the following table:

Disc label	Versions of the disc	Comments
WebSphere Application Server Network Deployment Edge Components	Seven different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	Network Deployment addresses the needs of highly available, high-volume environments with the Edge components. The Edge components include sophisticated load balancing, caching, and centralized security capabilities. See WebSphere Application Server Network Deployment Edge components for more information.
Rational Application Developer Trial for WebSphere Application Server	Eight 32-bit platform CDs are available for two operating system platforms: • Linux (Intel - 4 CDs) • Windows (4 CDs)	Rational Application Developer is the next generation of the award-winning IBM WebSphere Studio Application Developer. Rational Application Developer is a comprehensive integrated development environment for visually designing, constructing, testing, and deploying Web services, portals, and Java 2 Platform Enterprise Edition (J2EE) applications. Rational Application Developer accelerates J2EE development with a complete set of high-productivity tools, templates, and wizards. See the Application Server Toolkit in the primary package for an integrated development environment that includes an unlimited use license.
Rational Agent Controller	One CD that provides support for each of the following 32-bit operating system platforms: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Solaris on Sparc • Windows	The Rational Agent Controller provides a technology for problem determination. The Rational Agent Controller is an enhancement to the Agent Controller from the Autonomic Computing Toolkit, which IBM donated in large part to the Hyades Project. Install the Rational Agent Controller on one of the supported machine environments. Another machine (perhaps an administrator workstation) can use the Log and Trace Analyzer to establish communication with the agent on the remote machine. The Analyzer can request a specific log file from the Rational Agent Controller. The agent uses the appropriate log file parser to normalize the native log to a Common Base Event format and transfers the log file to the Log and Trace Analyzer. Create log file parsers for the Rational Agent Controller with the Common Base Event model builder, which is included in the Autonomic Computing Toolkit.

Disc label	Versions of the disc	Comments
DB2 Universal Database Enterprise Server Edition V8.2 (32-bit) for WebSphere Application Server Network Deployment	Nine different platform versions of this CD are available for these operating systems: • AIX • AIX for DBCS platforms • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	DB2 Universal Database V8.2 has numerous innovative enhancements. Improved integration with WebSphere Application Server Network Deployment, key development tools, and platforms help make programmers more efficient than ever. A broad array of autonomic or self-managing capabilities can free more administrator time to focus on driving business value. The ease of use in DB2 V8.2 and the self-managing characteristics might even eliminate the need for dedicated administrators in smaller implementations.
DB2 Universal Database Enterprise Server Edition V8.2 (64-bit) for WebSphere Application Server Network Deployment	Nine different platform versions of this CD are available for these operating systems: • AIX • AIX for DBCS platforms • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	
IBM Tivoli Directory Server for WebSphere Application Server	Seven different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on pSeries • Linux on zSeries • Solaris on Sparc • Windows	The IBM Tivoli Directory Server product is a powerful Lightweight Directory Access Protocol (LDAP) infrastructure. Tivoli Directory Server provides a foundation for deploying comprehensive identity management applications and advanced software architectures. See IBM Tivoli Directory Server for more information.
IBM Tivoli Access Manager for WebSphere Application Server	Six different platform versions of this CD are available: • AIX • HP-UX • Linux (Intel) • Linux on zSeries • Solaris on Sparc • Windows	IBM Tivoli Access Manager for e-business integrates with e-business applications right out of the box, to deliver a secure, unified, and personalized e-business experience. By providing authentication and authorization APIs and integration, Tivoli Access Manager for e-business helps you secure access to business-critical applications and data that might be spread across the extended enterprise. See IBM Tivoli Access Manager for e-business for more information.

Directory conventions

References in product information to *app_server_root*, *profile_root*, and other directories infer specific default directory locations. This topic describes the conventions in use for WebSphere Application Server Network Deployment.

Default product locations when the root user or an administrator user installs the product

The root user or administrator user (on a Windows system) is capable of registering shared products and installing into system-owned directories. The following default directories are system-owned directories.

These file paths are default locations. You can install the product and other components in any directory where you have write access. You can create profiles in any valid directory where you have write access. Multiple installations of WebSphere Application Server Network Deployment products or components, of course, require multiple locations.

app_server_root - the install_root for WebSphere Application Server

The following list shows default installation root directories for WebSphere Application Server Network Deployment:

> **AIX**　/usr/IBM/WebSphere/AppServer

> **HP-UX**　/opt/IBM/WebSphere/AppServer

> **Linux**　/opt/IBM/WebSphere/AppServer

> **Solaris**　/opt/IBM/WebSphere/AppServer

> **Windows**　C:\Program Files\IBM\WebSphere\AppServer

profile_root

The following list shows the default directory for a profile named *profile_name* on each distributed operating system:

> **AIX**　/usr/IBM/WebSphere/AppServer/profiles/*profile_name*

> **HP-UX**　/opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> **Linux**　/opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> **Solaris**　/opt/IBM/WebSphere/AppServer/profiles/*profile_name*

> **Windows**　C:\Program Files\IBM\WebSphere\AppServer\profiles*profile_name*

plugins_root

The following default installation root is for the Web server plug-ins for WebSphere Application Server:

> **AIX**　/usr/IBM/HTTPServer/Plugins

> **HP-UX**　/opt/IBM/HTTPServer/Plugins

> **Linux**　/opt/ibm/HTTPServer/Plugins

> **Solaris**　/opt/IBM/HTTPServer/Plugins

> **Windows**　C:\Program Files\IBM\HTTPServer\Plugins

web_server_root

The following default installation root directories are for the IBM HTTP Server:

> **AIX**　/usr/IBM/HTTPServer

> **HP-UX**　/opt/IBM/HTTPServer

> **Linux**　/opt/ibm/HTTPServer

> **Solaris**　/opt/IBM/HTTPServer

> **Windows** C:\Program Files\IBM\HTTPServer

gskit_root

The following list shows the default installation root directories for Version 7 of the IBM Global Security Kit (GSKit):

> **AIX** /usr/ibm/gsk7

> **HP-UX** /opt/ibm/gsk7

> **Linux** /opt/ibm/gsk7

> **Solaris** /opt/ibm/gsk7

> **Windows** C:\Program Files\IBM\GSK7

app_client_root

The following default installation root directories are for the WebSphere Application Client:

> **AIX** /usr/IBM/WebSphere/AppClient (J2EE Application client only)

> **HP-UX** /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> **Linux** /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> **Solaris** /opt/IBM/WebSphere/AppClient (J2EE Application client only)

> **Windows** C:\Program Files\IBM\WebSphere\AppClient

updi_root

The following list shows the default installation root directories for the Update Installer for WebSphere Software:

> **AIX** /usr/IBM/WebSphere/UpdateInstaller

> **HP-UX** /opt/IBM/WebSphere/UpdateInstaller

> **Linux** /opt/IBM/WebSphere/UpdateInstaller

> **Solaris** /opt/IBM/WebSphere/UpdateInstaller

> **Windows** C:\Program Files\IBM\WebSphere\UpdateInstaller

cip_app_server_root

The following list shows the default installation root directories for a customized installation package (CIP) produced by the Installation Factory.

A CIP is a WebSphere Application Server Network Deployment product bundled with one or more maintenance packages, an optional configuration archive, one or more optional enterprise archive files, and other optional files and scripts:

> **AIX** /usr/IBM/WebSphere/AppServer/cip/*cip_uid*

> **HP-UX** /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> **Linux** /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> **Solaris** /opt/IBM/WebSphere/AppServer/cip/*cip_uid*

> **Windows** C:\Program Files\IBM\WebSphere\AppServer\cip*cip_uid*

The *cip_uid* variable is the CIP unique ID generated during creation of the build definition file. You can override the generated value in the Build definition wizard. Use a unique value to allow multiple CIPs to install on the system.

component_root

> The component installation root directory is any installation root directory described in this topic. Some programs are for use across multiple components. In particular, the Update Installer for WebSphere Software is for use with WebSphere Application Server Network Deployment, Web server plug-ins, the Application Client, and the IBM HTTP Server. All of these components are part of the product package.

Default product locations when a non-root user or a non-administrator user installs the product

The non-root user or non-administrator user (on a Windows system) is not capable of registering shared products and installing into system-owned directories. The following default directories are user-owned directories in the home directory of the non-root installer as opposed to being globally shared resources that are available to all users.

app_server_root

> The following list shows the default installation directories for non-root installation of WebSphere Application Server Network Deployment:

> > AIX   *user_home*/IBM/WebSphere/AppServer

> > HP-UX   *user_home*/IBM/WebSphere/AppServer

> > Linux   *user_home*/IBM/WebSphere/AppServer

> > Solaris   *user_home*/IBM/WebSphere/AppServer

> > Windows   C:\IBM\WebSphere\AppServer

profile_root

> The following list shows the default directories for creating profiles:

> > AIX   *user_home*/IBM/WebSphere/AppServer/profiles/

> > HP-UX   *user_home*/IBM/WebSphere/AppServer/profiles/

> > Linux   *user_home*/IBM/WebSphere/AppServer/profiles/

> > Solaris   *user_home*/IBM/WebSphere/AppServer/profiles/

> > Windows   C:\IBM\WebSphere\AppServer\profiles\

web_server_root

> The following default installation root directories are for the IBM HTTP Server:

> > AIX   *user_home*/IBM/HTTPServer

> > HP-UX   *user_home*/IBM/HTTPServer

> > Linux   *user_home*/ibm/HTTPServer

> > Solaris   *user_home*/IBM/HTTPServer

> > Windows   C:\IBM\HTTPServer

plugins_root

> The following list shows the default installation root directories for the Web server plug-ins for WebSphere Application Server:

> > AIX   *user_home*/IBM/HTTPServer/Plugins

> > HP-UX   *user_home*/IBM/HTTPServer/Plugins

Linux	*user_home*/ibm/HTTPServer/Plugins
Solaris	*user_home*/IBM/HTTPServer/Plugins
Windows	C:\IBM\HTTPServer\Plugins

app_client_root

The following list shows the default installation root directories for the WebSphere Application Client:

AIX	*user_home*/IBM/WebSphere/AppServer/AppClient (J2EE Application client only)
HP-UX	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Linux	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Solaris	*user_home*/IBM/WebSphere/AppClient (J2EE Application client only)
Windows	C:\IBM\WebSphere\AppClient

updi_root

The following list shows the default installation directories for non-root installation of WebSphere Application Server Network Deployment:

AIX	*user_home*/IBM/WebSphere/UpdateInstaller
HP-UX	*user_home*/IBM/WebSphere/UpdateInstaller
Linux	*user_home*/IBM/WebSphere/UpdateInstaller
Solaris	*user_home*/IBM/WebSphere/UpdateInstaller
Windows	C:\Program Files\IBM\WebSphere\UpdateInstaller

cip_app_server_root

The following list shows the default installation root directories for a WebSphere Application Server Network Deployment product CIP:

AIX	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
HP-UX	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Linux	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Solaris	*user_home*/IBM/WebSphere/AppServer/cip/*cip_uid*
Windows	C:\IBM\WebSphere\AppServer\cip*cip_uid*

Hardware and software requirements

The official statements of support for WebSphere Application Server products are provided online at the Supported hardware and software Web page.

See Supported hardware and software Web page for the complete up-to-date listings on what is supported.

If there is a conflict between the information provided in the information center and the information on the Supported hardware and software pages, the information at the Web site takes precedence. Prerequisites information in the information center is provided as a convenience only.

Required disk space

Disk space requirements vary by operating system and hardware platform. See the following topics for information about required disk space and how to prepare your operating system for installation:

- ▶ AIX "Preparing AIX systems for installation" on page 107
- ▶ HP-UX "Preparing HP-UX systems for installation" on page 112
- ▶ Linux "Preparing Linux systems for installation" on page 117
- ▶ Solaris "Preparing Solaris systems for installation" on page 125
- ▶ Windows "Preparing Windows systems for installation" on page 129

Space is also required for the installable components in the secondary packet of the product package. Refer to the documentation for each installable component to determine exact space requirements.

Supported operating systems

As mentioned, the official statements of support for operating systems are on the Supported hardware and software site.

The installation programs for WebSphere Application Server products verify that a supported operating system is installed. The verification includes checking for required patches with the prereqChecker application.

Although the Installation wizard checks for prerequisite operating system patches, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

Always consult the Supported hardware and software Web site to determine whether your operating system is supported when you receive a message from the prereqChecker program. In some cases, the Web site will be more current than the prereq checker on a product disc. For example, IBM often declares support for new versions of operating systems for a product that is already released. The prereqChecker might issue a message when, in fact, a new version of an operating system is supported.

The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

If you get an error from the prereqChecker program, you can continue the installation. PrereqChecker errors do not prevent you from installing. The messages are notifications of potential problems that you can ignore if the Web site lists your operating system as supported.

Refer to the product documentation for non-IBM prerequisite and corequisite products, such as browsers, to learn how to migrate to supported versions.

Supported languages

The WebSphere Application Server Version 6.x distributed product is supported on these native languages:
- Brazillian-Portuguese
- English
- French
- German
- Italian
- Japanese
- Korean
- Spanish
- Simplified Chinese

- Traditional Chinese

Using the launchpad to start the installation

The launchpad console is the starting point for installing IBM WebSphere Application Server Network Deployment.

The launchpad is a Web application. Before using the launchpad, you must have a supported Web browser. The launchpad supports the following browsers:
- Mozilla
- Mozilla Firefox
- Internet Explorer

The launchpad program is available in the root directory of the product disc or the downloaded installation image. The launchpad is named:
- ▶ Linux ◀ launchpad.sh
- ▶ Windows ◀ launchpad.bat

Start the launchpad if it does not launch automatically.

If the launchpad cannot run remotely on a particular server, run the launchpad locally. Only local use of the launchpad is supported.

WebSphere Application Server is an integrated platform that contains an Application Server, a set of Web development tools, a Web server, and additional supporting software and documentation. The launchpad is the single point of reference for installing the entire Application Server environment.

The launchpad opens in the language of the locale setting of the machine. The launchpad identifies components on the product disc that you can install (launch).

Solution installation diagrams show application server topologies that you create using links to component installation programs.

There is no WebSphere launchpad for the discs in the secondary packet, such as the DB2 product disc.

Links in the navigation frame of the product disc launchpad enable you to:
- View the Solution installation diagrams
- Launch the installation wizard for WebSphere Application Server Network Deployment
- Launch the installation wizard for IBM HTTP Server
- Launch the installation wizard for Web server plug-ins
- Launch the installation wizard for WebSphere Application Client

Note: IBM HTTP Server, Web server plug-ins, and WebSphere Application Client are now contained on the ″WAS Tools CD.″ This CD will be required to install these products from Launchpad.

Links in the navigation frame of the tools disc launchpad enable you to launch the installation wizard for Application Server Toolkit on Linux (Intel) and Windows platforms.

Links in the navigation frame of the supplements disc launchpad enable you to
- Launch the installation wizard for the Update Installer
- Launch the installation program for the IBM Support Assistant (ISA)
- Access the Installation Factory in the ifactory directory

- Access the migration tools in the migration directory
- Access the World Type fonts in the fonts directory
- Access the Devanagari font in the fonts directory

Each launchpad panel for an installable component includes a link to the component installation program and to component documentation for installation and configuration. For example, links on the WebSphere Application Server Network Deployment panel enable you to:

- Launch the Installation wizard
- View the product overview
- View the installation guide
- View the readme file

Perform the following procedure to use the launchpad.

1. Install the Internet Explorer Web browser or a Mozilla Web browser if one is not installed.

   - **Windows** Install a browser for the Windows operating system.
     - Download and install the latest supported version of Internet Explorer.

       Download Internet Explorer from the following location: http://www.microsoft.com/windows/ie/default.mspx
     - Download and install the latest supported version of Mozilla Firefox.

       Download Mozilla Firefox from the following location: http://www.mozilla.org/products/firefox/.

   - **AIX** Install a browser for AIX.

     Install the two prerequisite packages that Mozilla on AIX requires, and install Mozilla as described in "Preparing AIX systems for installation" on page 107.

   - **Solaris** **Linux** **HP-UX** Install a Mozilla browser.
     a. Download Mozilla Firefox from the following location: http://www.mozilla.org/products/firefox/.
     b. Export the location of the supported browser.

       Export the location of the supported browser using the following command:

       ```
       export BROWSER=/usr/bin/mozilla
       ```

2. Start the launchpad.

   You can start the launchpad manually using a fully qualified command instead of changing directories to the disc and running the command locally from the root directory:

   - **Linux** Mount the disc drive if necessary. This procedure varies per platform. See "Mounting disc drives on Linux and UNIX operating systems" on page 171.
   - Open a shell window and issue a fully qualified command to start the launchpad:
     - **Linux** `launchpad.sh`
     - **Windows** `launchpad.bat`

3. Use the launchpad to access the product overview, the readme file, and the installation guide.
4. Click **Launch the installation wizard for ...** to launch the installation wizard for the installable component that you select.

This procedure results in using the launchpad to start the installation and to access information through a browser.

Troubleshooting

To use the Launchpad application to install products from a network share, the contents of the ″WAS CD″ and ″WAS Supplement CD″ must be copied into separate directories. The Launchpad application uses the ~/launchpad/diskinfo/thisDisk.properties file to identify the correct location for the install files.

If you can start the launchpad, but clicking a link does not resolve to a page in the launchpad, you might have the media for the wrong operating system in the disc drive. Check the validity of the media.

Use the following procedure to correct any error that is preventing the launchpad from displaying. Then, try to start the launchpad again:

1. Install Mozilla or Internet Explorer as described in the procedure.
2. If the product disc is no longer accessible, insert the disc.
3. ► Linux Mount the drive as necessary on Linux and UNIX platforms.
4. Enable the JavaScript function in your browser.

   ► Linux Mozilla: Click **Edit > Preferences > Advanced > Scripts & Plugins**:

   - Enable JavaScript for: Navigator.
   - Allow scripts to ... (Select all boxes.)

   ► Windows Internet Explorer: Click **Tools > Internet Options > Security > Custom Level for Internet > Scripting > Active scripting > Enable**.

5. Restart the launchpad by issuing the following command:

   - ► Linux ./launchpad.sh

   - ► Windows launchpad.bat

► Windows If you are attempting to use the Mozilla browser on a Windows system, Internet Explorer might open instead. The launchpad does not recognize Mozilla as the default browser if Internet Explorer is also installed on the same system. The launchpad is fully functional with Internet Explorer, so no action is required.

Issue the following case-specific command at a command prompt, to create an environment variable that forces the use of Mozilla:

```
set BROWSER=Mozilla
```

If the links still do not work after following this procedure, refer to the following locations of the component installation programs and launch the programs directly:

Solution installation diagrams
    See the installation scenarios in "Planning to install Network Deployment" on page 83.

WebSphere Application Server Network Deployment installation
    Links on the page include:

    Launch the installation wizard...

Installable component	Directory	Program
WebSphere Application Server Network Deployment	WAS	install

    View the product overview...
        /WAS/docs/InstallGuide_en.html#over

        This is a section of the *Getting Started* guide. Language versions of this information are available only in the online information center.

    View the installation guide...
        /WAS/docs/InstallGuide_en.html#install

        This is the *Getting Started* guide.

    View the readme file...
        /WAS/readme/readme_en.html

The *Getting Started* guide is also available in Adobe PDF format. Viewing this document requires that you have Adobe Acrobat Reader, which is a free download from the Adobe Acrobat Web site. Download the installation guide from: ftp://ftp.software.ibm.com/software/webserver/appserv/library/

IBM HTTP Server installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
IBM HTTP Server	IHS	install

View the installation guide...
/IHS/docs/InstallGuide_en.html

View the readme file...
/IHS/readme/readme_en.html

Web server plug-ins installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
Web server plug-ins	plugin	install

View the installation roadmap...
/plugin/index_roadmap_en.html

View the installation guide...
/plugin/docs/InstallGuide_en.html

View the readme file...
/plugin/readme/readme_en.html

Application Client installation
Links on the page include:

Launch the installation wizard...

Installable component	Directory	Program
Application Client	AppClient	install

View the installation guide...
/AppClient/docs/InstallGuide_en.html

View the readme file...
/AppClient/readme/readme_en.html

Go to Chapter 7, "Installing the product and additional software," on page 137 to continue installing your application serving environment.

install command

The **install** command installs the product and most of the components in the product. When you install the product, the installer program installs the core product files and creates zero, one, or two profiles, depending on the product that you are installing and your installation selections. A silent parameter runs the Installation wizard in silent mode without displaying the graphical user interface.

Purpose

This topic describes the command-line syntax for the install command. Start the install command module from the command line to install the product.

Before you begin installing the product

Prepare the operating system for installation. Follow the procedure in Chapter 4, "Task overview: Installing," on page 33 to get started.

The command file resides in the root directory of the component on the product disk.

In an effort to simplify your task environment, WebSphere Application Server has adopted a common install engine for WebSphere software components in the Version 6.1 product package. The install command starts the installation program in almost all components in the product package:

- ▶ Linux install

- ▶ Windows install.exe

- ▶ Windows **Edge Components only:** setup

If the command or an alternative command is not applicable for a component on a particular operating system, the N/A abbreviation is displayed in the following table. A command is not applicable if the component cannot be installed on the operating system.

Table 3. . Component installation commands by operating system

Operating System	WebSphere Application Server	Application Client	IBM HTTP Server	Web Server Plug-ins	Application Server Toolkit	Edge Components	Update Installer (UPDI)
AIX	install	install	install	install	N/A	install	install
HP-UX	install	install	install	install	N/A	install	install
i5/OS	install	install	N/A	install	N/A	N/A	install
Linux	install	install	install	install	install	install	install
Solaris	install	install	install	install	N/A	install	install
Windows	install	install	install	install	install	setup	install

Note: Edge Components historically use native operating system installer tools instead of the common installation engine. The new Version 6.1 ISMP install wrapper surrounds the native installer packages, except for Windows systems, where the setup command must be used. Native commands that you can use to install the Edge Components include:

Table 4.

Operating System	Installation command
AIX	`pkgadd -d ./packagename`
HP-UX	`installp -acXd ./packagename`
Linux	`rpm -i ./packagename`
Solaris	`swinstall -s ./packagename`
Windows	`setup`

Parameters and syntax

This section describes the command that starts the Installation wizard.

- ▶ Linux ◀ Issue the install command to start the Installation wizard and display the graphical user interface:

  component_disc_directory/install

- ▶ Linux ◀ Issue the install -silent command to start the Installation wizard in silent mode, without the graphical user interface:

  component_disc_directory/install -options "*response_file_name*" -silent

Use the following install command options to install a new installation, add a feature to an existing installation, or configure an existing WebSphere Application Server Network Deployment product by creating a profile.

Use the following table to determine valid values for each option.

Table 5. Install command option values table

Option Name (-OPT)	WebSphere Application Server Network Deployment	
	Values	**Default**
allowNonRootSilentInstall	″true | false″	″false″
feature	″noFeature | samplesSelected″	″samplesSelected″
installLocation	Any valid directory path	*app_server_root* directories for root and non-root installers
installType	″installNew | addFeature | createProfile″	″installNew″
profileType	″standAlone″ | ″deploymentManager″ | ″cell″ | ″custom″ | ″none″	″none″
silentInstallLicenseAcceptance	″true | false″	″false″
traceFormat	ALL | text | XML	Commented
traceLevel	OFF | SEVERE | WARNING | INFO | CONFIG | FINE | FINER | FINEST	Commented
PROF_adminUserName	Any valid user ID.	″ADMIN_USER_NAME″
PROF_adminPassword	Any valid user password.	″ADMIN_PASSWORD″
PROF_appServerProfileName	A valid profile name	Commented
PROF_appServerNodeName	A string with valid characters	Commented
PROF_cellName	A string with valid characters	Commented
PROF_defaultPorts	Commented | Uncommented	Commented
PROF_dmgrAdminPassword	Valid deployment manager administrative user password	Commented
PROF_dmgrAdminUserName	Valid deployment manager administrative user name	Commented
PROF_dmgrHost	Host name of the deployment manager	Commented
PROF_dmgrPort	SOAP port of the deployment manager	Commented
PROF_dmgrProfileName	A valid profile name	Commented
PROF_enableAdminSecurity	″true | false″	″true″
PROF_hostName	Any valid host name.	Commented

Table 5. Install command option values table (continued)

Option Name (-OPT)	WebSphere Application Server Network Deployment	
	Values	Default
PROF_isDefault	Commented | Uncommented	Commented
PROF_nodeName	Any valid and unique node name.	Commented
PROF_nodeOmitAction	Valid name of a configuration action for the cell	Commented
PROF_omitAction	Name of a configuration action.	Commented
PROF_portsFile	Any valid file path to a valid ports file.	Commented
PROF_profileName	Any valid profile name string.	Commented
PROF_profilePath	Any valid file path. See the description of *profile_root* in "Directory conventions" on page 18 for default values.	Commented
PROF_serverName	Any application server name, such as server1.	Commented
PROF_startingPort	Any valid port number.	Commented
PROF_validatePorts	Commented | Uncommented	Commented
PROF_webServerCheck	"true | false"	Commented
PROF_webServerHostname	A valid host name of the system with the Web server.	Commented
PROF_webServerInstallPath	Any valid directory path to the Web server.	Commented
PROF_webServerName	A valid name of a valid Web server.	Commented
PROF_webServerOS	linux | windows | aix | hp | solaris | os390 | i5os	Commented
PROF_webServerPluginPath	Any valid directory path to the Web server plug-ins.	Commented
PROF_webServerPort	A valid port to access the Web server.	Commented
PROF_webServerType	IHS | IIS | SUNJAVASYSTEM | DOMINO | APACHE | HTTPSERVER_ZOS	Commented
PROF_winserviceAccountType	*specified user* | localsystem	Commented
PROF_winserviceCheck	"true | false"	Commented
PROF_winserviceStartupType	manual | automatic | disabled	Commented
PROF_winservicePassword	The password of the valid *specified user*	Commented
PROF_winserviceUserName	The name of the valid *specified user*	Commented

See the following descriptions for more information about each option.

Option descriptions

Use the following information to learn the purpose of an option and to determine which options to use for profile creation.

allowNonRootSilentInstall
　　Change this option to "true" to allow a non-root or non-administrator installer ID to install the product.

A "true" value indicates that you accept the limitations associated with installing as a non-root user. If the value is "false", a non-root user cannot install the product.

See "Limitations of non-root installers" on page 175 for more information.

feature
Change the selection state of the Application Server Samples" feature.

Valid values are:

samplesSelected
Indicates that the feature is selected for installation.

noFeature
Indicates that the feature is not selected for installation.

installLocation

Change the installation location of the product. Specify any valid directory.

> Windows   Enclose directory names with spaces in double-quotes.

The default values vary per operating system. Separate default locations exist for non-administrator or non-root installer IDs. See the description of *app_server_root* directories for root and non-root installers in "Directory conventions" on page 18.

installType

Change the installType option to control the type of installation. The default is to install a new copy of WebSphere Application Server. Each operation type requires a separate invocation of the install command.

Valid values include:

installNew
This default value installs a new copy of the core product files.

addFeature
Adds features to an existing installation in an *incremental* installation.

Each WebSphere Application Server Version 6.1 product has just one feature.

For components that have more than one feature, set the option for each feature. If a feature is already installed, set the feature option to false. To install a new feature, set the feature to true.

createProfile
Create a profile in an existing installation.

Set the installLocation option to your existing installation root directory.

Set the profileType option to the type of profile that you require.

Set the appropriate profile options for the type of profile that you are creating. Profile options are described by profile type in a later section in this topic.

profileType
Indicate the type of profile to create.

Valid values include:

Application Server
Create a stand-alone application server profile.

Deployment Manager
Create a deployment manager profile.

Cell

Create a cell with two profiles: a deployment manager and an application server node that is already federated into the deployment manager cell.

Custom

Create a profile with an empty node.

You must federate this node to use it.

None

Do not create a profile.

silentInstallLicenseAcceptance

By changing the silentInstallLicenseAcceptance property in a silent response file to ″true″, you agree that you have reviewed and agree to the terms of the IBM International Program License Agreement accompanying the program, which is located in the *mount point or disc_drive*/WAS/lafiles directory.

If you do not agree to these terms, do not change the value or otherwise download, install, copy, access, or use the program and promptly return the program and proof of entitlement to the party from whom you acquired it to obtain a refund of the amount you paid.

traceFormat

Control the trace file output.

traceLevel

Control the amount of trace information collected.

PROF_adminPassword

Select the password for the administrative user ID.

Set the PROF_enableAdminSecurity option to true to use this option.

Table 6. PROF_adminPassword applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_adminUserName

Select the administrative user ID.

Set the PROF_enableAdminSecurity option to true to use this option.

Table 7. PROF_adminUserName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

> **Important:** Write down the user name and password. You cannot log onto the administrative console without it. You cannot use WebSphere Application Server at all unless you know the ID and password.

PROF_appServerNodeName

Specify a unique node name for the federated application server profile.

Table 8. PROF_appServerNodeName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	No	No

The node name must be unique within the WebSphere Application Server environment.

PROF_appServerProfileName

Specify the profile name for the federated application server.

Table 9. PROF_appServerProfileName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	No	No

The profile name must be unique for this WebSphere Application Server installation and the cell to which it belongs.

Valid values are a string with valid characters.

PROF_cellName
Specify a unique cell name for the profile.

Table 10. PROF_cellName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

The cell name must be unique within the WebSphere Application Server environment.

Even though you might plan to federate a stand-alone application server at some time, specify a unique cell name for the profile that is not the cell name of the deployment manager.

PROF_defaultPorts
Uncomment the option to use the default WebSphere Application Server port settings.

Do not use this parameter with the PROF_portsFile option or the PROF_startingPort option.

Table 11. PROF_defaultPorts applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_dmgrAdminPassword
If administrative security is enabled in the deployment manager that is to federate the custom profile, specify the administrative user password of the deployment manager.

Table 12. PROF_dmgrAdminPassword applicability

Cell	Deployment Manager	Application Server	Custom
No	No	No	Yes

PROF_dmgrAdminUserName
If administrative security is enabled in the deployment manager that is to federate the custom profile, specify the administrative user ID of the deployment manager.

Table 13. PROF_dmgrAdminUserName applicability

Cell	Deployment Manager	Application Server	Custom
No	No	No	Yes

PROF_dmgrHost
Specify the host name of the machine of the deployment manager that is to federate the custom profile.

Table 14. PROF_dmgrHost applicability

Cell	Deployment Manager	Application Server	Custom
No	No	No	Yes

PROF_dmgrPort

Specify the SOAP port of the deployment manager that is to federate the custom profile.

Table 15. PROF_dmgrPort applicability

Cell	Deployment Manager	Application Server	Custom
No	No	No	Yes

PROF_dmgrProfileName

Specify the name of the profile for the deployment manager profile that is part of the cell profile.

The profile name must be unique for this WebSphere Application Server installation and cell.

Valid values are a string with valid characters.

Table 16. PROF_dmgrProfileName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	No	No

PROF_enableAdminSecurity

Choose whether to enable administrative security during the installation process.

Set the createProfile option to true.

Set the installLocation option to your existing installation root directory.

Set the profileType option.

Set other appropriate profile options (PROF_ options) for your type of profile.

If profileType=″custom″ or profileType=″none″, set this option to false.

Valid values are:

true

Administrative security is enabled. You must specify a user name and a password.

> **Important:** Write down the user name and password. You cannot log onto the administrative console without it. You cannot use WebSphere Application Server at all unless you know the ID and password.

false

Administrative security is not enabled.

Table 17. PROF_enableAdminSecurity applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

PROF_hostName

Specify the host name of the machine where the profile is to reside.

Table 18. PROF_hostName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

The host name is the domain name system (DNS) name (short or long) or the IP address of this computer.

PROF_isDefault

Set a default profile.

Table 19. PROF_isDefault applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

The default profile is the default target for commands issued against an anonymous profile, such as commands issued from the *app_server_root*/bin directory.

Issuing a command from the bin directory of another profile sets the command window to address the other profile, and not the default profile. Opening a new command window targets anonymous commands to the default profile again.

PROF_nodeName
Specify a unique node name for the profile.

Table 20. PROF_nodeName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

The node name must be unique within the WebSphere Application Server environment.

PROF_nodeOmitAction
Omit the specified configuration action for the cell node.

Table 21. PROF_nodeOmitAction applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	No	No

PROF_omitAction
Omit the specified configuration action.

Table 22. PROF_omitAction applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_portsFile
Specify the path to a property file containing the desired port values.

Valid values are a valid file path default WebSphere Application Server port settings.

Do not use this parameter with the PROF_defaultPorts option or the PROF_startingPort option.

Table 23. PROF_portsFile applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_profileName
Set the profile name.

Table 24. PROF_profileName applicability

Cell	Deployment Manager	Application Server	Custom
No	Yes	Yes	Yes

Specify the name of the profile. The profile name must be unique for this WebSphere Application Server installation or for the cell to which it might belong at some time.

Valid values are a string with valid characters.

PROF_profilePath
　　Specify the fully qualified file path to the *profile_root* directory.

Table 25. PROF_profilePath applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	Yes

Specify a valid directory to contain the files that define the run-time profile environment, such as commands, configuration files, and log files.

▶ Windows ◀ If the directory contains spaces, enclose the path in double-quotes.

Valid values are a valid directory path.

PROF_serverName
　　Specify the server name for the stand-alone application server profile, for the deployment manager, or for the federated application server that is part of the cell profile.

Table 26. PROF_serverName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

Each stand-alone application server profile or each federated application server profile can have a server named server1, for example. Server names have to be unique within a profile, but not within a cell or within an installation.

PROF_startingPort
　　Specify the starting port number for generating all ports for the profile. If not specified, the profile uses default ports specified in the serverindex.xml file.

Do not use this parameter with the PROF_portsFile option.

Table 27. PROF_startingPort applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_validatePorts
　　Uncomment the option to validate that no conflicts exist within the selected ports.

Table 28. PROF_validatePorts applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_webServerCheck
　　Specify whether you wish to define a Web server definition.

Table 29. PROF_webServerCheck applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerHostname
　　Specify the host name of the system with the Web server.

Requires the PROF_webServerCheck option.

Table 30. PROF_webServerHostname applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerInstallPath
Specify the local or remote installation path of the Web server.

Requires the PROF_webServerCheck option.

Table 31. PROF_webServerInstallPath applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerName
Specify the name of the Web server.

Requires the PROF_webServerCheck option.

Table 32. PROF_webServerName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerOS
Specify the operating system of the system where the Web server runs.

Requires the PROF_webServerCheck option.

Table 33. PROF_webServerOS applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerPluginPath
Specify the path to the Web server plug-in for the Web server.

Requires the PROF_webServerCheck option.

Table 34. PROF_webServerPluginPath applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerPort
Specify the access port of the Web server, such as port 80.

Requires the PROF_webServerCheck option.

Table 35. PROF_webServerPort applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_webServerType
Specify the type of web server.

Requires the PROF_webServerCheck option.

Table 36. PROF_webServerType applicability

Cell	Deployment Manager	Application Server	Custom
Yes	No	Yes	No

PROF_winserviceAccountType
　　Specify the type of windows service to create.

　　Requires the PROF_winserviceCheck option.

Table 37. PROF_winserviceAccountType applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_winserviceCheck
　　Choose whether to run the server process as a Windows service.

Table 38. PROF_winserviceCheck applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_winserviceStartupType
　　Specify the start up method for the windows service.

　　Requires the PROF_winserviceCheck option.

Table 39. PROF_winserviceStartupType applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_PROF_winservicePassword
　　Specify the password for the windows service.

　　Requires the PROF_winserviceCheck option.

Table 40. PROF_PROF_winservicePassword applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

PROF_PROF_winserviceUserName
　　Specify the user name for the windows service.

　　Requires the PROF_winserviceCheck option.

Table 41. PROF_PROF_winserviceUserName applicability

Cell	Deployment Manager	Application Server	Custom
Yes	Yes	Yes	No

Examples of installing the product

Install WebSphere Application Server Network Deployment with the Installation wizard user interface

```
install
```

See Chapter 7, "Installing the product and additional software," on page 137 for more information about installing with the Installation wizard.

Install WebSphere Application Server Network Deployment from the command line

```
install -options /tmp/was/my_response_file.txt -silent
```

Contents of /tmp/was/my_response_file.txt

-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="*app_server_root*"
-OPT installType="installNew"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO

Create a cell profile from the command line

```
install -options /tmp/was/my_response_file2.txt -silent
```

Contents of /tmp/was/my_response_file2.txt

-OPT allowNonRootSilentInstall="false"
-OPT installLocation="*app_server_root*"
-OPT installType="createProfile"
-OPT profileType="cell"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_appServerNodeName="cellappnode01"
-OPT PROF_appServerProfileName="cellapp01"
-OPT PROF_cellName="dmgrcell01"
-OPT PROF_defaultPorts=
-OPT PROF_dmgrProfileName="dmgr01"
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName="5.55.555.555"
-OPT PROF_isDefault=
-OPT PROF_nodeName="dmgrnode"
-OPT PROF_profilePath="*profile_root*"
-OPT PROF_serverName="server01"
-OPT PROF_validatePorts=
-OPT PROF_webServerCheck="true"
-OPT PROF_webServerHostname="5.55.555.555"
-OPT PROF_webServerInstallPath="*Web_server_root*"
-OPT PROF_webServerName="IHS01"
-OPT PROF_webServerOS="linux"
-OPT PROF_webServerPluginPath="*plugins_root*"
-OPT PROF_webServerPort="80"
-OPT PROF_webServerType="IHS"

See "Installing silently" on page 150 for more information about using the Installation wizard in silent mode, without the graphical user interface.

Logging

Examine the *app_server_root*/logs/install/log.txt file to verify that there were no file system or other unusual errors while installing. If there are problems, correct them, and reinstall the product.

WebSphere Application Server uses return codes to indicate the results of an installation operation:

0   Success

1   Failed

2   Partial success

3   Reserved

4   License not accepted

5   PrereqCheck failed

6   Reserved

Return codes are in use in the following components on the following operating systems.

Table 42. Return codes

Operating System	WebSphere Application Server	Application Client	IBM HTTP Server	Web Server Plug-ins	Application Server Toolkit	Edge Components	Update Installer (UPDI)
Linux and UNIX	Yes	Yes	Yes	Yes	Yes	Yes	Yes
i5/OS	Yes	Yes	N/A	Yes	N/A	N/A	Yes

Windows ISMP does not set exit codes on Windows due to a limitation. Consult the install log to determine success or failure.

The exit codes for the Application Client are different than the Version 6.0 exit codes, which are "1=success" and "0=failure".

Partial success means that some portion of the installation failed but the installation is still at least partially usable. The failure is recoverable. Once recovered, the installation is completely usable. Consult the log to determine the exact failure and what, if any, corrective action can be taken.

Product version information

The WebSphere Application Server product contains structural differences from previous versions. The properties/version directory in the *app_server_root* contains important data about the product and its installed components, such as the build version and build date. This information is included in WAS.product and [component].component files.

Run the historyInfo command to create a report about installed maintenance packages. The historyInfo command creates a report on the console and also creates tracking files in the *app_server_root*/properties/version/history directory.

Time-stamped, detailed logs record each update process in the properties/version/log directory of the *app_server_root*.

This topic describes the XML data files that store product information for Version 6 WebSphere Application Server products. By default, the document type declarations (DTDs) for these files are in the properties/version/dtd folder of the *app_server_root*, or the server root directory. See the "Product version information" section for more information.

This topic includes the following sections:
- "Product information files" on page 69
- "Reports" on page 70

- "Logs and component backups" on page 70
- "Directory locations" on page 71
- "Operational description" on page 72
- "Data dictionary" on page 72

Product information files

XML files in the properties/version directory that store version information:
platform.websphere

> One file whose existence indicates that a WebSphere Application Server product is installed. An example of the file follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE websphere PUBLIC "websphereId" "websphere.dtd">
<websphere name="IBM WebSphere Application Server" version="6.1"/>
```

The following XML files in the properties/version directory represent installed items and installation events such as product edition, version, component, and build information.
WAS.product

> One file whose existence indicates the particular WebSphere Application Server product that is installed. The type of product installed is indicated by the <id> tag. Data in the file indicates the version, build date, and build level.

> For example, <id>ND</id>.product indicates that the installed product is WebSphere Application Server Network Deployment. An example of the file follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE product PUBLIC "productId" "product.dtd">
<product name="IBM WebSphere Application Server - ND">
  <id>ND</id>
  <version>6.1.0</version>
  <build-info date="02/03/06" level="s0461.18"/>
</product>
```

component-name.**component**

> Any number of component files that each indicate the presence of an installed component, which is part of the product. Data in the file indicates the component build date, build version, component name, and product version. For example, the file might be the activity.component file, which indicates that the activity component is installed. The activity component is part of the Network Deployment product. An example of the file follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE component PUBLIC "componentId" "component.dtd">
<component build-date="05/31/06" build-version="a0522.07"
   name="activity" spec-version="6.1.0.0"/>
```

extension.id.**extension**

> Any number of extension files that each indicate the presence of an extension that you install as a user extension, as part of a service engagement, or as installed by a third party product. The *<extension.id>*.extension files are not created, logged, or removed by WebSphere Application Server products.

ptf-id.**ptf**

> Any number of maintenance package files that each indicate the presence of an installed refresh pack, fix pack, or interim fix.

XML files in the properties/version/history directory that store version history information files: The following XML files in the properties/version/history directory describe refresh packs, fix packs, and interim fixes that are currently installed. These XML files are related to installation items by the primary ID information, which is shown in the following examples as italicized text.

xxxmaintenance_package_identifierxxx.**ptfDriver**

> A driver file has useful information about the entire contents of an interim fix or fix pack.

*xxxmaintenance_package_identifierxxx***.ptfApplied**
> The applied file has relevant information about the interim fixes or fix packs that are currently applied.

event.history
> One file that lists update events that have occurred. An update event is an operation that installs or uninstalls an interim fix or a fix pack. The file is sorted by the date and time of the events that are listed.

Reports

WebSphere Application Server provides the ability to generate *Version* reports and History reports from the data in the files. The following report-generation scripts are available in the *app_server_root* bin directory.

Product version reports

The following report generation scripts extract data from XML data files in the properties/version folder:

- versionInfo script

  Lets you use parameters to create a version report on Linux and UNIX platforms, or on Windows platforms.

- genVersionReport script

  Generates the versionReport.html report file in the bin directory on Linux and UNIX platforms, or on Windows platforms. The report includes the list of components and installed and uninstalled maintenance packages.

Product history reports

The following report generation scripts extract data from XML data files in the properties/version/history folder:

- historyInfo script

  Lets you use parameters to create a history report on Linux and UNIX platforms, or on Windows platforms.

- genHistoryReport script

  Generates the historyReport.html report file in the bin directory on Linux and UNIX platforms, or on Windows platforms. The report includes the list of components and a history of installed and uninstalled maintenance packages.

Logs and component backups

WebSphere Application Server products use two other directories when performing update operations, for logging and backups:

app_server_root **/logs/update**
> The logs directory for product updates.

> The location of log files that describe events that occur during the use of the update installer program.

*app_server_root***properties/version/backup**
> Product updates backup directory

> WebSphere Application Server products back up components before applying interim fixes and fix packs. If you uninstall an interim fix or fix pack, WebSphere Application Server products restore the backed-up component JAR file.

File naming convention

Time stamp

YYYYMMDD_HHMMSS

For example: 20050324_211832 is 24-Mar-2004, 9:18:32 pm, GMT. All time stamps are in GMT.

ID   Interim fix ID or fix pack ID

For example: apar6789c is an interim fix ID; PTF_1 is a fix pack ID.

Operation

install | uninstall

Interim fix log file names

timeStamp_fixID_operation.log

For example, the Update installer program creates these logs: *app_server_root*logs/update/ 20050324_211832_apar6789c_install.log and *app_server_root*/logs/update/ 20050324_211912_apar6789c_uninstall.log

Interim fix component log file names

timeStamp_fixId_componentName_operation.log

For example, the update installer program creates these logs: *app_server_root*/logs/update/ 20050324_211832_apar6789c_ras_install.log and *app_server_root*/logs/update/ 20050324_211912_apar6789c_ras_uninstall.log

Fix pack log file names

timeStamp_ptfId_operation.log

For example, the update installer program creates these logs: *app_server_root*/logs/update/ 20050924_211832_was60_fp1_install.log and *app_server_root*/logs/update/ 20050924_211912_was60_fp1_uninstall.log

Fix pack component log file names

timeStamp_ptfId_componentName_operation.log

For example, prior to Fix Pack 2: properties/version/log/ 20050324_211832_was50_fp1_ras_install.log and properties/version/log/ 20030325_211912_was50_fp1_ras_uninstall.logThe update installer program creates these logs: *app_server_root*/logs/update/20050324_211832_was60_fp1_ras_install.log and *app_server_root*/logs/update/20030325_211912_was60_fp1_ras_uninstall.log

Backup JAR file names

*timeStamp_ptfId_componentName*_undo.jar or *timeStamp_fixId_componentName*_undo.jar

For example: 20020924_211832_apar6789c_ras_undo.jarDo not delete a backup JAR file. You cannot remove a component update if the corresponding backup JAR file is not present.

Update processing might also use a temporary directory if necessary. A Java property specifies this directory as described in the next section.

Directory locations

Product information files are located relative to the WebSphere Application Server product *app_server_root*, or the server root directory.

Default file paths are:

Version directory

app_server_root/properties/version

History directory

app_server_root/properties/version/history

Updates log directory

The update installer program stores log files in the *app_server_root*/logs/update directory.

Updates backup directory

app_server_root/properties/version/backup

DTD directory

app_server_root/properties/version/dtd

Temporary directory
> Specified by the java.io.tmpdir Java system property

Operational description

WebSphere Application Server products update the product version history information while performing events that install or uninstall fixes or fix packs. Events that might occur include:
- A WebSphere Application Server product removes an interim fix file from the version directory when it uninstalls the corresponding fix.
- A WebSphere Application Server product adds a file with an extension of .ptf to the version directory to indicate than a refresh pack, a fix pack, or an interim fix is currently installed.
- A WebSphere Application Server product removes a file with an extension of .ptf from the version directory when it uninstalls the corresponding refresh pack, a fix pack, or an interim fix.
- A WebSphere Application Server product adds a driver file with an extension of .ptfDriver to the version/history directory when you run the historyInfo command. A fix pack driver file contains defining information for a fix pack.
- A WebSphere Application Server product adds a fix pack applied file with an extension of .ptfApplied to the version/history directory when when you run the historyInfo command. A fix pack application file contains information that identifies component updates that have been applied for a fix pack. The application file also provides links to component log and backup files.
- A WebSphere Application Server product makes entries in the history file, event.history, when it installs or uninstalls a maintenance package.
- A WebSphere Application Server product writes a line about a parent event for each refresh pack, a fix pack, or interim fix that it installs or uninstalls.
- A WebSphere Application Server product stores child component events for each component update that it installs or uninstalls, beneath the corresponding interim fix, fix pack, or refresh pack parent event.
- A WebSphere Application Server product stores one log file in the logs/update directory as it installs or uninstalls one interim fix, fix pack, or refresh pack.
- A WebSphere Application Server product stores one log file in the logs/update directory as it installs or uninstalls an interim fix, fix pack, or refresh pack in response to each component update that occurs.
- A WebSphere Application Server product stores a component backup file in the backup directory for each component update that it installs.
- A WebSphere Application Server product removes a component backup file from the backup directory for each component update that it uninstalls.

Data dictionary

Type Family: WebSphere product family

File Types:
> websphere

File Type:
> websphere

Elements:
```
name                string    required
version             string    required
```

Persistence:
> *versionDir*/platform.websphere

Type Detail:

The websphere file denotes the presence of WebSphere family products.

Element Detail:

```
websphere.name          The WebSphere product family name.
websphere.version       The WebSphere product family version.


Type Family:       product

File Types:        product
                   component
                   extension

File Type:         product

Persistence:       versionDir/WAS.product

Elements:          id                  string      required
                   name                string      required
                   version             string      required
                   build-info          complex     required

Type Detail:

A product file is placed to denote the presence of a specific
WebSphere family product.
The product ID is embedded in the product file name.

Element Detail:

product.id            The id of the product.
product.name          The name of the product.
product.version       The version of the product.
product.build-info    An element containing build information for
                      the product.

Element Type:      build-info

Elements:          date                date        required
                   level               string      required

Type Detail:

A build-info instance details the build of a specific installed
WebSphere family product.

Element Detail:

build-info.date       The date on which the product was build.
build-info.level      The level code of the product's build.

File Type:         component

Persistence:       versionDir/name.component

Elements:          name                string      required
                   spec-version        string      required
                   build-version       string      required
                   build-date          date        required

File Detail:

A component file denotes the presence of a specific component.
The component name is embedded in the component file name.

Element Detail:

component.name         The name of the component.
component.spec-version The specification version of the component.
component.build-version The build level of the component.
```

component.build-date   The build date of the component.

Type Family: update

File Types: ptf
                  ptf-applied

File Type: ptf

Persistence: *versionDir*/*id*.ptf

Elements: id   string   required
                  short-description   string   required
                  build-version   string   required
                  build-date   date   required
                  component-name   complex   min=1, max=unbounded

Type Detail:

A ptf file denotes the presence of some portion of a specific refresh pack,
fix pack, or interim fix.

The id of the refresh pack, fix pack, or interim fix is embedded in the fix
pack file name.

A ptf file contains a listing of component updates.

When installing a refresh pack, fix pack, or interim fix, you can omit certain
potential component updates, but only when the corresponding component is not
installed.

Examine a separate application file to determine the components that
a particular refresh pack, fix pack, or interim fix updates.

A refresh pack or fix pack can include updates for a number of interim fixes.

Element Detail:

ptf.id   The ID of the fix pack.

ptf.short-description   A short description of the fix pack.

ptf.build-version   The build version of the fix pack.
                          This is distinct from the build version of
                          component updates contained within the fix pack.

ptf-build-date   The build date of the fix pack. This is distinct
                          from the build version of the component updates
                          contained within the
                          fix pack.

ptf.component-name   A list of components.

File Type: ptf-applied

Persistence: *versionDir*/*id*.ptfApplied

Elements: ptf-id   string   required
                  component-applied   complex   min=0, max=unbounded

Type Detail:

A ptf-applied collection specified what components have been updated for

the refresh pack, fix pack, or interim fix as specified by the ID.

Element Detail:

ptf-applied.ptf-id   The ID of the refresh pack, fix pack, or interim fix
                            for which applieds are recorded.

ptf-applied.component-applied The list of recorded applications.

Element Type: component-applied

Elements: component-name   string   required
                  update-type   enum   required [enumUpdateType]
                  log-name   anyURL   required
                  backup-name   anyURL   required
                  time-stamp   date   required

Type Detail:

An applied instance is present to indicate the application of an
update for a particular interim fix, fix pack, or refresh pack to a
particular component.

(The particular interim fix, fix pack, or refresh pack is specified by
the applied parent.) An applied provides sufficient information
to undo itself.

The elements of an applied are copies of values from update
events.

Element Detail:

component-applied.component-name   The name of the component which was updated.

component-applied.update-type   The type of the component update.

component-applied.log-name   The name of the log file that was generated by
                                   this application.

component-applied.backup-name   The name of the backup file which was generated by

component-applied.time-stamp   The time of this application (the ending time of
                                   the corresponding update event).

Enum Type: enumUpdateType

Values: 0 add
                  1 replace
                  2 remove
                  3 patch

Type Detail:

An update type instance specifies the type of an update. An 'add' update adds
a component into an installation. A 'replace' update replaces a particular
version of a component with a different version of that component. A 'remove'
update removes a component. A 'patch' update performs a limited update to a
component, in particular, without changing the version of the component.

When adding a component, that component may not already be present.
When replacing or removing a component, that component must be present.
When patching a component, that component must be present.

When replacing or removing a component, or when patching a component, usually,
at least one version prerequisite will be specified for the component update.

Value Detail:

enumUpdateType.add   Specifies that an update adds a component.

enumUpdateType.replace   Specifies that an update replaces a component.

enumUpdateType.remove   Specifies that an update removes a component.

enumUpdateType.patch   Specifies that an update modifies a component, but
                          does not change its version.

Type Family: history

File Type: event-history

Persistence: *historyDir*/event.history

Elements: update-event   complex   min=0, max=unbounded

Type Detail:

One event history is provided for a websphere product family installation.
This event history contains history of update events, corresponding with
the actual update events for that product family.

Element Detail:

event-history.update-event The list of update events for the websphere
                            product family. The top level events are refresh pack,
                            fix pack, and interim fix events, each containing one
                            or more component events.

Element Type: update-event

Elements: event-type   enum   required [enumEventType]
                  parent-id   string   required
                  id   string   required
                  update-type   enum   required [enumUpdateType]
                  primary-content   anyURI   required
                  update-action   enum   required [enumEventAction]
                  log-name   anyURI   required
                  backup-name   anyURI   required
                  start-time-stamp   dateTime   required
                  result   string   required
                  update-event   complex   optional

Type Detail:

An update event denotes a single update action, applying to either a
fix, a fix pack, a refresh pack, or a component, according to the set
event type.

Element Detail:

update-event.event-type   The type of this event, either a refresh pack, fix
                               pack, or an interim fix type event, or a component
                               type event.

update-event.parent-id   This element is present only for component
                               events. The ID of the parent interim fix, fix
                               pack, or refresh pack of this event.

update-event.id   The ID of the interim fix, fix pack, refresh pack,
                               or component that was updated, interpreted according
                               to the type of the event.

update-event.update-type   The type of update for an update event.

update-event.update-action   The type of action for this event.

update-event.log-name   The name of the log file that was generated
                               for this event.

update-event.backup-name   The name of the backup file that was generated
                               for this event.

update-event.start-time-stamp The XML timestamp of the starting time of the
                               event. This timestamp follows the XML timestamp
                               format, meaning that time zone information is
                               included.

update-event.result   The result of the update.

update-event.update-event   A collection of child events. This collection is
                               used for interim fix and fix pack type events.
                               This collection is empty for component type events.

Type Detail:

An event type instance specifies the type of an update event, which is either
a refresh pack, fix pack, or interim fix (ptf) event or a component event. The
interpretation of particular event elements depends on the set event type.

Value Detail:

EventType.ptf   Specifies that an event is for a refresh pack, fix pack,
                     or interim fix update.

EventType.component Specifies that an event is for a component update.

Enum Type: update-action

Values: 0 Install
                   1 Uninstall

Type Detail:

An event action instance specified the operation performed by an update, which
can be an install or uninstall operation.

Value Detail:

enumEventAction.install   Specifies that an event is an install
                                   operation.

enumEventAction.uninstall   Specifies that an event is an uninstall
                                   operation.

Enum Type: enumUpdateType

Values: 0 Add
                   1 Replace
                   2 Remove
                   3 Patch

Type Detail:

An update type instance specifies the type of a component update.

An 'add' update adds a component into an installation.

```
A 'replace' update replaces a particular version of a component with
a different version of that component.

A 'remove' update removes a component.

A 'patch' update performs a limited update to a component,
in particular, without changing the version of the component.

To add a new component, the component must not exist.
To replace or remove a component, the component must exist.
To patch a component, the component must exist.

When replacing or removing a component, or when patching a component,
usually, at least one version prerequisite is specified for the
component update.

Value Detail:

enumUpdateType.add       Specifies that an update adds a component.

enumUpdateType.replace   Specifies that an update replaces a component.

enumUpdateType.remove    Specifies that an update removes a component.

enumUpdateType.patch     Specifies that an update modifies a component, but
                         does not change its version.

Enum Type:        enumEventResult

Values:           0 Succeeded
                  1 Failed
                  2 Cancelled

Type Detail:

An event result instance denotes a particular result for an update event.
The result indicates success, failure, or cancellation.

Value Detail:

enumEventResult.succeeded  Specifies that the operation was successful.

enumEventResult.failed     Specifies that the operation failed.

enumEventResult.cancelled  Specifies that the operation was cancelled.
```

Installation: Resources for learning

Use the following links to find relevant supplemental information about installation and customization. The information resides on IBM and non-IBM Internet sites, whose sponsors control the technical accuracy of the information. The information resides on IBM and non-IBM Internet sites, whose sponsors control the technical accuracy of the information.

These links are provided for convenience. Often, the information is not specific to the IBM WebSphere Application Server product, but is useful in all or in part for understanding the product. When possible, links are provided to technical papers and Redbooks that supplement the broad coverage of the release documentation with in-depth examinations of particular product areas.

One important link is:

How to buy WebSphere Application Server software

This IBM Web site describes pricing and technical details. If you have already purchased the software, view links to additional information about:
- Planning, business scenarios, and IT architecture
- Programming instructions and examples
- Programming specifications
- Administration
- Support

Planning, business scenarios, and IT architecture
- Supported hardware and software

  The official site for determining product prerequisites for hardware and software for all WebSphere Application Server products.
- IBM developerWorks WebSphere

  The home of technical information for developers working with WebSphere products. You can download WebSphere software, take a fast path to developerWorks zones, such as VisualAge Java or WebSphere Application Server, learn about WebSphere products through a newcomers page, tutorials, technology previews, training, and Redbooks, get answers to questions about WebSphere products, and join the WebSphere community, where you can keep up with the latest developments and technical papers.
- IBM WebSphere Application Server library and information centers Web site

  The IBM WebSphere Application Server Library Web site contains links to all WebSphere Application Server information centers, for all versions. It also lets you access each information center in your native language.
- IBM WebSphere Application Server home page

  The IBM WebSphere Application Server home page contains useful information, including support links and downloads for maintenance packages, APARs, tools, and trials.
- IBM WebSphere software platform home page

  The IBM WebSphere software platform home page introduces WebSphere products and describes how companies can easily transform to an e-business, with software that can grow as fast as the business it supports.
- WebSphere Application Server Edge components library and information centers Web site

  The information center for WebSphere Application Server Edge components contains complete documentation for the Caching Proxy and the Load Balancer.

Programming instructions and examples
- IBM developerWorks

  IBM developerWorks contains many excellent resources for developers, including tutorials on Web development-related topics. There is an excellent tutorial on the JDBC API.
- IBM Redbooks

  The IBM Redbooks site contains many documents that are related to WebSphere Application Server.

Programming specifications
- J2EE information

  For more information about J2EE specifications, visit the Sun site.

Administration
- WebSphere technical library on developerWorks

  The WebSphere library includes a wide range of content, including technical articles, downloads, product documentation, and tutorials
- The IBM Terminology Web site

  The IBM Terminology Web site consolidates the terminology from many IBM products in one convenient location. In addition to base computer terminology, terms and definitions from IBM brands and product families are included and explained.

Support

- Steps to getting support for WebSphere Application Server

  Whether you are a new user looking for basic information, or an experienced user looking for a specific workaround, you can benefit immediately from IBM's extensive Web-based support. Download fixes, search on keywords, find how-to information, and possibly solve a problem -- all before contacting IBM Software Support directly.

- Support page for WebSphere Application Server

  Take advantage of the Web-based Support and Service resources from WebSphere Application Server to quickly find answers to your technical questions. Easily access the latest recommended product maintenance, find workarounds to technical problems, or register to receive e-mail from IBM Support.

- IBM Software Support portal

  Take advantage of the Web-based Support and Service resources from IBM to quickly find answers to your technical questions. You can easily access this extensive Web-based support through the IBM Software Support portal and search by product category, or by product name. If you are experiencing problems specific to WebSphere Application Server, for example, click **WebSphere Application Server** or **WebSphere Application Server for z/OS** in the product list. The WebSphere Application Server Support page displays.

- Adobe Acrobat Web site

  This Adobe Web site offers a free download of the Adobe Acrobat Reader product.

Chapter 5. Planning the installation

Some Web server topologies are commonly installed with the IBM WebSphere Application ServerNetwork Deployment product.

Use this topic to understand the capabilities of your WebSphere Application ServerNetwork Deployment product. Knowing what you can do with the product might influence how you install the product and other installable components on the product disc.

Topology diagrams and descriptions show how to create a given topology by showing what components to install for each topology.

Installation roadmap

Install the following components from the product disc to create a production environment:
- The WebSphere Application ServerNetwork Deployment product
- The IBM HTTP Server V6 (or another supported Web server from another source)
- A binary plug-in module for your Web server

Optionally, use the product disc to install an application client environment on a client machine. Java 2 Platform, Enterprise Edition (J2EE) client applications and thin client applications run on a client workstation. The client applications communicate with WebSphere Application Server on a remote server machine. A client application requires some elements of the Application Server on the client machine. However, instead of installing the full WebSphere Application ServerNetwork Deployment product, you can install the Application Client to provide a stand-alone client run-time environment.

Optionally, use the Application Server Toolkit disc in the primary packet of discs to install a development environment. Or use the Rational Application Developer Trial disc in the supplemental packet of discs to install a fully integrated development environment that includes an application server for development testing.

Installation features

Installation features in V6.x include:

Feature	Description
The WebSphere Application ServerNetwork Deployment product includes cells, stand-alone application server profiles, and managed nodes..	Use the Profile Management tool to create additional cell profiles, deployment manager profiles, application server profiles, and custom profiles after installing the Network Deployment product.
	You do not have to reinstall the product to create a new profile. All profiles on a machine share the core product files.
	If you do install again to create a second set of core product files, there are two Profile Management tools - one for each set of core product files.
The product disc includes all of the installable components that are required to create an e-business environment.	Use the product disc to install the IBM HTTP Server, the Web server plug-ins, and the WebSphere Application Client components. Installation programs for each component exist within component directories.
Each installable component has its own installation program.	Use the launchpad to install any component on the product disc. Or install each component directly using the install command in the component directory.

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Feature	Description
The launchpad can install any installable product in the primary packet of compact discs.	The launchpad for the WebSphere Application ServerNetwork Deployment product can also install the Application Server Toolkit on Windows and Linux (Intel) systems. The Application Server Toolkit is on its own disc. Change discs to launch the installation.

Review topology diagrams for each of the following installable components to determine which topology best fits your needs. The diagrams and their accompanying procedures can serve as a roadmap for installing a similar topology.

This topic describes installation scenarios for the following installable components:

- WebSphere Application ServerNetwork Deployment
- Web server plug-ins
- Application Client

In addition to product installation diagrams for the installable components, this topic also links to a roadmap for using the Profile Management tool. The Profile Management tool creates run-time environments for application server processes.

Each of the following installation scenarios includes topology diagrams and associated installation steps. Each step links to a specific procedure for installing a component or to a description of a command or tool.

1. **Diagrams:** Review the installation scenarios for the WebSphere Application ServerNetwork Deployment product, as described in "Planning to install Network Deployment" on page 83.
2. **Diagrams:** Review the installation scenarios for the Web server plug-ins for WebSphere Application Server, as described in "Planning to install Web server plug-ins" on page 91.
3. **Diagram:** Review the installation scenarios for the Application Client, as described in "Planning to install WebSphere Application Client" on page 96.
4. **Diagrams:** Review the installation scenarios for profile creation, as described in "Planning to create application server environments" on page 98.
5. **Optional:** Review interoperability and coexistence diagrams to know what is possible with Version 6.x.

   WebSphere Application Server V6.x can interoperate with your other e-business systems, including other versions of WebSphere Application Server. *Interoperability* provides a communication mechanism for WebSphere Application Server nodes that are at different versions, running on separate machines. *Coexistence* describes multiple versions or instances running on the same machine at the same time.

   Interoperability support enhances migration scenarios with more configuration options. Interoperating is often more convenient or practical during the migration of a configuration from an earlier WebSphere Application Server version to a later one. Some machines can have the earlier product version and other machines can have the later version. An environment of machines and application components at different software version levels can involve both interoperability and coexistence.

   It is often impractical, or even physically impossible, to migrate all of the machines and applications within an enterprise at the same time. Understanding multiversion interoperability and coexistence is therefore an essential part of a migration between version levels.

6. **Optional:** Consider performance when designing your network, as described in "Example: Choosing a topology for better performance" on page 100 and "Queuing network" on page 100.

Following this procedure results in reviewing installation scenarios to identify specific steps to follow when installing more than one component.

After determining an appropriate installation scenario, install the necessary components and configure the products for the system that you selected.

Planning to install Network Deployment

Consider common installation scenarios for Network Deployment to determine how to install your application serving environment. This topic links to procedures for installing each scenario.

IBM WebSphere Application Server Network Deployment is an integrated platform that contains an application server, Web development tools, a Web server, and additional supporting software and documentation.

In Version 6.1, installation of WebSphere Application Server Network Deployment typically performs two actions. First the installation wizard installs a shared set of core product files. Second, the installation wizard optionally creates a profile.

A profile is a separate data partition that includes the files that define a run-time environment for an application server process, such as a deployment manager or an application server.

A running application server process can create, read, update, or delete the configuration files, data files, and log files in its profile. The application server process can access the system files, which include command files and other shared product binary files. However, most system files are updated only by installing refresh packs, fix packs, interim fixes, or products that extend Network Deployment.

During installation, you can choose to create an *application server profile*, a *deployment manager profile*, a *cell set of profiles* which contains a deployment manager and a federated application server, or a *custom profile*. The installation wizard also has an option not to create a profile during installation. However, at least one profile must exist to have a functioning application server environment.

After installation, use the Profile Management Tool to create additional profiles.

Scenarios for installation

The following information describes scenarios for installing the product in various topologies on one or more machines. Two types of WebSphere Application Server topologies are possible using the Network Deployment product:

Topologies for a stand-alone application server
> Each stand-alone application server has its own administrative console and runs independently of other application servers.
>
> The following topologies are described in this topic.
> - **Scenario 1:** Single-machine installation of a stand-alone application server
> - **Scenario 2:** Single-machine installation of a stand-alone application server and a Web server
> - **Scenario 3:** Two-machine installation of a stand-alone application server and a Web server
> - **Scenario 4:** Two-machine installation of multiple stand-alone application servers and a Web server

Topologies for a managed group of application servers in a cell
> A *cell* consists of one deployment manager and one or more federated application servers that are *managed nodes*.
>
> A node can become a managed node in several ways:
> - By creating the cell with a federated node during installation
> - By federating the node within an application server profile into the cell
> - By federating the node within a custom profile into the cell

The deployment manager is the single point of administration for all of the managed nodes in the cell. The deployment manager maintains the configuration files for nodes that it manages and deploys applications to those managed nodes.

The following topologies for a cell are described in this topic.
- **Scenario 5:** Single-machine installation of a cell of application servers
- **Scenario 6:** Single-machine installation of a cell of application servers and a Web server
- **Scenario 7:** Two-machine installation of a cell of application servers and a Web server
- **Scenario 8:** Three-machine installation of a cell of application servers and a Web server

Scenarios 5, 6, 7, and 8 assume that all nodes in a cell reside on a particular machine and operating system. However, this precise node assignment does not need to apply. The deployment manager node can exist on Machine A, other managed nodes (that have been federated into the deployment manager) can exist on differing machines and operating systems. Such a configured cell of differing machines or operating systems is called a *heterogeneous cell* and expands the possible topologies you can consider for your network deployment.

Each of the following scenarios includes a diagram and a list of detailed installation steps.

Some scenarios are more typical in production environments. For example, Scenario 1 supports a lighter workload than Scenario 3 or Scenario 4. However, Scenario 1 is a fully functional environment. Scenarios 3 and 4 are typical production environments for a stand-alone application server. Scenario 8 is a typical production scenario for a cell environment.

- **Scenario 1:** Install a stand-alone application server on a single machine.

  Installing WebSphere Application Server Network Deployment by itself on a single machine lets you create a stand-alone Application Server profile. Each stand-alone application server profile includes a server1 application server process. Installing Network Deployment creates the set of system files.

  The Profile Management Tool creates the profile for the application server. The profile is a separate data partition with files that define the stand-alone Application Server environment.

  In this scenario, the application server uses its internal HTTP transport chain for communication, which is suitable for handling an application with a relatively low request workload. For example, this type of installation can support a simple test environment or a departmental intranet environment.

Machine A

WebSphere Application Server, Version 6.0	
Shared product binaries (system files)	Profile01
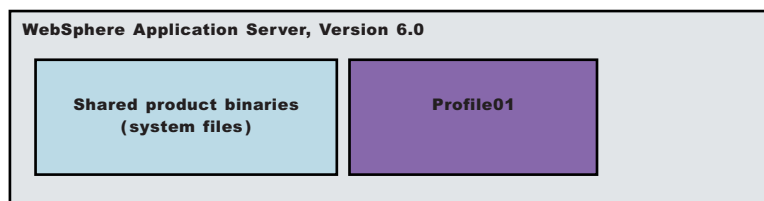
1. Install WebSphere Application Server Network Deployment.

   Create an application server profile during the installation.

- **Scenario 2:** Install a stand-alone application server and a Web server on a single machine.

  Installing a Web server, such as IBM HTTP Server, on the same machine as the application server provides more configuration options. Installing a Web server plug-in enables the Web server to communicate with the application server. This installation scenario supports rigorous testing environments or production environments that do not require a firewall. However, this scenario is not a typical production environment because everything is on one machine.

1. Install WebSphere Application Server Network Deployment.

   Create an application server profile during the installation.

2. Install IBM HTTP Server or another supported Web server.

   While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins. After installing IBM HTTP Server, proceed to step 4.

3. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to install the Web server plug-ins and configure the Web server. Because the Web server and the application server are on the same machine, the Plug-ins installation wizard creates a Web server definition and you can skip step 4.

4. Create a Web server definition using the administrative console. Click **Servers > Web servers > New**.

- **Scenario 3:** Install a stand-alone application server and a Web server on separate machines.

  In the typical production environment, the application server on one machine communicates with a Web server on a separate (remote) machine through the Web server plug-in. Optional firewalls can provide additional security for the application server machine.

1. Install WebSphere Application Server Network Deployment on Machine A.

   Create an application server profile during the installation.

2. Install IBM HTTP Server or another supported Web server on Machine B. While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins.

3. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to install the Web server plug-ins and configure the Web server on Machine B. The Plug-ins installation wizard creates a script named configure*Web_server_name* in the *plugins_root*/bin directory on Machine B.

4. Copy the configure*Web_server_name* script on Machine B to the *app_server_root*/*profile_name*/bin directory on Machine A.

5. Run the configure*Web_server_name* script on Machine A to create a Web server definition in the administrative console. You can then use the administrative console to manage the Web server.

6. Propagate the plugin-cfg.xml file on Machine A from the application server to the Web server using the administrative console. Click **Servers > Web servers >** *Web_server_name* **> Propagate Plug-in**. Web servers other than IBM HTTP Server require manual propagation.

- **Scenario 4:** Install multiple stand-alone application servers on one machine and a Web server on a separate machine.

The Profile Management tool can create a deployment manager profile, an application server profile, or a custom profile. Each profile is a separate data partition containing the files that define the run-time environment. After creating a profile and installing a dedicated Web server, use the Plug-ins installation wizard to install a plug-in and to update the Web server configuration file. The Web server can then communicate with the application server.

This topology lets each profile have unique applications, configuration settings, data, and log files, while sharing the same set of system files. Creating multiple profiles creates multiple application server environments that you can dedicate to different purposes.

For example, each application server on a Web site can serve a different application. In another example, each application server can be a separate test environment that you assign to a programmer or a development team.

Another feature of having multiple profiles is enhanced serviceability. For example, when a fix pack updates the system files, all application servers begin using the updated core product files.
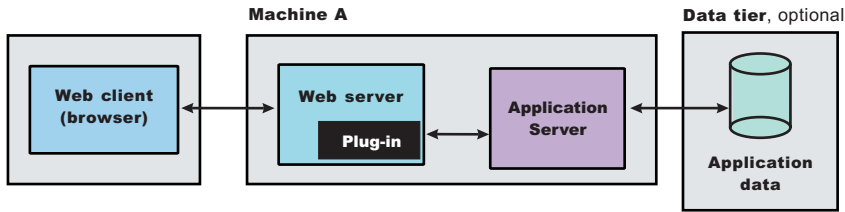

1. Install WebSphere Application Server Network Deployment on Machine A.

   Create an application server profile during the installation.

2. Install IBM HTTP Server or another supported Web server on Machine B. While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins.

3. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to install the Web server plug-ins and configure the Web server on Machine B. The Plug-ins installation wizard creates a script named configure*Web_server_name* in the *plugins_root*/bin directory on Machine B.

4. Copy the configure*Web_server_name* script on Machine B to the *app_server_root*/*profile_name*/bin directory on Machine A.

5. Run the configure*Web_server_name* script on Machine A to create a Web server definition in the administrative console. You can then use the administrative console to manage the Web server.

6. Propagate the plugin-cfg.xml file on Machine A from the application server to the Web server using the administrative console. Click **Servers > Web servers >** *Web_server_name* **> Propagate Plug-in**. Web servers other than IBM HTTP Server require manual propagation.

7. Create subsequent Application Server profiles using the Profile Management tool on Machine A.

8. Install subsequent IBM HTTP Servers or other supported Web servers on Machine B. While installing an IBM HTTP Server, use its installation wizard to install the Web server plug-ins.

9. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to configure each additional Web server on Machine B. Installation of the Web server plug-ins creates a script named configure*Web_server_name* in the *plugins_root*/bin directory on Machine B.

10. Copy the configure*Web_server_name* script on Machine B to the *app_server_root*/*profile_name*/bin directory on Machine A.

11. Run the configure*Web_server_name* script on Machine A to create a Web server definition in the administrative console. You can then use the administrative console to manage the Web server.

12. On Machine A, propagate the plugin-cfg.xml file from the second application server to the Web server using the administrative console. Click **Servers > Web servers >** *Web_server_name* **> Propagate Plug-in**. Web servers other than IBM HTTP Server require manual propagation.
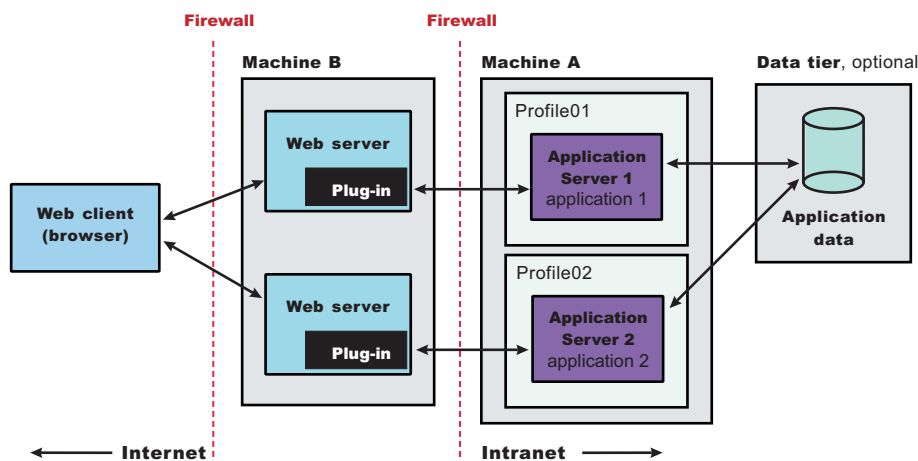
- **Scenario 5:** Install a cell of managed application servers on one machine.

  WebSphere Application Server Network Deployment can create a cell consisting of a deployment manager and one federated application server node on a single machine. During installation choose to install the cell set of profiles.

  The Profile Management tool can create other stand-alone application server profiles or custom profiles. You can use the administrative interface of the deployment manager to federate the additional servers to the cell.

  Stand-alone application server profiles have their own administrative interface until you federate them into a deployment manager cell, at which point the administrative interface of the deployment manager controls the servers, or *managed nodes.* An application server profile has a default application server process called server1, and optionally might include the default application and Sample applications. A custom profile does not have a default server process nor does it have any applications.

  The deployment manager provides the administration for all managed nodes that are in its cell. Periodically the configuration and application files on a managed node refresh from the master copy of the files hosted on the deployment manager during *synchronization.*

  In a cell environment, only the managed nodes serve applications, not the deployment manager. The managed node in this scenario uses its internal HTTP transport chain for communication, which is suitable for handling few Web requests. For example, this type of installation can support a simple test environment or a departmental intranet environment.

  Machine A

  1. Install WebSphere Application Server Network Deployment.

     Create a cell environment during the installation. The cell environment creates a deployment manager profile and an application server profile that is federated to the deployment manager cell.

  2. Start the deployment manager using its First steps console or by running the startManager command in the bin directory of the deployment manager profile, *app_server_root*/*profile_name*/bin.

  3. Start the administrative console of the deployment manager using its First steps console.

  4. Start the node agent process by running the startNode command in the bin directory of the application server profile, *app_server_root*/*profile_name*/bin.

  5. Use the administrative console of the deployment manager to create and start application server processes. Click **Servers > Application servers > Start**.

- **Scenario 6:** Install a cell of managed application servers and a Web server on one machine.

  Installing a Web server, such as IBM HTTP Server, on the same machine as the application server provides more configuration options. Installing a Web server plug-in is required for the Web server to communicate with the server in the managed node. This type of installation can support either rigorous testing in a cell environment or production environments that do not require a firewall.

Machine A

dmgr (deployment manager)

Node agent

Data tier, optional

Web client (browser)

Web server

Plug-in

server1 (managed node)

Application data

1. Install WebSphere Application Server Network Deployment.

   Create a cell environment during the installation. The cell environment creates a deployment manager profile and an application server profile that is federated to the deployment manager cell.

2. Start the deployment manager using its First steps console or by running the startManager command in the bin directory of the deployment manager profile, *app_server_root*/*profile_name*/bin.

3. Start the administrative console of the deployment manager using its First steps console.

4. Start the node agent process by running the startNode command in the bin directory of the application server profile, *app_server_root*/*profile_name*/bin.

5. Use the administrative console of the deployment manager to create and start application server processes. Click **Servers > Application servers > Start**.

6. Install IBM HTTP Server or another supported Web server.

   While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins. After installing IBM HTTP Server, proceed to step 4.

7. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to install the Web server plug-ins and configure the Web server. Because the Web server and the application server are on the same machine, the Plug-ins installation wizard creates a Web server definition and you can skip step 4.

8. Create a Web server definition using the administrative console. Click **Servers > Web servers > New**.

- **Scenario 7:** Install a cell of managed application servers on one machine and a Web server on a separate machine.

In a typical production environment, a managed node in a cell communicates with a Web server on a separate (remote) machine through the Web server plug-in. An optional firewall can provide additional security for the application server machine.

1. Install WebSphere Application Server Network Deployment on Machine A.

   Create a cell environment during the installation. The cell environment creates a deployment manager profile and an application server profile that is federated to the deployment manager cell

2. Start the deployment manager using its First steps console or by running the startManager command in the bin directory of the deployment manager profile, *app_server_root*/*profile_name*/bin.

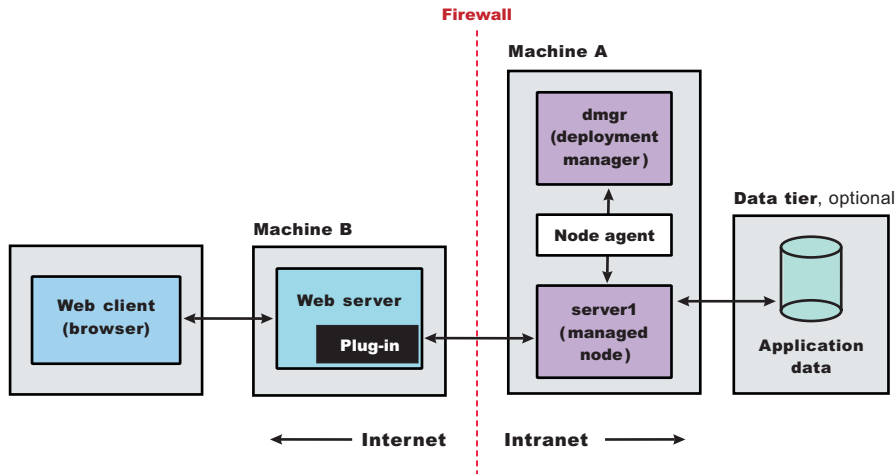3. Start the administrative console of the deployment manager using its First steps console.

4. Start the node agent process by running the startNode command in the bin directory of the application server profile, *app_server_root*/*profile_name*/bin.

5. Use the administrative console of the deployment manager to create and start application server processes. Click **Servers > Application servers > Start**.

6. On Machine B, install IBM HTTP Server or another supported Web server.

   While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins.

7. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to configure each additional Web server on Machine B. Installation of the Web server plug-ins creates a script named configure*Web_server_name* in the *plugins_root*/bin directory on Machine B.

8. Copy the configure*Web_server_name* script on Machine B to the *app_server_root*/*profile_name*/bin directory on Machine A.

9. Run the configure*Web_server_name* script on Machine A to create a Web server definition in the administrative console. You can then use the administrative console to manage the Web server.

10. On Machine A, propagate the plugin-cfg.xml file from the second application server to the Web server using the administrative console. Click **Servers > Web servers >** *Web_server_name* **> Propagate Plug-in**. Web servers other than IBM HTTP Server require manual propagation.

- **Scenario 8:** Install a deployment manager on one machine, multiple managed application server nodes on a second machine, and a Web server on a third machine.

The primary advantage of a cell over a stand-alone application server is its scalability. Managing a cell to keep it in proportion with workload levels is possible. In this scenario, managed nodes exist on Machine C. All of the managed nodes are federated into the same deployment manager. Depending on your needs, an application server in each managed node could serve the same or different applications.

Machine A and Machine C represent both types of scaling, vertical and horizontal scaling:

- *Vertical scaling* creates multiple managed nodes on the same physical machine.
- *Horizontal scaling* creates cell members on multiple physical machines.

The managed nodes in this scenario communicate with the same Web server. However, an alternative strategy could have a dedicated Web server for each managed node.
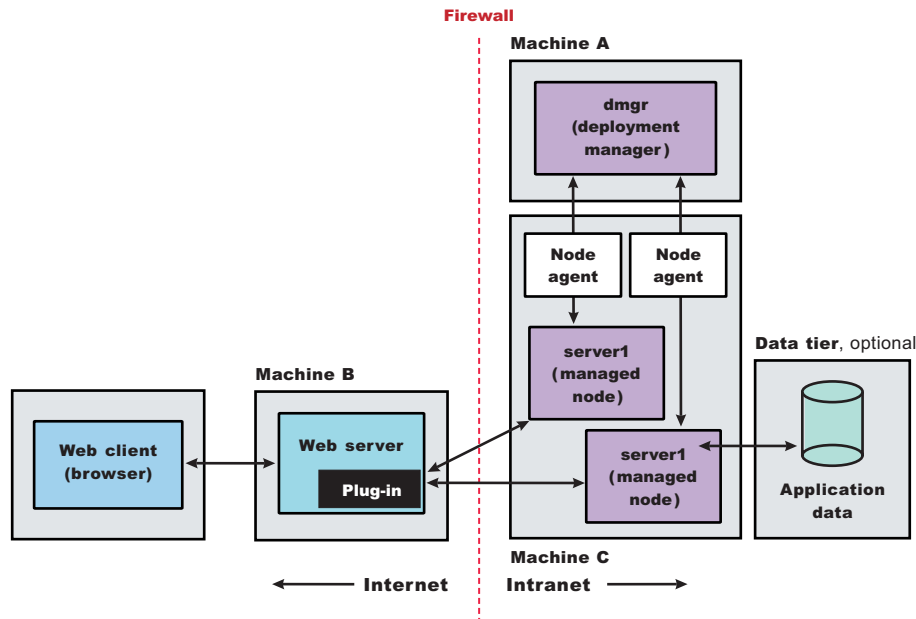
1. Install WebSphere Application Server Network Deploymenton Machine A.

   Create a deployment manager profile during the installation.

2. Start the deployment manager using its First steps console or by running the startManager command in the bin directory of the deployment manager profile, *app_server_root*/*profile_name*/bin.

3. Install WebSphere Application Server Network Deployment on Machine C.

   Create an application server profile during the installation.

4. On Machine C, start the first application server using its First steps console or by running the startServer server1 command in the bin directory of the first application server profile, *app_server_root*/*profile_name*/bin.

5. On Machine C, create a second application server profile using the Profile Management Tool.

6. Start the second application server using its First steps console or by running the startServer server1 command in the bin directory of the first application server profile, *app_server_root*/*profile_name*/bin.

7. On Machine A, add both application server nodes to the cell using the administrative console of the deployment manager. Click **System Administration > Nodes > Add Node**.

8. On Machine B, install IBM HTTP Server or another supported Web server.

   While installing IBM HTTP Server, use its installation wizard to install the Web server plug-ins.

9. If you use another supported Web server or an existing installation of IBM HTTP Server, use the Plug-ins installation wizard to configure each additional Web server on Machine B. Installation of the Web server plug-ins creates a script named configure*Web_server_name* in the *plugins_root*/bin directory on Machine B.

10. Copy the configure*Web_server_name* script on Machine B to the *app_server_root*/*profile_name*/bin directory on Machine A.

11. Run the configure*Web_server_name* script on Machine A to create a Web server definition in the administrative console. You can then use the administrative console to manage the Web server.

12. On Machine A, propagate the plugin-cfg.xml file from the second application server to the Web server using the administrative console. Click **Servers > Web servers >** *Web_server_name* **> Propagate Plug-in**. Web servers other than IBM HTTP Server require manual propagation.

Following this procedure results in reviewing common installation scenarios to find a possible match for the topology that you intend to install. Each high-level procedure shows the installation order for the components that comprise the topology.

After determining a possible topology, follow the steps in the overall procedure.

One step not mentioned in any of these scenarios is to prepare the operating system for installation. Useful links to the installation procedures for each installable component are in the list of related topics.

Planning to install Web server plug-ins

This topic describes common installation scenarios and links to component installation procedures for each scenario.

The primary production configuration is an application server on one machine and a Web server on a separate machine. This configuration is referred to as a *remote* configuration. Contrast the remote configuration to the local configuration, where the application server and the Web server are on the same machine.

The Plug-ins installation wizard has four main tasks:
- Installs the binary plug-in module on the Web server machine.
- Configures the Web server configuration file on the Web server machine to point to the binary plug-in module and to the XML configuration file for the binary module.
- Installs a temporary XML configuration file for the binary module (plugin-cfg.xml) on the Web server machine in remote scenarios.
- Creates the configuration for a Web server definition on the application server machine. The wizard processes the creation of the Web server definition differently depending on the scenario:

  Web server plug-in installation for stand-alone application server environments
  – Recommended remote stand-alone Application Server installation:

    Creates a configuration script that you run on the application server machine. Install the Web server and its plug-in on a different machine than the application server. This configuration is recommended for a production environment.

  – Local stand-alone Application Server installation:

    Detects the default profile on a local application server machine and creates the Web server definition for it directly. Install the Web server and its plug-in on the same machine with the application server. When multiple profiles exist, the plug-ins installer allows the user to select the profile to configure. If there is only one profile (default), then it is used during configuration. In this case, the profile selection panel will not be displayed to the user. This configuration is for development and test environments.

  Web server plug-in installation for distributed environments (cells)
  – Recommended remote distributed installation:

    Creates a configuration script that you run on the application server machine. Install the Web server and its plug-in on a different machine than the deployment manager or managed node. This configuration is recommended for a production environment.

  – Local distributed installation:

    Creates a configuration script that you run when the deployment manager is running. Install the Web server and its plug-in on the same machine with the deployment manager or a managed node. This configuration is for development and test environments.

Select a link to go to the appropriate steps in the following procedure.
- **Set up a remote Web server installation.**

  The remote Web server configuration is recommended for production environments.

The remote installation installs the Web server plug-in on the Web server machine when the application server is on a separate machine, such as shown in the following graphic:
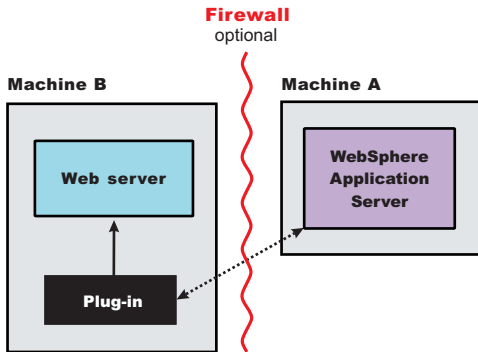
Remote installation scenario

Step	Machine	Task
1	A	Install Network Deployment and create an application server profile. See Chapter 7, "Installing the product and additional software," on page 137.
2	B	Install IBM HTTP Server or another supported Web server.
3	B	Install the binary plug-in module using the Plug-ins installation wizard.. The script for creating and configuring the Web server is created under the *plugins_root*/ bin directory.
4	B	Copy the configure*web_server_name* script to Machine A. If one machine is running under Linux or UNIX and the other machine is running under Windows, copy the script from the *plugins_root*/ bin/ crossPlatformScripts directory.
5	A	Paste the configure*web_server_name* script from Machine B to the *app_server_root*/ bin directory on Machine A.
6	A	Run the script from a command line.
7	A	Verify that the application server is running. Open the administrative console and save the changed configuration.
8	B	▷ **Linux** Run the *plugins_root*/setupPluginCfg.sh script for a Domino Web Server before starting a Domino Web server.Otherwise, start the Web server.
9	B	Run the Snoop servlet. To verify with your own application, regenerate and propagate the plugin-cfg.xml file after installing the application.

Regeneration of the plugin-cfg.xml file

During the installation of the plug-ins, the temporary plugin-cfg.xml file is installed on Machine B in the *plugins_root*/ config/ web_server_name directory.

The Web server plug-in configuration service regenerates the plugin-cfg.xml file automatically.

To use the real plugin-cfg.xml file from the application server, propagate the plugin-cfg.xml file as described in the next section.

Propagation of the plugin-cfg.xml file

The Web server plug-in configuration service propagates the plugin-cfg.xml file automatically for IBM HTTP Server only.

For all other Web servers, propagate the plug-in configuration file manually. Copy the plugin-cfg.xml file from the *profile_root*/ config/ cells/ *cell_name*/ nodes/ *web_server_name_*node/ servers/ *web_server_name* directory on Machine A. Paste the file into the *plugins_root*/ config/ *web_server_name* directory on Machine B.

- **Set up a local Web server configuration.**

  The local Web server configuration is recommended for a development or test environment.

  A local installation includes the Web server plug-in, the Web server, and the application server on the same machine:
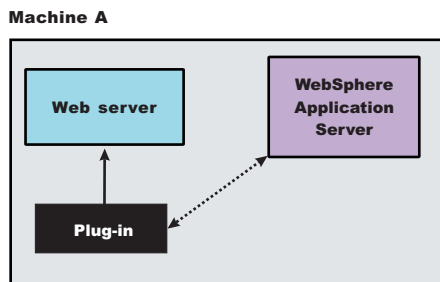
Machine A

Local installation scenario

Step	Machine	Task
1	A	Install the Network Deployment product and create an application server profile. See Chapter 7, "Installing the product and additional software," on page 137.
2	A	Install IBM HTTP Server or another supported Web server.
3	A	Install the binary plug-in module using the Plug-ins installation wizard. The Web server definition is automatically created and configured during the installation of the plug-ins.
4	A	Verify that the application server is running. Open the administrative console and save the changed configuration.
5	B	▷ Linux ◁ Run the *plugins_root*/setupPluginCfg.sh script for a Domino Web Server before starting a Domino Web server.Otherwise, start the Web server.
6	B	Run the Snoop servlet. To verify with your own application, regenerate and propagate the plugin-cfg.xml file after installing the application.

Regeneration of the plugin-cfg.xml file

The Web server plug-in configuration service regenerates the plugin-cfg.xml file automatically.

The plugin-cfg.xml file is generated in the *profile_root*/config/cells/*cell_name*/nodes/ *web_server_name_*node/servers/*web_server_name* directory. The generation occurs when the Web server definition is created.

Propagation of the plugin-cfg.xml file

The local file does not require propagation.

- **Set up a remote Web server installation in a cell.**

  The remote Web server configuration is recommended for production environments.

  The remote installation installs the Web server plug-in on the Web server machine when the application server is on a separate machine, such as shown in the following graphic:

Firewall
optional

Machine C

Web server

Plug-in

Machine A

Deployment
Manager

Federate

Machine B

WebSphere
Application
Server node

Remote installation scenario

Step	Machine	Task
1	A	Install WebSphere Application Server Network Deployment and create a deployment manager profile. See Chapter 7, "Installing the product and additional software," on page 137.
2	A	Start the deployment manager with the *profile_root*/bin/ `startManager.sh` command or its Windows equivalent.
3	B	Install WebSphere Application Server Network Deployment and create an application server profile. See Chapter 7, "Installing the product and additional software," on page 137.
4	B	Federate the node with the *profile_root*/bin/`addNode.sh` *dmgrhost* `8879 -includeapps` command or its Windows equivalent.
5	C	Install IBM HTTP Server or another supported Web server.
6	C	Install the binary plug-in module using the Plug-ins installation wizard. The script for creating and configuring the Web server is created under the *plugins_root*/ bin directory.
7	C	Copy the configure*web_server_name* script to Machine A. If one machine is running under Linux or UNIX and the other machine is running under Windows, copy the script from the *plugins_root*/ bin/ crossPlatformScripts directory.
8	A	Paste the configure*web_server_name* script from Machine C to the *app_server_root*/ bin directory on Machine A.
9	A	Run the script from a command line after verifying that the deployment manager is running. If you have enabled security or changed the default JMX connector type, edit the script and include the appropriate parameters on the wsadmin command.
10	A/B	Use the administrative console of the deployment manager on Machine A to start the application server on Machine B. Wait for synchronization to occur and save the new configuration.
11	C	▷ Linux Run the *plugins_root*/setupPluginCfg.sh script for a Domino Web Server before starting a Domino Web server.Otherwise, start the Web server.
12	C	Run the Snoop servlet. To verify with your own application, regenerate and propagate the plugin-cfg.xml file after installing the application.

Regeneration of the plugin-cfg.xml file

During the installation of the plug-ins, the temporary plugin-cfg.xml file is installed on Machine C in the *plugins_root*/ config/ web_server_name directory.

The Web server plug-in configuration service regenerates the plugin-cfg.xml file automatically.

To use the real plugin-cfg.xml file from the application server, propagate the plugin-cfg.xml file as described in the next section.

Propagation of the plugin-cfg.xml file

The Web server plug-in configuration service propagates the plugin-cfg.xml file automatically for IBM HTTP Server only.

For all other Web servers, propagate the plug-in configuration file, by manually copying the plugin-cfg.xml file from the *profile_root*/ config/ cells/ *cell_name*/ nodes/ *node_name*/ servers/ *web_server_name* directory on Machine A to the *plugins_root*/ config/ *web_server_name* directory on Machine C.

- **Set up a local distributed Web server configuration.**

  The local Web server configuration is recommended for a development or test environment.

  A local distributed installation includes the Web server plug-in, the Web server, and the managed application server on the same machine:

Local distributed installation scenario

Step	Machine	Task
1	A	Install WebSphere Application Server Network Deployment and create a deployment manager profile. See Chapter 7, "Installing the product and additional software," on page 137.
2	A	Start the deployment manager with the *profile_root*/ bin/ startManager.sh command or its Windows equivalent.
3	B	Install WebSphere Application Server Network Deployment and create an application server profile. See Chapter 7, "Installing the product and additional software," on page 137.
4	B	Federate the node with the *profile_root*/bin/addNode.sh *dmgrhost* 8879 -includeapps command or its Windows equivalent.
5	B	Install IBM HTTP Server or another supported Web server.
6	B	Install the binary plug-in module using the Plug-ins installation wizard. The script for creating and configuring the Web server is created in the *plugins_root*/ bin directory.

Step	Machine	Task
7	B	After verifying that the deployment manager is running on Machine A, run the configure*web_server_name* script from a command line in the *plugins_root*/ bin directory on Machine B. If you have enabled security or changed the default JMX connector type, edit the script and include the appropriate parameters.
8	A/B	Use the administrative console of the deployment manager on Machine A to start the application server on Machine B. Wait for synchronization to occur and save the new configuration.
9	B	▶ Linux Run the *plugins_root*/setupPluginCfg.sh script for a Domino Web Server before starting a Domino Web server.Otherwise, start the Web server.
10	B	Run the Snoop servlet.

Regeneration of the plugin-cfg.xml file

The Web server plug-in configuration service regenerates the plugin-cfg.xml file automatically.

The plugin-cfg.xml file is generated at the location *profile_root*/ config/ cells/ *cell_name*/ nodes/ *node_name*/ servers/ *web_server_name* directory, when the Web server definition is created.

Regenerate the plugin-cfg.xml file in the Web server definition in the application server whenever the configuration changes. The Web server has immediate access to the file whenever it is regenerated.

When the Web server plug-in configuration service (an administration service) is enabled on Machine A, the plugin-cfg.xml file is automatically generated for all Web servers.

Propagation of the plugin-cfg.xml file

Node synchronization is used to propagate the plugin-cfg.xml file from Machine A to Machine B.

When the Web server plug-in configuration service (an administration service) is enabled on Machine A, the plugin-cfg.xml file is automatically propagated for all Web servers.

Alternate configuration

This procedure describes installing the plug-ins on two machines. However, you can perform this procedure on a single machine as shown in the following graphic. A local distributed installation also includes the Web server plug-in, the Web server, the Application Server, and the deployment manager on the same machine:
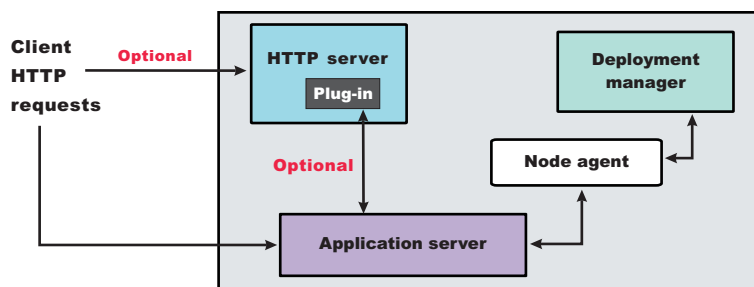
You can set up a remote or local Web server by installing Application Server, the Web server, and then the Web server plug-ins.

Planning to install WebSphere Application Client

Examine typical topologies and uses for WebSphere Application Client to determine how you might use this technology.

This topic is one in a series of topics described in Chapter 5, "Planning the installation," on page 81. Consider all of the planning scenarios that are mentioned in the parent article to determine the best approach to installing your e-business network. This topic describes installing and using the WebSphere Application Server Clients.

In a traditional client server environment, the client requests a service and the server fulfills the request. Multiple clients use a single server. Clients can also access several different servers. This model persists for Java clients except that now these requests use a client run-time environment.

In this model, the client application requires a servlet to communicate with the enterprise bean, and the servlet must reside on the same machine as the WebSphere Application Server.

The Application Client for WebSphere Application Server, Version 6 consists of the following models:
- ActiveX application client
- Applet client
- J2EE application client
- Pluggable and thin application clients

The following graphic shows a topology for installing the Application Client and using client applications:
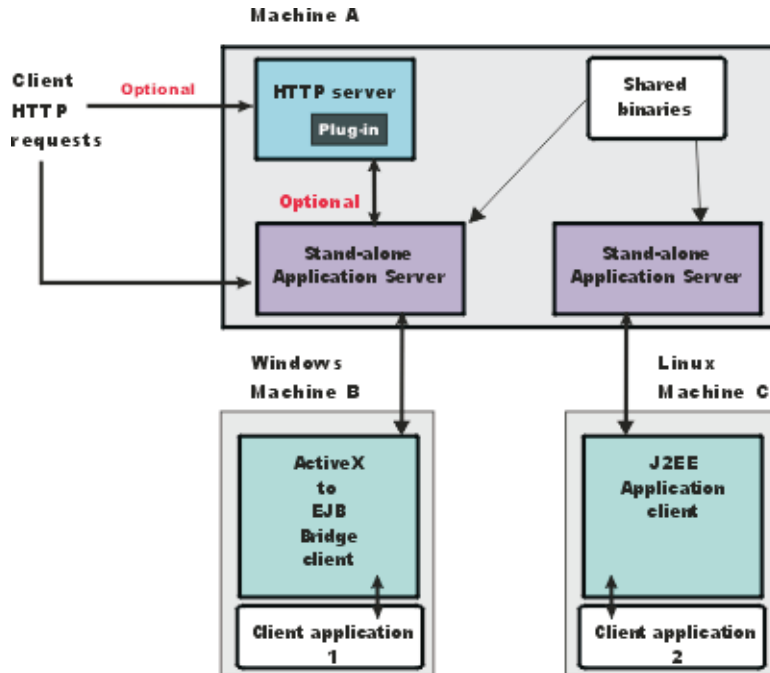
The example shows two types of application clients installed in a topology that uses client applications to access applications and data on Machine A:
- The ActiveX application client on Machine B is a Windows only client that uses the Java Native Interface (JNI) architecture to programmatically access the Java virtual machine (JVM) API. The JVM code exists in the same process space as the ActiveX application (Visual Basic, VBScript, or Active Server Pages (ASP) files) and remains attached to the process until that process terminates.
- The J2EE application client on Machine C is a Java application program that accesses enterprise beans, Java Database Connectivity (JDBC) APIs, and Java Message Service message queues. The application program must configure the execution environment of the J2EE application client and use the Java Naming and Directory Interface (JNDI) name space to access resources.

Use the following procedure as a example of installing the Application Client.

1. Install the WebSphere Application Server product from your product CD on Machine A to establish the core product files.
2. Use the Profile Management tool to create both stand-alone application server profiles.
3. Use the administrative console of each application server to deploy any user applications.
4. Use the administrative console of each application server to create a Web server configuration for the Web server.
5. Use the administrative console of each application server to regenerate each plugin-cfg.xml file in the local Web server configuration.
6. **Optional:** Install the IBM HTTP Server from the product CD on Machine A.
7. **Optional:** Use the Plug-ins installation wizard to install the plug-in for IBM HTTP Server on Machine A.

    The wizard automatically configures the HTTP Server to communicate with the first application server.
8. Install the Application Client package from the product disc.

    The diagram shows two different types of application clients on two different operating systems. Although this example shows two application clients, you do not have to install two application clients to have a working system. Each application client is fully functional and works independently of the other.

    Optionally install the Application Client from your product CD on Machine B.

    a. Select the Custom installation type.
    b. Select the ActiveX to EJB Bridge feature.
    c. Select to add the Java run time to the system path.
    d. Select the Java run time as the default JRE, which adds the Java run time path to the beginning of the system path.

    Optionally install the Application Client from your product CD on Machine C.

    a. Select the Custom install type.
    b. Select the J2EE application client feature.

This topic can help you plan run-time environments for client applications.

Planning to create application server environments

Application server profiles are the run-time environments for application server processes. This topic describes common scenarios for creating application server profiles and provides links to profile creation procedures for each scenario.

Installing the core product files for a WebSphere Application Server product creates one or more profiles. Use the Profile Management tool to create additional application server run-time environments.

This topic describes how to create cell profiles, deployment manager profiles, stand-alone application server profiles, and custom profiles. The cell profile actually creates two profiles, a deployment manager profile and a federated application server profile. Each profile for a deployment manager or an application server is a run-time environment, with data files, configuration files, applications, and an administrative console. The custom profile is an empty node that you must federate into a deployment manager cell before it is of use.

1. Create a deployment manager.

    The installation procedure gives you the option of creating a deployment manager during installation. However, you can use the Profile Management tool to create a deployment manager when one was not created during installation. Or, you can create another deployment manager on a machine where a deployment manager already exists.
2. Create a stand-alone application server.

    The installation procedure gives you the option of creating a stand-alone application server during installation.

However, you can use the Profile Management tool to create additional stand-alone application servers.

3. Create a custom profile.

    The installation procedure gives you the option of creating a custom profile during installation. However, you can use the Profile Management tool to create a custom profile when one was not created during installation. Or, you can use the wizard to create additional custom profiles. The rest of this step describes how to create a custom profile, if you did not create one during installation.

    The first part of the process is to install the Network Deployment product to create the core product files. Then you can use the Profile Management tool to create a custom profile.

    Issue the addNode command from the bin directory of the custom profile.

    A federated custom node has a nodeagent process but does not have Sample applications or an application server process. Use the administrative console of the deployment manager to create server processes on the federated custom node.

    Contrast a federated custom node to a stand-alone application server that has been federated with the includeapps parameter. The federated application server has a nodeagent process, a server1 process, and the default application installed. If you installed the Sample applications, the federated server1 process also has the Sample applications installed.

    Use the startNode command to start the nodeagent process if it is not running. The addNode command starts the nodeagent process initially.

    Use the administrative console of the deployment manager to create server processes on the managed node.

4. Create a deployment manager and a managed node on the same machine.

    The installation procedure gives you the option of creating a cell profile during installation. A cell profile is actually two profiles - a deployment manager profile and a federated application server profile.

    Use the Profile Management tool to create a deployment manager and a managed node at any time after installation of the core product files. Or, you can use the wizard to create a managed node on a machine where a deployment manager already exists.

    Any time that you create two or more application server processes on one machine, verify that the machine is capable of hosting both processes. See the hardware prerequisites on the WebSphere Application Server Supported hardware and software Web site.

    a. Create a cell profile, which includes a deployment manager and a federated application server.

    b. Start the deployment manager with the startManager command.

Following this procedure results in reviewing common installation scenarios to find a possible match for the topology that you intend to create. This procedure shows how to use the Profile Management tool to create additional profiles.

Use the Profile Management tool to create:
- A cell profile
- A deployment manager profile
- A stand-alone application server profile
- Custom profiles for a deployment manager cell

After determining a possible topology, follow the steps in the overall procedure.

One step not mentioned in any of these scenarios is to prepare the operating system for installation. Useful links to the installation procedures for each installable component are in the list of related topics.

Example: Choosing a topology for better performance

Use this page to understand the advantages and disadvantages of various Workload Management topologies.

WebSphere Application Server provides various Workload Management (WLM) topologies. First, this topic describes a single-tier topology and a split-tier topology. Secondly, these two topologies are compared to show how the type of topology you choose can affect performance, security, and system flexibility.

The single-tier topology contains a cluster of WebSphere Application Servers. Each cluster member contains a Web container and an Enterprise JavaBeans (EJB) container. The split-tier topology consists of a cluster of Web container machines in front of a cluster of EJB container machines. The number of WebSphere Application Servers machines is the same in both topologies; the client driver, the Web server with plug-in, and the back end database are located on separate, dedicated machines.

The single-tier topology has an (the performance) advantage because the Web container and EJB container are running in a single Java virtual machine (JVM). In this topology, with object request broker (ORB) pass by reference enabled, the EJB processing is done on the same thread as the Web container processing. In the split-tier topology, the ORB pass by reference option is ignored because the Web container and EJB container are in separate JVMs.

The split-tier topology enables Web and EJB resources to be isolated and separately administered.

A lab experiment using a the Benchmark Sample for WebSphere (Trade3) and a cluster of 6 applications servers found that throughput of the single-tier topology was 10-20% higher than that of the split-tier topology. You can download the Benchmark sample for WebSphere (Trade3) from the following Web site:

http://www-306.ibm.com/software/webservers/appserv/was/performance.html

Queuing network

WebSphere Application Server contains interrelated components that must be harmoniously tuned to support the custom needs of your end-to-end e-business application. These adjustments help the system achieve maximum throughput while maintaining the overall stability of the system.

This group of interconnected components is known as a queuing network. These queues or components include the network, Web server, Web container, EJB container, data source, and possibly a connection manager to a custom back-end system. Each of these resources represents a queue of requests waiting to use that resource.

Various queue settings include:
- IBM HTTP Server: MaxClients for UNIX and ThreadsPerChild for Windows NT and Windows 2000 systems
- Web container: **Maximum size** , **MaxKeepAliveConnections**, and **MaxKeepAliveRequests**.
- **Tuning Object Request Brokers**.
- Data source **connection pooling** and **statement cache size** .
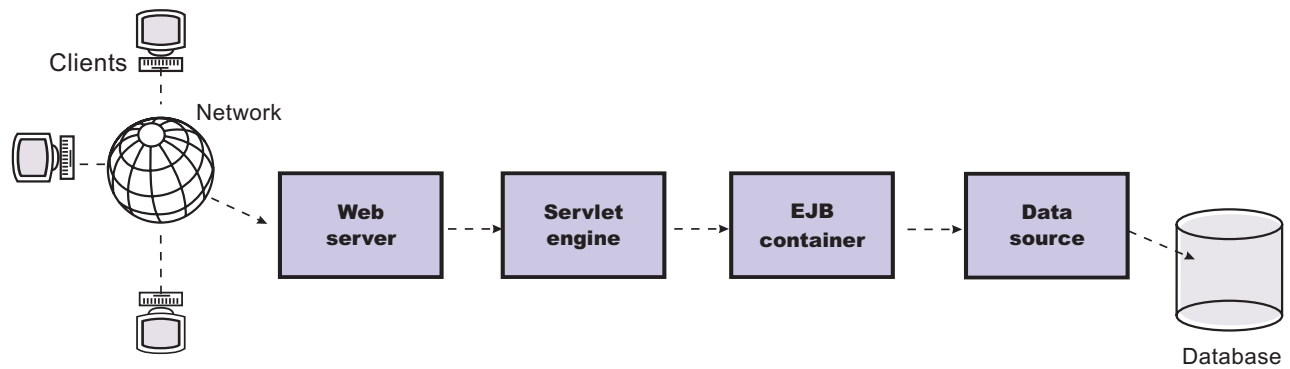
Figure Reference 1: WebSphere queuing network

Most of the queues that make up the queuing network are closed queues. A closed queue places a limit on the maximum number of requests present in the queue, while an open queue has no limit. A closed queue supports tight management of system resources. For example, the Web container thread pool setting controls the size of the Web container queue. If the average servlet running in a Web container creates 10MB of objects during each request, a value of 100 for thread pools limits the memory consumed by the Web container to 1GB.

In a closed queue, requests can be active or waiting. An active request is doing work or waiting for a response from a downstream queue. For example, an active request in the Web server is doing work, such as retrieving static HTML, or waiting for a request to complete in the Web container. A waiting request is waiting to become active. The request remains in the waiting state until one of the active requests leaves the queue.

All Web servers supported by WebSphere Application Server are closed queues, as are WebSphere Application Server data sources. You can configure Web containers as open or closed queues. In general, it is best to make them closed queues. EJB containers are open queues. If there are no threads available in the pool, a new one is created for the duration of the request.

If enterprise beans are called by servlets, the Web container limits the number of total concurrent requests into an EJB container, because the Web container also has a limit. The Web container limits the number of total concurrent requests only if enterprise beans are called from the servlet thread of execution. Nothing prevents you from creating threads and bombarding the EJB container with requests. Therefore, servlets should not create their own work threads.

Queuing and clustering

Cloning application servers to create a cluster can be a valuable asset in configuring highly-scalable production environments, especially when the application is experiencing bottlenecks that are preventing full CPU utilization of symmetric multiprocessing (SMP) servers.

When adjusting the WebSphere Application Server system queues in clustered configurations, remember that when a server is added to a cluster, the server downstream receives twice the load.
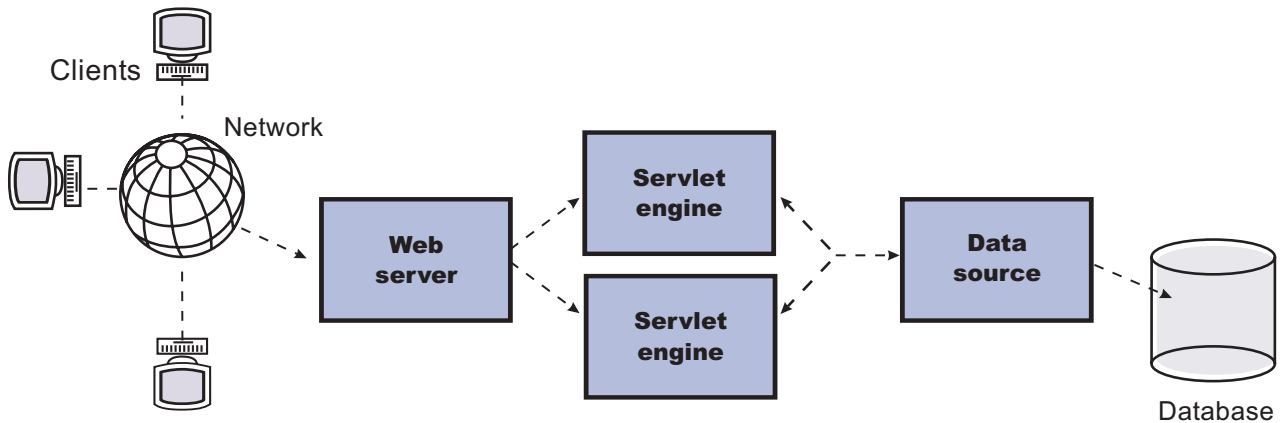
Figure Reference 1: Clustering and queuing

Two servlet engines are located between a Web server and a data source. It is assumed that the Web server, servlet engines and data source, but not the database, are all running on a single SMP server. Given these constraints, the following queue considerations must be made:

- Double the Web server queue settings to ensure ample work is distributed to each Web container.
- Reduce the Web container thread pools to avoid saturating a system resource like CPU or another resource that the servlets are using.
- Reduce the data source to avoid saturating the database server.
- Reduce Java heap parameters for each instance of the application server. For versions of the Java virtual machine (JVM) shipped with WebSphere Application Server, it is crucial that the heap from all JVMs remain in physical memory. For example, if a cluster of four JVMs is running on a system, enough physical memory must be available for all four heaps.

Queue configuration tips

A methodology exists for configuring the WebSphere Application Server queues. Moving the database server onto another machine or providing more powerful resources, for example a faster set of CPUs with more memory, can dramatically change the dynamics of your system.

There are four tips for queuing:

- **Minimize the number of requests in WebSphere Application Server queues**.

  In general, requests wait in the network in front of the Web server, rather than waiting in WebSphere Application Server. This configuration only supports those requests that are ready for processing to enter the queuing network. Specify that the queues furthest upstream or closest to the client are slightly larger, and queues further downstream or furthest from the client are progressively smaller.
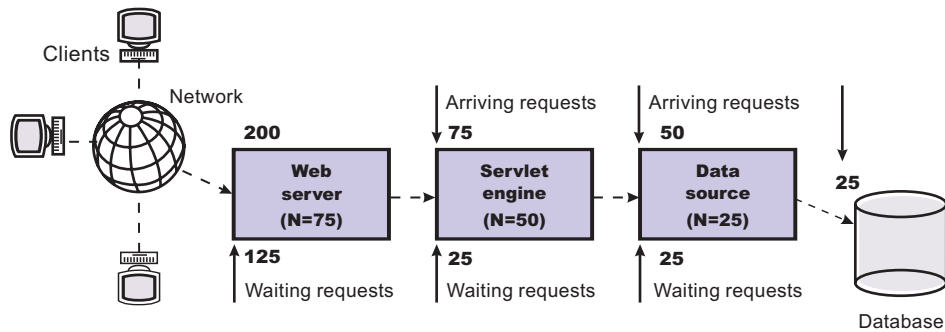
Figure Reference 1: Upstream queuing network

Queues in the queuing network become progressively smaller as work flows downstream. When 200 client requests arrive at the Web server, 125 requests remain queued in the network because the Web server is set to handle 75 concurrent clients. As the 75 requests pass from the Web server to the Web container, 25 requests remain queued in the Web server and the remaining 50 are handled by the Web container. This process progresses through the data source until 25 user requests arrive at the final destination, the database server. Because there is work waiting to enter a component at each point upstream, no component in this system must wait for work to arrive. The bulk of the requests wait in the network, outside of WebSphere Application Server. This type of configuration adds stability, because no component is overloaded.

You can then use the Edge Server to direct waiting users to other servers in a WebSphere Application Server cluster.

- **Draw throughput curves to determine when the system capabilities are maximized**.

You can use a test case that represents the full spirit of the production application by either exercising all meaningful code paths or using the production application. Run a set of experiments to determine when the system capabilities are fully stressed or when it has reached the saturation point. Conduct these tests after most of the bottlenecks are removed from the application. The goal of these tests is to drive CPUs to near 100% utilization. For maximum concurrency through the system, start the initial baseline experiment with large queues. For example, start the first experiment with a queue size of 100 at each of the servers in the queuing network: Web server, Web container and data source. Begin a series of experiments to plot a throughput curve, increasing the concurrent user load after each experiment. For example, perform experiments with one user, two users, five, 10, 25, 50, 100, 150 and 200 users. After each run, record the throughput requests per second, and response times in seconds per request. The curve resulting from the baseline experiments resembles the following typical throughput curve shown as follows:

Throughput curve
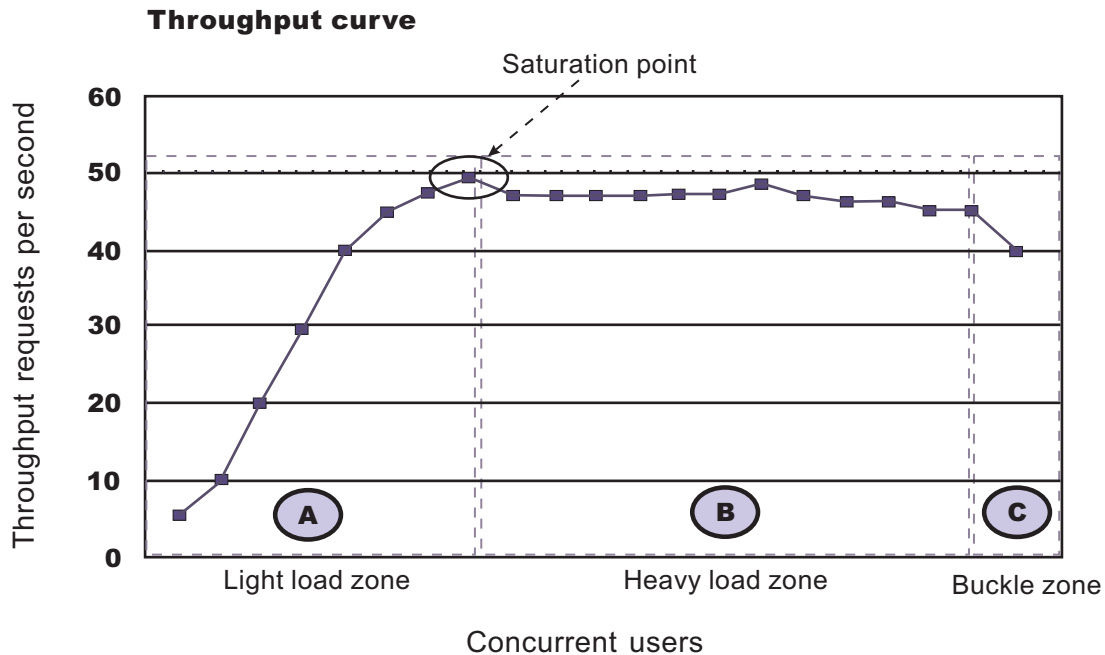
The WebSphere Application Server throughput is a function of the number of concurrent requests present in the total system. Section A, the light load zone, shows that the number of concurrent user requests increases, the throughput increases almost linearly with the number of requests. At light loads, concurrent requests face very little congestion within the WebSphere Application Server system queues. At some point, congestion starts to develop and throughput increases at a much lower rate until it reaches a saturation point that represents the maximum throughput value, as determined by some bottleneck in the WebSphere Application Server system. The most manageable type of bottleneck occurs when the WebSphere Application Server machine CPUs become fully utilized because adding CPUs or more powerful CPUs fixes the bottleneck.

In the heavy load zone or Section B, as the concurrent client load increases, throughput remains relatively constant. However, the response time increases proportionally to the user load. That is, if the user load is doubled in the heavy load zone, the response time doubles. At some point, represented by Section C, the buckle zone, one of the system components becomes exhausted. At this point, throughput starts to degrade. For example, the system might enter the buckle zone when the network connections at the Web server exhaust the limits of the network adapter or if the requests exceed operating system limits for file handles.

If the saturation point is reached by driving CPU utilization close to 100%, you can move on to the next step. If the saturation CPU occurs before system utilization reaches 100%, it is likely that another bottleneck is being aggravated by the application. For example, the application might be creating Java objects causing excessive garbage collection bottlenecks in the Java code.

There are two ways to manage application bottlenecks: remove the bottleneck or clone the bottleneck. The best way to manage a bottleneck is to remove it. You can use a Java-based application profiler, such as Rational Application Developer, Performance Trace Data Visualizer (PTDV), Borland's Optimizeit, JProbe or Jinsight to examine overall object utilization.

- **Decrease queue sizes while moving downstream from the client**.

  The number of concurrent users at the throughput saturation point represents the maximum concurrency of the application. For example, if the application saturates WebSphere Application Server at 50 users, using 48 users might produce the best combination of throughput and response time. This value is called the Max Application Concurrency value. Max Application Concurrency becomes the preferred value for adjusting the WebSphere Application Server system queues. Remember, it is desirable for most users to wait in the network; therefore, queue sizes should increase when moving downstream farther from the client. For example, given a Max Application Concurrency value of 48, start

with system queues at the following values: Web server 75, Web container 50, data source 45. Perform a set of additional experiments adjusting these values slightly higher and lower to find the best settings.

To help determine the number of concurrent users, view the Servlet Engine Thread Pool and Concurrently Active Threads metric in the Tivoli Performance Viewer.

- **Adjust queue settings to correspond to access patterns**.

  In many cases, only a fraction of the requests passing through one queue enters the next queue downstream. In a site with many static pages, a number of requests are fulfilled at the Web server and are not passed to the Web container. In this circumstance, the Web server queue can be significantly larger than the Web container queue. In the previous example, the Web server queue was set to 75, rather than closer to the value of Max Application Concurrency. You can make similar adjustments when different components have different execution times.

  For example, in an application that spends 90% of its time in a complex servlet and only 10% of its time making a short JDBC query, on average 10% of the servlets are using database connections at any time, so the database connection queue can be significantly smaller than the Web container queue. Conversely, if the majority of servlet execution time is spent making a complex query to a database, consider increasing the queue values at both the Web container and the data source. Always monitor the CPU and memory utilization for both the WebSphere Application Server and the database servers to verify that the CPU or memory are not saturating.

Chapter 6. Preparing the operating system for product installation

This topic describes how to prepare your operating platform for installing one of the WebSphere Application Server products. Links in the topic exist for each operating system platform. Select your operating system to view the corresponding procedure.

Before preparing the installation environment, read "Planning to install Network Deployment" on page 83.

Before installing the product, you must install the necessary prerequisites for your operating system. This will prepare your system for the install. Use the links below to go to the procedure for your operating platform.

1. Prepare your operating system for installation.

   Select the appropriate procedure:

   - ▶ **AIX** "Preparing AIX systems for installation"
   - ▶ **HP-UX** "Preparing HP-UX systems for installation" on page 112
   - ▶ **Linux** "Preparing Linux systems for installation" on page 117
   - ▶ **Solaris** "Preparing Solaris systems for installation" on page 125
   - ▶ **Windows** "Preparing Windows systems for installation" on page 129

2. Prepare to install the Network Deployment product on your operating platform. Use one of the following procedures to prepare for installing the software on your operating platform:

   - ▶ **AIX** Prepare to install the Network Deployment product on AIX platforms, as described in "Preparing to install Network Deployment on an AIX system" on page 131.
   - ▶ **HP-UX** Prepare to install the Network Deployment product on HP-UX platforms, as described in "Preparing to install Network Deployment on an HP-UX system" on page 132.
   - ▶ **Linux** Prepare to install the Network Deployment product on Linux platforms, as described in "Preparing to install Network Deployment on a Linux system" on page 133.
   - ▶ **Solaris** Prepare to install the Network Deployment product on Solaris platforms, as described in "Preparing to install Network Deployment on a Solaris system" on page 134.
   - ▶ **Windows** Prepare to install the Network Deployment product on Windows platforms, as described in "Preparing to install Network Deployment on a Windows system" on page 135.

You are now ready to install the WebSphere Application Server Network Deployment product.

Install the product as described in Chapter 7, "Installing the product and additional software," on page 137.

Preparing AIX systems for installation

This topic describes how to prepare an AIX system for the installation of IBM WebSphere Application Server products.

The installation uses an InstallShield for Multiplatforms (ISMP) wizard. You can use the graphical interface of the wizard. You can also use the wizard in silent mode.

Silent mode is a command line invocation with a parameter that identifies an options response file. Edit the options response file before installing.

If you encounter a problem such as needing more temporary space or missing prerequisite packages on your operating system, cancel the installation, make the required changes, and restart the installation.

Note: WebSphere Application Server prevents users from installing to a non-empty directory. If WebSphere Application Server is installed to a directory with a *lost+found* sub-directory, you will be prompted to use an empty directory. If you still want to install to this directory, then you can delete the *lost+found* directory. However, the next time *fsck* is executed, the *lost+found* directory will be created. This should not have any effect on an existing install, however during uninstall this directory will not be removed.

Restriction: There are known issues with using Cygwin/X to run Eclipse-based applications on remote AIX machines. This affects your use of the Profile Management tool and the Installation Factory. With Cygwin/X on remote AIX, for example, a splash screen for the Profile Management tool appears but the Profile Management tool never actually comes up. For details of existing Bugzilla reports on these issues, see the information at https://bugs.eclipse.org/bugs/show_bug.cgi?id=36806. If a different X server (such as Hummingbird Exceed®) is used, these problems do not occur.

Preparing the operating system involves such changes as allocating disk space and installing patches to the operating system. IBM tests WebSphere Application Server products on each operating system platform. Such tests verify whether an operating system change is required for WebSphere Application Server products to run correctly. Without the required changes, WebSphere Application Server products do not run correctly.

1. Log on to the operating system.

   You can log on as root or as a non-root installer.

   In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   `umask`

   To set the umask setting to 022, issue the following command:

   `umask 022`

2. Stop all WebSphere Application Server-related Java processes on the machine where you are installing the product.

3. Stop any Web server process such as the IBM HTTP Server.

4. Use the System Management Interface Tool (SMIT) to display packages that are installed to determine whether you must update packages that are described in the following steps.

5. Download the most current version of the INFOZIP product to avoid problems with zipped files. Although zipped files are primarily used in the service stream, prepare your AIX operating system by downloading a current version of the INFOZIP package from the http://www.info-zip.org Web site.

6. Install the prerequisite xlC.rte 6.0 run-time code on AIX 5.2 maintenance level 07.

   You must install the xlC.rte 6.0 run-time code before you install the Global Security Kit (GSKit). The GSKit is installed as part of the installation of the IBM HTTP Server or as part of the installation of Web server plug-ins for WebSphere Application Server.

   Download the xlC.rte run-time code as a fix from the AIX Support site.

   If you have AIX 5.2, you can install the xlC.rte 6.0 run-time code from the AIX 5.2 CD.

7. Provide adequate disk space.

   With the JFS file system on AIX, you can allocate expansion space for directories. If the Installation wizard does not have enough space, ISMP issues a system call for more space that increases the space allocation dynamically. The message you might see when this occurs for the /usr directory is similar to the following example:

```
NOTE: The following file systems will be expanded during the installation:
  /usr
```
Manually verify that the required space for creating a profile is available on AIX. A known problem in the underlying InstallShield for Multiplatforms (ISMP) code prevents proper space checking on AIX systems at the time that the product disk was created.

Attention:

The Network Deployment product requires the following disk space:

730 MB for the /usr/IBM/WebSphere/AppServer directory before creating profiles

The installation root directory includes the core product files. This size does not include space for profiles or applications. Profiles require 40 MB of temp space in addition to the sizes shown. Profiles have the following space requirements:

30 MB for the Deployment manager profile

The IBM Global Security Kit (GSKit) requires this space.

200 MB for an Application Server profile with the Sample applications

This size does not include space for applications that you might develop and install.

10 MB for an unfederated custom profile

This size does not include space for applications that you might develop and install. The requirement does include space for the node agent. However, you must federate a custom profile to create an operational managed node.

After federating a custom profile, the resulting managed node contains a functional node agent only. Use the deployment manager to create server processes on the managed node.

100 MB for the /tmp directory

The temporary directory is the working directory for the installation program.

830 MB total requirement

This amount is the total space requirement when installing the product from the CD and when not installing service. Installing profiles requires more space.

The following space is required for the IBM HTTP Server product:

110 MB for the /usr/IBM/HTTPServer/Plugins directory

The IBM HTTP Server product requires this space.

35 MB for the /usr/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The run-time module is gskkm.rte.

The following space is the maximum amount that is required for the Web server plug-ins for WebSphere Application Server:

200 MB for the /usr/IBM/WebSphere/plugins directory

The Web server plug-ins require this space.

25 MB for the /usr/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The following space is required for the WebSphere Application Server Clients:

150 MB for the /usr/IBM/WebSphere/AppClient directory

> The amount of space required to install the application clients is actually less than 150 MB. The amount of space depends on the clients that you install as features.

The following space is required for the Update Installer:

200 MB for the /usr/IBM/WebSphere/UpdateInstaller directory

The Installation wizard for each component displays required space on the confirmation panel before you install the product files and selected features. The Installation wizard also warns you if you do not have enough space to install the product.

If you plan to migrate applications and the configuration from a previous version, verify that the application objects have enough disk space. As a rough guideline, plan for space equal to 110 percent of the size of the application objects:
- **For Version 4.0.x:** The size of enterprise archive (EAR) files
- **For Version 5.0.x:** The size of EAR files

8. Unmount file systems with broken links to avoid java.lang.NullPointerException errors.

   Unmount file systems with broken links before installing.

   Installation can fail with the following error when broken links exist to file systems:

```
An error occurred during wizard bean change notification:
java.lang.NullPointerException
  at com.ibm.wizard.platform.aix.AixFileUtils.
    getFileSystemData(AixFileUtils.java:388)
  at com.ibm.wizard.platform.aix.AixFileUtils.
    getPartitionDataWithExecs(AixFileUtils.java:172)
  at com.ibm.wizard.platform.aix.AixFileUtils.
    getPartitionData(AixFileUtils.java:104)
  at com.ibm.wizard.platform.aix.AixFileServiceImpl.
    getPartitionNames(AixFileServiceImpl.java:397)
...
```

   Use the df -k command to check for broken links to file systems. Look for file systems that list blank values in the *1024-blocks size* column. Columns with a value of ″-″ (dash) are not a problem. The following example shows a problem with the /dev/lv00 file system:

```
>  df -k
Filesystem     1024-blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4          1048576    447924   58%     2497     1% /
/dev/hd3          4259840   2835816   34%      484     1% /tmp
/proc                   -         -    -        -      - /proc
/dev/lv01         2097152    229276   90%     3982     1% /storage
/dev/lv00
/dev/hd2          2097152    458632   79%    42910     9% /usr
iw031864:/cdrom/db2_v72_eee_aix32_sbcs
```

   The /proc file system is not a problem. The iw031864:/cdrom/db2_v72_eee_aix32_sbcs file system is a definite problem. The /dev/lv00 file system is also a likely problem. Use one of the following commands to solve this problem:

```
>  umount /cdrom/db2_v72_eee_aix32_sbcs
>  umount /cdrom
```

   Start the installation again. If the problem continues, unmount any file systems that have blank values, such as the /dev/lv00 file system in the example. If you cannot solve the problem by unmounting file systems with broken links, reboot the machine and start the installation again.

9. Verify that prerequisites and corequisites are at the required release levels.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

10. Verify the system cp command when using emacs or other freeware.

If you have emacs or other freeware installed on your operating system, verify that the system cp command is used.

a. Type which cp at the command prompt before running the installation program for the WebSphere Application Server product.

b. Remove the freeware directory from your PATH if the resulting directory output includes freeware. For example, assume that the output is similar to the following message: .../freeware/bin/cp. If so, remove the directory from the PATH.

c. Install the WebSphere Application Server product.

d. Add the freeware directory back to the PATH.

If you install with a cp command that is part of a freeware package, the installation might appear to complete successfully, but the Java 2 SDK that the product installs might have missing files in the *app_server_root*/java directory.

Missing files can destroy required symbolic links. If you remove the freeware cp command from the PATH, you can install the Application Server product successfully.

Perform the following step to verify that the Java 2 SDK is working correctly.

11. Verify that the Java 2 SDK on the installation image disk is functioning correctly, if you created your own disk.

For example, you might have downloaded an installation image from Passport Advantage, or you might have copied an installation image onto a backup disk. In either case, perform the following steps to verify that the disk contains a valid Java 2 software development kit (SDK).

a. Change directories to the /mnt/JDK/repository/prereq.jdk/java/bin directory on the product CD-ROM. For example:

```
cd /mnt/JDK/repository/prereq.jdk/java/bin
```

b. Verify the Java 2 SDK version. Type the following command:

```
./java -version
```

The command completes successfully with no errors when the Java 2 SDK is intact.

12. **Optional:** Install the Mozilla browser if it is not already installed. The Mozilla browser supports the launchpad console.

a. Use smit to see if the Mozilla 1.4 or 1.7.8 or later package is already installed.

b. Download two prerequisites from the AIX Toolbox for Linux Applications (glib & gtk+). Download the packages from the following locations:

- ftp://ftp.software.ibm.com/aix/freeSoftware/aixtoolbox/RPMS/ppc/glib/glib-1.2.10-2.aix4.3.ppc.rpm
- ftp://ftp.software.ibm.com/aix/freeSoftware/aixtoolbox/RPMS/ppc/gtkplus/gtkplus-1.2.10-4.aix5.1.ppc.rpm

c. Install the packages after downloading them: Use the following command:

```
rpm -Uvh glib-1.2.10-2.aix4.3.ppc.rpm gtkplus-1.2.10-4.aix5.1.ppc.rpm
```

d. Download the latest supported version of Mozilla (1.7.8 or later) for AIX. Download Mozilla for AIX from the following location:

http://www.ibm.com/servers/aix/browsers/

Download the installp image and install it from smit.

The Mozilla images distributed on the http://www.mozilla.org Web site are not provided by IBM. IBM has not tested and does not support the download from the non-IBM Web site. Download the Mozilla images from the IBM Web site to verify that the version that you download is tested and supported.

Using Mozilla 1.7.5 or earlier can result in ISMP failing to initialize during installation. The launchpad link might seem to fail, for example. See V6.0.2: The WebSphere Application Server launchpad fails with Mozilla 1.7.5 (and earlier) on 64-bit AIX 5.2 or 5.3 for more information.

13. **Optional:** Export the location of the supported browser.

Export the location of the supported browser using a command that identifies the actual location of the browser.

For example, if the Mozilla package is in the bin /mozilla directory, use the following command:

```
EXPORT BROWSER=/usr/bin/mozilla
```

14. **Silent installation only:** Make an allowance for a known ISMP problem that causes a call to the Xwindows service during a silent installation.

    The DISPLAY environment variable on your AIX machine might point to an X server that is not logged in. Two common scenarios can cause this to occur:

    - Your AIX machine has an X server running, but the X server is stuck at the graphical login screen because you have not yet logged in.
    - Your AIX machine is configured to display X Windows applications on a remote X server that is not logged in.

    A silent installation can hang in either case as ISMP calls Xwindows services.

    Two solutions exist:

    - Login to the local X server through the graphical user interface before beginning the silent installation.
    - Export the DISPLAY environment variable to point to null or blank.

      ```
      EXPORT DISPLAY=null
      ```

This procedure results in preparing the operating system for installing the product.

After preparing the operating system for installation, you can install the WebSphere Application Server product.

See "Preparing to install Network Deployment on an AIX system" on page 131 for the next step in the overall procedure, which is selecting the type of installation to perform.

Preparing HP-UX systems for installation

This topic describes how to prepare an HP-UX system for the installation of IBM WebSphere Application Server, Version 6 products.

The installation uses an InstallShield for Multiplatforms (ISMP) wizard. You can use the graphical interface of the wizard. You can also use the wizard in silent mode.

Silent mode is a command line invocation with a parameter that identifies an options response file. Edit the options response file before installing.

If you encounter a problem such as needing more temporary space or missing prerequisite packages on your operating system, cancel the installation, make the required changes, and restart the installation.

Restriction: There are known issues with using Cygwin/X to run Eclipse-based applications on remote HP-UX machines. This affects your use of the Profile Management tool and the Installation Factory. With Cygwin/X on remote HP-UX, for example, the Profile Management tool's welcome panel appears but no keyboard or mouse input is accepted. For details of existing Bugzilla reports on these issues, see the information at https://bugs.eclipse.org/bugs/show_bug.cgi?id=97808. If a different X server (such as Hummingbird Exceed®) is used, these problems do not occur.

Preparing the operating system involves such changes as allocating disk space and installing patches to the operating system. IBM tests WebSphere Application Server products on each operating system

platform. Such tests verify whether an operating system change is required for WebSphere Application Server products to run correctly. Without the required changes, WebSphere Application Server products do not run correctly.

1. Log on to the operating system.

   You can log on as root or as a non-root installer.

   In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

2. **Optional:** Download and install the Mozilla Web browser so that you can use the launchpad application on the product disk. If you do not have the Mozilla Web browser, download and install the browser from http://www.mozilla.org.

3. **Optional:** Export the location of the supported browser.

   Export the location of the supported browser using a command that identifies the actual location of the browser.

   For example, if the Mozilla package is in the /opt/bin /mozilla directory, use the following command:

   ```
   export BROWSER=/opt/bin/mozilla
   ```

4. Stop all WebSphere Application Server-related Java processes on the machine where you are installing the product.

5. Stop any Web server process such as the IBM HTTP Server.

6. Provide adequate disk space.

   Attention:

   The Network Deployment product requires the following disk space:

   780 MB for the /opt/IBM/WebSphere/AppServer directory before creating profiles

   The installation root directory includes the core product files. This size does not include space for profiles or applications. Profiles require 40 MB of temp space in addition to the sizes shown. Profiles have the following space requirements:

   30 MB for the Deployment manager profile

   This size does not include space for Sample applications that you might install. The size also does not include space for applications that you might deploy.

   200 MB for an application server profile with the Sample applications

   This size does not include space for applications that you might develop and install.

   10 MB for an unfederated custom profile

   This size does not include space for applications that you might develop and install. The requirement does include space for the node agent. However, you must federate a custom profile to create an operational managed node.

   After federating a custom profile, the resulting managed node contains a functional node agent only. Use the deployment manager to create server processes on the managed node.

   100 MB for the /tmp directory

The temporary directory is the working directory for the installation program.

880 MB total requirement

This amount is the total space requirement when installing the product from the CD and when not installing service. Installing profiles requires more space.

The following space is required for the IBM HTTP Server product:

110 MB for the /opt/IBM/HTTPServer directory

The IBM HTTP Server product requires this space.

25 MB for the /opt/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The run-time module is gsk7bas for HP-UX platforms.

The following space is the maximum amount that is required for the Web server plug-ins for WebSphere Application Server:

280 MB for the /opt/IBM/WebSphere/plugins directory

The Web server plug-ins require this space.

25 MB for the /opt/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The following space is required for the IBM WebSphere Application Server Clients:

150 MB for the *app_client_root* **directory**

The amount of space required to install the application clients is actually less than 150 MB. The amount of space depends on the clients that you install as features.

The following space is required for the Update Installer:

200 MB for the /opt/IBM/WebSphere/UpdateInstaller directory

The Installation wizard for each component displays required space on the confirmation panel before you install the product files and selected features. The Installation wizard also warns you if you do not have enough space to install the product.

If you plan to migrate applications and the configuration from a previous version, verify that the application objects have enough disk space. As a rough guideline, plan for space equal to 110 percent of the size of the application objects:
- **For Version 4.0.x:** The size of enterprise archive (EAR) files
- **For Version 5.0.x:** The size of EAR files

7. Set kernel values to support Application Server. Several HP-UX kernel values are typically too small for the product.

   To set kernel parameters, perform the following steps:
   a. Log into the host machine as root.
   b. Determine the physical memory, which you must know to avoid setting certain kernel parameters above the physical capacity:
      1) Start the HP-UX System Administration Manager (SAM) utility with the /usr/sbin/sam command.
      2) Select **Performance Monitors > System Properties > Memory**.
      3) Note the value for Physical Memory and click **OK**.
      4) Exit from the SAM utility.
   c. Set the maxfiles and maxfiles_lim parameters to at least 4096. (The following table recommends 8000 and 8196, respectively. You must first edit the /usr/conf/master.d/core-hpux file, so the SAM utility can set values greater than 2048:
      1) Open the /usr/conf/master.d/core-hpux file in a text editor.
      2) Change the line,″ *range maxfiles<=2048″ to ″*range maxfiles<=60000″
      3) Change the line, ″*range maxfiles_lim<=2048″ to ″*range maxfiles_lim<=60000″

4) Save and close the file. Old values might be stored in the /var/sam/boot.config file. Force the SAM utility to create a new boot.config file:

   a) Move the existing version of the /var/sam/boot.config file to another location, such as the /tmp directory.
   b) Start the SAM utility.
   c) Select **Kernel Configuration > Configurable Parameters**. When the Kernel Configuration window opens, a new boot.config file exists.

   Alternatively, rebuild the boot.config file with the following command:

   ```
   # /usr/sam/lbin/getkinfo -b
   ```

d. Set new kernel parameter values:

   1) Start the SAM utility.
   2) Click **Kernel Configuration > Configurable Parameters**.
   3) For each of the parameters in the following table, perform this procedure:
      a) Highlight the parameter to change.
      b) Click **Actions > Modify Configurable Parameter**.
      c) Type the new value in the **Formula/Value** field.
      d) Click **OK**.

Change typical kernel settings for running WebSphere Application Server in the order shown in the following table:

Parameter	Value
STRMSGSZ	65535
dbc_max_pct	25
maxdsiz	805306358 (0x30000000)
maxdsiz	2048000000 (when running multiple profiles on the same system)
maxfiles_lim	8196 (Change this one before maxfiles.)
maxfiles	8000
maxssiz	8388608
maxswapchunks	8192
maxusers	512
nkthread	7219
max_thread_proc	3000
nproc	4116 (Change this one before maxuprc)
maxuprc	512
msgtql	2046
msgmap	2048
msgssz	32 (Change this one before msgmax)
msgseg	32767 (Change this one before msgmax)
msgmnb	65535 (0x10000) (Change this one before msgmax)
msgmnb	131070 (when running multiple profiles on the same system)
msgmax	65535 (0x10000)
msgmax	131070 (when running multiple profiles on the same system)
msgmni	50
nfile	58145
nflocks	3000
ninode	60000

Parameter	Value
npty	2024
nstrpty	1024
nstrtel	60
sema	1
semaem	16384 (0x4000)
semmns	16384 (0x4000) (Change this one before semmap)
semmni	2048 (Change this one before semmap)
semmap	514
semmnu	1024
semume	200
semvmx	32767
shmem	1
shmmax	2147483647 (0x7FFFFFFF)
shmmni	1024
shmseg	1024

When WebSphere Application Server and IBM DB2 are on the same machine, some kernel values are higher than those shown in the preceding table.

See the Recommended HP-UX kernel configuration parameters for DB2 V8 Web page for more information.

e. Click **Actions > Process New Kernel**.

f. Click **Yes** on the information window to confirm your decision to restart the machine.

Follow the on-screen instructions to restart your machine and to enable the new settings.

g. If you plan to redirect displays to non-HP machines, do the following before running the WebSphere Application Server installation wizard:

1) Issue the following command to obtain information on all the public locales that are accessible to your application:

```
# locale -a
```

2) Choose a value for your system from the output that is displayed and set the LANG environment variable to this value. Here is an example command that sets the value of LANG to en_US.iso88591

```
# export LANG=en_US.iso8859
```

8. Verify that prerequisites and corequisites are at the required release levels.

Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

9. Verify the system cp command when using emacs or other freeware.

If you have emacs or other freeware installed on your operating system, verify that the system cp command is used.

a. Type which cp at the command prompt before running the installation program for the WebSphere Application Server product.

b. Remove the freeware directory from your PATH if the resulting directory output includes freeware. For example, assume that the output is similar to the following message: .../freeware/bin/cp. If so, remove the directory from the PATH.

c. Install the WebSphere Application Server product.

d. Add the freeware directory back to the PATH.

If you install with a cp command that is part of a freeware package, the installation might appear to complete successfully, but the Java 2 SDK that the product installs might have missing files in the *app_server_root*/java directory.

Missing files can destroy required symbolic links. If you remove the freeware cp command from the PATH, you can install the Application Server product successfully.

Perform the following step to verify that the Java 2 SDK is working correctly.

10. Verify that the Java 2 SDK on the installation image disk is functioning correctly, if you created your own disk.

For example, you might have downloaded an installation image from Passport Advantage, or you might have copied an installation image onto a backup disk. In either case, perform the following steps to verify that the disk contains a valid Java 2 software development kit (SDK).

a. Change directories to the /mnt/JDK/repository/prereq.jdk/java/bin directory on the product CD-ROM. For example:

```
cd /mnt/JDK/repository/prereq.jdk/java/bin
```

b. Verify the Java 2 SDK version. Type the following command:

```
./java -version
```

The command completes successfully with no errors when the Java 2 SDK is intact.

This procedure results in preparing the operating system for installing the product.

After preparing the operating system for installation, you can install the WebSphere Application Server product.

See "Preparing to install Network Deployment on an HP-UX system" on page 132 for the next step in the overall procedure, which is selecting the type of installation to perform.

Preparing Linux systems for installation

This topic describes how to prepare a Linux system for installing WebSphere Application Server.

The installation uses an InstallShield for Multiplatforms (ISMP) wizard. You can use the graphical interface of the wizard. You can also use the wizard in silent mode.

Silent mode is a command line invocation with a parameter that identifies an options response file. Edit the options response file before installing.

Non-root installation support is introduced in V6.1, for both the Installation wizard and for silent installations.

If you encounter a problem such as needing more temporary space or missing prerequisite packages on your operating system, cancel the installation, make the required changes, and restart the installation.

Preparing the operating system involves such changes as allocating disk space and installing patches to the operating system. IBM tests WebSphere Application Server products on each operating system platform. Such tests verify whether an operating system change is required for WebSphere Application Server products to run correctly. Without the required changes, WebSphere Application Server products do not run correctly.

1. Log on to the operating system.

You can log on as root or as a non-root installer.

In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended.

For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

`umask`

To set the umask setting to 022, issue the following command:

`umask 022`

2. Download and install the Mozilla Firefox Web browser so that you can use the launchpad application on the product disc and the Gnome and KDE shortcut menu entries for WebSphere Application Server Network Deployment.

   If you do not have the Firefox browser, download and install the browser from http://www.mozilla.org/products/firefox/. **Note:** It may be necessary to execute ″>firefox &url″ from directories other than the one where Firefox is installed, so make sure Firefox is in the path. You can add a symbolic link to the /opt/bin directory by typing ″>ln -s /locationToFirefox/firefox firefox″.

3. **Optional:** Export the location of the supported browser.

   Export the location of the supported browser using a command that identifies the actual location of the browser.

   For example, if the Mozilla package is in the /opt/bin /mozilla directory, use the following command:

   `export BROWSER=/opt/bin/mozilla`

4. Stop all WebSphere Application Server-related Java processes on the machine where you are installing the product.

5. Stop any Web server process such as the IBM HTTP Server.

6. Provide adequate disk space.

   Attention:

   The Network Deployment product requires the following disk space:

   730 MB for the /opt/IBM/WebSphere/AppServer directory before creating profiles

   The installation root directory includes the core product files. This size does not include space for profiles or applications. Profiles require 40 MB of temp space in addition to the sizes shown. Profiles have the following space requirements:

   30 MB for the Deployment manager profile

   This size does not include space for Sample applications that you might install. The size also does not include space for applications that you might deploy.

   200 MB for an Application Server profile with the Sample applications

   This size does not include space for applications that you might develop and install.

   10 MB for an unfederated custom profile

   This size does not include space for applications that you might develop and install. The requirement does include space for the node agent. However, you must federate a custom profile to create an operational managed node.

   After federating a custom profile, the resulting managed node contains a functional node agent only. Use the deployment manager to create server processes on the managed node.

   100 MB for the /tmp directory

   The temporary directory is the working directory for the installation program.

   830 MB total requirement

This amount is the total space requirement when installing the product from the CD and when not installing service. Installing profiles requires more space.

The following space is the maximum amount that is required for the Web server plug-ins for WebSphere Application Server:

200 MB for the /opt/IBM/WebSphere/plugins directory

The Web server plug-ins require this space.

25 MB for the /opt/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The run-time module is gskkm.rte.

The following space is required for the IBM HTTP Server product:

110 MB for the /opt/IBM/HTTPServer directory

The IBM HTTP Server product requires this space.

25 MB for the /opt/ibm/gsk7 directory

The IBM Global Security Kit (GSKit) requires this space.

The run-time module is gsk7bas.i386.rpm for Linux distributed platforms and gsk7bas.s390.rpm for Linux for S/390 platforms.

The following space is required for the IBM WebSphere Application Server Clients:

150 MB for the *app_client_root* **directory**

The amount of space required to install the application clients is actually less than 150 MB. The amount of space depends on the clients that you install as features.

The following space is required for the Update Installer:

200 MB for the /opt/IBM/WebSphere/UpdateInstaller directory

Attention:

The following space is required for the Application Server Toolkit:

550 MB maximum for the /opt/IBM/WebSphere/AST directory

The Application Server Toolkit does not include an integrated test environment.

Install the WebSphere Application Server Network Deployment product and configure an application server to create a test environment.

The Installation wizard for each component displays required space on the confirmation panel before you install the product files and selected features. The Installation wizard also warns you if you do not have enough space to install the product.

If you plan to migrate applications and the configuration from a previous version, verify that the application objects have enough disk space. As a rough guideline, plan for space equal to 110 percent of the size of the application objects:
- **For Version 4.0.x:** The size of enterprise archive (EAR) files
- **For Version 5.0.x:** The size of EAR files

7. Verify that prerequisites and corequisites are at the required release levels.

Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

8. Increase the ulimit setting in the bash command shell profile to prevent addNode and importWasprofile problems.

   The addNode command script can fail when adding a node, or the importWasprofile command can fail when importing a configuration archive. The importWasprofile command might fail during the installation of a customized installation package (CIP) when the CIP includes a customized profile.

   Set a higher ulimit setting for the kernel in the bash shell profile script, which is loaded at login time for the session.

   Set the ulimit on your Linux command shells by adding the command to your shell profile script. The shell profile script is usually found under your home directory:

   a. `cd ~`

   b. `vi .bashrc`

   c. `ulimit -n 8192`

   See http://www.ibm.com/support/docview.wss?rs=180&context=SSEQTP&uid=swg2 1223909 for more information.

9. Restore the original copy of the etc/issue file if the file is modified.

   The prereqChecker program in the Installation wizard uses the file to verify the version of the operating system. If you cannot restore the original version, ignore the Operating System Level Check message about the operating system being unsupported. The installation can continue successfully despite the warning.

10. **RHEL 4 only:** Provide necessary prerequisites for Red Hat Enterprise Linux 4.

    A Linux package registration limitation prevents the prerequisites checker program from examining prerequisite packages on Linux systems. Verify that the following prerequisite packages are installed. See "Installing and verifying Linux packages" on page 124 for more information.

    Installing packages for all hardware platforms

    Install the following packages on any hardware platform:

    compat-libstdc++-33-3.2.3-47.3
    > Required for C++ run-time compatibility. Used by such components as GSKit, the Java 2 Software Development Kit (SDK), and the Web server plug-ins, for example.

    compat-db-4.1.25-9
    > Required by IBM HTTP Server. Some of the modules use the libraries contained within this package.

    xorg-x11-deprecated-libs-6.8.1 or xorg-x11-deprecated-libs-6.8.2
    > Required by the Java 2 SDK to provide printing functions for graphical user interfaces. Without this package, Swing-based applications and AWT-based applications, such as InstallShield for Multiplatforms (ISMP), cannot instantiate.

    rpm-build-4.3.3-7_nonptl
    > Required by ISMP to properly register products within the RPM database.

    These packages are part of the Red Hat Enterprise Linux 4 operating system, but are not installed by default. You can also install a later release of any of these packages if Red Hat provides new packages as errata.

    Selecting packages for hardware platforms that are capable of running both 32-bit and 64-bit applications

    Hardware platforms capable of running both 32-bit and 64-bit applications include Opteron, EM64T, iSeries, pSeries (PowerPC), and zSeries (S/390 64-bit) machines.

    By default, RHEL 4 only installs 64-bit run-time support on these platforms. However, various applications included with WebSphere Application Server V6.x products and packages also require the 32-bit run-time support. Therefore, you must also install the 32-bit run-time support.

Install the following required 32-bit packages by selecting to customize the packages during the RHEL 4 installation. Or, customize packages on an existing RHEL 4 system by issuing the system-config-packages command from a graphical terminal.

Install the Compatibility Architecture Support under the System category. Optionally install the Compatibility Architecture Development Support under the Development category if you intend to build C or C++ libraries for use with both 32-bit and 64-bit applications.

Platforms that support both 32-bit and 64-bit applications require both the 32-bit and 64-bit versions of the following packages:

- **compat-libstdc++-33-3.2.3-47.3**
- **compat-db-4.1.25-9**
- **xorg-x11-deprecated-libs-6.8.1** or **xorg-x11-deprecated-libs-6.8.2**

Run the rpm -qa | grep *package_name* command to verify that you have both versions of each package. Substitute the name of each package for the *package_name* variable.

Installed packages are displayed in the reply to the command. If you do not get two replies for each package, you have only one version of the package installed. You must then install the missing package.

Installing additional packages for specific platforms

In addition to the packages that are common to all platforms, install the following packages on hardware platforms capable of running both 32-bit and 64-bit applications, before installing WebSphere Application Server products and packages.

x86 platforms and Opteron or EM64T platforms: compat-libstdc++-296-2.96-132.7.2

> The compat-libstdc++-296-2.96-132.7.2 package is required for C++ run-time compatibility. The package is used by such components as GSKit, the Java 2 SDK, and the Web server plug-ins, for example.

z/Series (S/390) platforms: compat-libstdc++-295-2.95.3-81

> The compat-libstdc++-295-2.95.3-81 package is required for C++ run-time compatibility. The package is used by such components as GsKit, the Java 2 SDK, and the Web server plug-ins, for example.
>
> Install both the 32-bit version and the 64-bit version of the package on 64-bit z/Series hardware platforms.

Problems encountered when you do not install required packages

If you do not install all of the required packages, the Installation wizard cannot start. Error messages indicate missing libraries, the inability to load graphical interfaces, or other errors that occur during the installation.

See Preparing RHEL 4 for the installation of WebSphere Application Server V6.0.x and V6.1.x products for more information.

11. **RHEL 3 only:** Provide necessary prerequisites for Red Hat Enterprise Linux 3.

A Linux package registration limitation prevents the prerequisites checker program from examining prerequisite packages on Linux systems. Verify that the following prerequisite packages are installed.

xSeries platforms: Install the following packages on Red Hat Enterprise Linux 3 for xSeries platforms:

- compat-libstdc++-7.3-2.96.122

   Required for C++ run-time compatibility. Used by such components as GSKit, the Java 2 Software Development Kit (SDK), and Web server plug-ins for WebSphere Application Server.

- compat-db-4.0.14-5

   Required by some IBM HTTP Server modules. The modules use the libraries contained within this RPM package.

- rpm-build-4.2.1-4.2

InstallShield for Multiplatforms (ISMP) requires the package to properly register products with the Red Hat Package Manager (RPM) database.

The following additional RPM packages are recommended for developing and building Java Native Interface (JNI) libraries for use by your Java 2 Enterprise Edition (J2EE™) applications. If you do not intend to compile JNI libraries on the system, you do not have to install the following packages:

- compat-gcc-7.3-2.96.122
- compat-libstdc++-devel-7.3-2.96.122
- compat-glibc-7.x-2.2.4.32.5
- compat-gcc-c++-7.3-2.96.122

iSeries platforms and pSeries platforms: Install the rpm-build-4.2.1-4.2 package. InstallShield for Multiplatforms (ISMP) requires the package to properly register products with the Red Hat Package Manager (RPM) database.

S/390 (z/VM and VM/ESA) platforms: You must install the following packages on Red Hat Enterprise Linux 3 for S/390 (z/VM and VM/ESA) platforms:

- compat-db-4.0.14-5

  Required by some IBM HTTP Server modules. The modules use the libraries contained within this RPM package.

- compat-pwdb-0.62-3
- compat-libstdc++-7.2-2.95.3.77

  Required for C++ run-time compatibility. Used by such components as GSKit, the Java 2 Software Development Kit (SDK), and Web server plug-ins for WebSphere Application Server.

- rpm-build-4.2.1-4.2

  Required by InstallShield for Multiplatforms (ISMP) to properly register products with the Red Hat Package Manager (RPM) database.

  You can install a later release of any of these packages.

12. **RHEL 3 only:** Upgrade Red Hat Enterprise Linux 3 to service level 2 (update 2) or service level 3 (update 3).

    Upgrade the RHEL 3 service level by downloading and installing the service updates from Red Hat.

    If you do not upgrade the service level, certain national language issues in the released version of GLIBC included in Red Hat Enterprise Linux V3 might cause Java Virtual Machine (JVM) failures due to segmentation faults. These failures can occur during installation when the locale is set to anything other than an English locale.

13. **SLES 9 only:** Apply SLES 9 SP1 on PowerPC 64-bit platforms to avoid a known problem.

    SLES 9 SP1 is the officially supported platform for PowerPC 64-bit machines.

    A known problem in the SLES 9 GA kernel (LTC 9288) is documented in the SDK guide for the 142SR1a release. The problem results in a 64-bit WebSphere Application Server hang indicated by the following error messages:

```
00000014 RecoveryManag A WTRN0028I: Transaction service recovering 0 transactions.
0000000a ResourceMgrIm I WSVR0049I: Binding DefaultTimerManager as tm/default
0000000a WorkAreaServi A ACWA0002I: WorkArea service not enabled on dmgr.
0000000a AppProfileCom I ACIN0007I: The application profiling service started successfully.
0000000a CacheServiceI I DYNA0048I: WebSphere Dynamic Cache initialized successfully.
00000015 LogAdapter E DCSV9416E: An internal error occurred.
         Exception is Clock not changed in 10002 rounds.
00000015 LogAdapter E DCSV9416E: An internal error occurred.
         Exception is Clock not changed in 10002 rounds.
```

SLES9/AMD64 system: The following 32-bit libraries are required by the SDK:

  XFree86-libs-32bit-9

  glibc-32bit-9

  glib-32bit-9

  gtk-32bit-9

14. **SLES 8 only:** Prepare the SuSE Linux Enterprise Server 8.0 - Powered by UnitedLinux 1.0 operating platform for WebSphere Application Server installation.

    a. Install SP3 for the United Linux 1.0 operating platform to let you use the Launchpad.

       It is your responsibility to install this service pack. The prereqChecker function of the installer cannot detect service pack versions definitively on United Linux. Kernel unames and versions between 8.0 and 8.0.3 are identical. No signature RPM denotes a service pack install.

    b. Use the IBM Software Developer Kit (SDK) that WebSphere Application Server provides to support the Java 2 SDK on the SuSE Linux Enterprise System 8.0 (SLES 8) operating system to avoid potential problems when uninstalling an interim fix or a fix pack. To use the IBM Developer Kit, remove the java2-jre-1.3.1-524 and java2-1.3.1-524 RPMs from the machine before installing WebSphere Application Server.

    SLES 9 does not require an additional service pack.

15. **SLES 8 only:** Correct font problems on SuSE Linux Enterprise Server 8.0 in Simplified Chinese and Traditional Chinese locales.

    On the Linux for Power platform that SuSE Linux Enterprise Server 8.0 provides, a missing package causes a font problem. The ttf-hanyi package is not installed during the normal product installation of the SuSE 8.0 operating system. The missing package causes the Installation wizard for WebSphere Application Server products to display garbled characters in the Simplified Chinese locale and in the Traditional Chinese locale.

    Copy the ttf-hanyi-2021016-0.noarch.rpm package on the SuSE 8.0 for i386 CD to the Power PC system. Install the package on the Power PC machine and reboot the machine to solve the problem.

16. Verify the system cp command when using emacs or other freeware.

    If you have emacs or other freeware installed on your operating system, verify that the system cp command is used.

    a. Type which cp at the command prompt before running the installation program for the WebSphere Application Server product.

    b. Remove the freeware directory from your PATH if the resulting directory output includes freeware. For example, assume that the output is similar to the following message: .../freeware/bin/cp. If so, remove the directory from the PATH.

    c. Install the WebSphere Application Server product.

    d. Add the freeware directory back to the PATH.

    If you install with a cp command that is part of a freeware package, the installation might appear to complete successfully, but the Java 2 SDK that the product installs might have missing files in the *app_server_root*/java directory.

    Missing files can destroy required symbolic links. If you remove the freeware cp command from the PATH, you can install the Application Server product successfully.

    Perform the following step to verify that the Java 2 SDK is working correctly.

17. Verify that the Java 2 SDK on the installation image disk is functioning correctly, if you created your own disk.

    For example, you might have downloaded an installation image from Passport Advantage, or you might have copied an installation image onto a backup disk. In either case, perform the following steps to verify that the disk contains a valid Java 2 software development kit (SDK).

    a. Change directories to the /mnt/JDK/repository/prereq.jdk/java/bin directory on the product CD-ROM. For example:

       ```
       cd /mnt/JDK/repository/prereq.jdk/java/bin
       ```

    b. Verify the Java 2 SDK version. Type the following command:

       ```
       ./java -version
       ```

       The command completes successfully with no errors when the Java 2 SDK is intact.

18. Grant a non-root installer ID the correct file permissions to create menu entries in Gnome and KDE.

Before the installation, the root user can grant write permission to the non-root installer for the /etc/xdg/menus/applications-merged directory. Then the Installation wizard creates the menu entries during the non-root installation.

Otherwise, you must run scripts to create and remove the menu entries while WebSphere Application Server Network Deployment is installed. See "Limitations of non-root installers" on page 175 for more information.

This procedure results in preparing the operating system for installing the product.

After preparing the operating system for installation, you can install the WebSphere Application Server product.

See "Preparing to install Network Deployment on a Linux system" on page 133 for the next step in the overall procedure, which is selecting the type of installation to perform.

Installing and verifying Linux packages

This topic describes how to query a Linux system to verify that a package is installed. The topic also describes how to install a missing package from an operating system CD.

Install the Linux operating system before using this procedure.

Use the following procedure to install and verify prerequisite libraries (packages) that WebSphere Application Server products require on Linux systems.

Assume that your Linux operating system requires the compat-libstdc++-33-3.2.3-47.3 package and that there are two versions of the package. One version is for 32-bit platforms and the other is for 64-bit platforms. This procedure shows how to query the operating system to see if the packages are installed, find the missing packages on the operating system disc, and install the packages.

This example uses Red Hat Enterprise Linux (RHEL) on a PowerPC 64-bit hardware platform. The example assumes that RHEL requires both the 32-bit version and the 64-bit version of the compat-libstdc++-33-3.2.3-47.3 package.

1. Query the operating system to determine if the packages are already installed.

   `rpm -qa | grep compat-libstdc++-33-3.2.3-`

   In this example, the operating system did not find any matching packages so a blank line is displayed.

   You can also search without the grep argument to see an explicit message about the file:

   `rpm -q compat-libstdc++-33-3.2.3-`

   The operating system returns the following message:

   `package compat-libstdc++-33-3.2.3- is not installed`

2. Find all related packages on the operating system media to get the fully qualified locations.

   This example assumes that the operating system media is a compact disc mounted at /media/cdrom. Your CD-ROM device might be at a different location, such as /media/cdrecorder, for example.

   `find /media/cdrom -name compat-libstdc++-33-3.2.3-*`

   In this example, the operating system finds two matching package names. One package is the 32-bit version and the other is the 64-bit version.

   `/media/cdrom/RedHat/RPMS/compat-libstdc++-33-3.2.3-47.3.ppc.rpm`
   `/media/cdrom/RedHat/RPMS/compat-libstdc++-33-3.2.3-47.3.ppc64.rpm`

3. Install the first missing package:

   `rpm -ivh /media/cdrom/RedHat/RPMS/compat-libstdc++-33-3.2.3-47.3.ppc.rpm`

4. Install the second missing package:

   `rpm -ivh /media/cdrom/RedHat/RPMS/compat-libstdc++-33-3.2.3-47.3.ppc64.rpm`

5. **Optional: Alternative method to find and install packages in one command:** Use the following command to find packages and to install all packages that are found.

   Find the packages as described in the earlier step to verify that the following command installs only the packages that you intend to install.

   ```
   find /media/cdrom -name compat-libstdc++-33-3.2.3-* | xargs rpm -ivh
   ```

   This single command installs both packages.

6. **Optional: Alternative command to update existing packages:** Use the following command to find and install missing packages or to find and update existing packages:

   ```
   find /media/cdrom -name compat-libstdc++-33-3.2.3-* | xargs rpm -Uvh
   ```

   This single command installs a package when the package is not installed. This command updates a package to a newer version when the package is installed.

Required packages very per operating system. See "Preparing Linux systems for installation" on page 117 for a list of required packages for each Linux operating system.

Preparing Solaris systems for installation

This topic describes how to prepare Solaris systems for the installation of IBM WebSphere Application Server, Version 6 products.

The installation uses an InstallShield for Multiplatforms (ISMP) wizard. You can use the graphical interface of the wizard. You can also use the wizard in silent mode.

Silent mode is a command line invocation with a parameter that identifies an options response file. Edit the options response file before installing.

If you encounter a problem such as needing more temporary space or missing prerequisite packages on your operating system, cancel the installation, make the required changes, and restart the installation.

Restriction: There are known issues with using Cygwin/X to run Eclipse-based applications on remote Solaris machines. This affects your use of the Profile Management tool and the Installation Factory. With Cygwin/X on remote Solaris, for example, the Profile Management tool's welcome panel appears but no keyboard or mouse input is accepted. For details of existing Bugzilla reports on these issues, see the information at https://bugs.eclipse.org/bugs/show_bug.cgi?id=97808. If a different X server (such as Hummingbird Exceed®) is used, these problems do not occur.

Preparing the operating system involves such changes as allocating disk space and installing patches to the operating system. IBM tests WebSphere Application Server products on each operating system platform. Such tests verify whether an operating system change is required for WebSphere Application Server products to run correctly. Without the required changes, WebSphere Application Server products do not run correctly.

1. Log on to the operating system.

   You can log on as root or as a non-root installer.

   In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

2. **Optional:** Download and install the Mozilla Web browser so that you can use the launchpad application on the product disk. If you do not have the Mozilla Web browser, download and install the browser from http://www.mozilla.org.

3. **Optional:** Export the location of the supported browser.

   Export the location of the supported browser using a command that identifies the actual location of the browser.

   For example, if the Mozilla package is in the /opt/bin /mozilla directory, use the following command:

   ```
   export BROWSER=/opt/bin/mozilla
   ```

4. **Optional:** Configure Hummingbird Exceed to disable Automatic Font Substitution.

   Font changes occur when using the Hummingbird Exceed package and invoke the Profile Management tool. When you use the Hummingbird Exceed package to connect to a machine running the Solaris operating system, and then invoke the Profile Management tool, some font sizes and styles display differently than when doing the same operation from the native Solaris display.

   The font sizes and style changes are based on the font selections in the bundled Java Runtime Environment (JRE).

   To prevent the various font changes, configure Hummingbird Exceed to disable Automatic Font Substitution:

   a. From the Hummingbird Exceed user interface, click **Xconfig** > **Font** > **Font Database** > **Disable (Automatic Font Substitution)**.

   b. Click **OK**.

   c. Restart the Hummingbird Exceed package.

5. Stop all WebSphere Application Server-related Java processes on the machine where you are installing the product.

6. Stop any Web server process such as the IBM HTTP Server.

7. Provide adequate disk space.

   Attention:

   The Network Deployment product requires the following disk space:

   730 MB for the *app_server_root* **directory before creating profiles**

   The installation root directory includes the core product files. This size does not include space for profiles or applications. Profiles require 40 MB of temp space in addition to the sizes shown. Profiles have the following space requirements:

   30 MB for the Deployment manager profile

   This size does not include space for Sample applications that you might install. The size also does not include space for applications that you might deploy.

   200 MB for an Application Server profile with the Sample applications

   This size does not include space for applications that you might develop and install.

   10 MB for an unfederated custom profile

   This size does not include space for applications that you might develop and install. The requirement does include space for the node agent. However, you must federate a custom profile to create an operational managed node.

   After federating a custom profile, the resulting managed node contains a functional node agent only. Use the deployment manager to create server processes on the managed node.

100 MB for the /tmp directory

> The temporary directory is the working directory for the installation program.

1030 MB total requirement

> This amount is the total space requirement when installing the product from the CD and when not installing service. Installing profiles requires more space.

The following space is required for the IBM HTTP Server product:

110 MB for the *web_server_root* **directory**

> The IBM HTTP Server product requires this space.

25 MB for the *gskit_root* **directory**

> The IBM Global Security Kit (GSKit) requires this space.

The following space is the maximum amount that is required for the Web server plug-ins for WebSphere Application Server:

200 MB for the /opt/IBM/WebSphere/plugins directory

> The Web server plug-ins require this space.

35 MB for the /opt/ibm/gsk7 directory

> The IBM Global Security Kit (GSKit) requires this space.

The following space is required for the IBM WebSphere Application Server Clients:

150 MB for the *app_client_root* **directory**

> The amount of space required to install the application clients is actually less than 150 MB. The amount of space depends on the clients that you install as features.

The following space is required for the Update Installer:

200 MB for the /opt/IBM/WebSphere/UpdateInstaller directory

The Installation wizard for each component displays required space on the confirmation panel before you install the product files and selected features. The Installation wizard also warns you if you do not have enough space to install the product.

If you plan to migrate applications and the configuration from a previous version, verify that the application objects have enough disk space. As a rough guideline, plan for space equal to 110 percent of the size of the application objects:
- **For Version 4.0.x:** The size of enterprise archive (EAR) files
- **For Version 5.0.x:** The size of EAR files

8. Set kernel values to support Application Server. Several Solaris kernel values are typically too small.

   Before installing, review the machine configuration:

   ```
   sysdef -i
   ```

   The kernel values are set in the /etc/system file, as shown in the following example.

   ```
   set shmsys:shminfo_shmmax = 4294967295
   set shmsys:shminfo_shmseg = 1024
   set shmsys:shminfo_shmmni = 1024
   set semsys:seminfo_semaem = 16384
   set semsys:seminfo_semmni = 1024
   set semsys:seminfo_semmap = 1026
   set semsys:seminfo_semmns = 16384
   set semsys:seminfo_semmsl = 100
   set semsys:seminfo_semopm = 100
   set semsys:seminfo_semmnu = 2048
   set semsys:seminfo_semume = 256
   set msgsys:msginfo_msgmap = 1026
   set msgsys:msginfo_msgmax = 65535
   set rlim_fd_cur=1024
   ```

You can change kernel values by editing the /etc/system file then rebooting the operating system. For more information about setting up the Solaris system, see the Solaris System Administration documentation. For example, the *Solaris Tunable Parameters Reference Manual*.

9. Verify that prerequisites and corequisites are at the required release levels.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

   -
   -
   -
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   -

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   -

   Refer to the Supported hardware and software Web site for a complete list of required patches and to determine whether your operating system is supported when you receive a message from the prereqChecker program. The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

10. Verify the system cp command when using emacs or other freeware.

    If you have emacs or other freeware installed on your operating system, verify that the system cp command is used.

    a. Type which cp at the command prompt before running the installation program for the WebSphere Application Server product.

    b. Remove the freeware directory from your PATH if the resulting directory output includes freeware. For example, assume that the output is similar to the following message: .../freeware/bin/cp. If so, remove the directory from the PATH.

    c. Install the WebSphere Application Server product.

    d. Add the freeware directory back to the PATH.

    If you install with a cp command that is part of a freeware package, the installation might appear to complete successfully, but the Java 2 SDK that the product installs might have missing files in the *app_server_root*/java directory.

    Missing files can destroy required symbolic links. If you remove the freeware cp command from the PATH, you can install the Application Server product successfully.

    Perform the following step to verify that the Java 2 SDK is working correctly.

11. Verify that the Java 2 SDK on the installation image disk is functioning correctly, if you created your own disk.

    For example, you might have downloaded an installation image from Passport Advantage, or you might have copied an installation image onto a backup disk. In either case, perform the following steps to verify that the disk contains a valid Java 2 software development kit (SDK).

    a. Change directories to the /mnt/JDK/repository/prereq.jdk/java/bin directory on the product CD-ROM. For example:

```
cd /mnt/JDK/repository/prereq.jdk/java/bin
```

  b. Verify the Java 2 SDK version. Type the following command:

```
./java -version
```

  The command completes successfully with no errors when the Java 2 SDK is intact.

This procedure results in preparing the operating system for installing the product.

After preparing the operating system for installation, you can install the WebSphere Application Server product.

See "Preparing to install Network Deployment on a Solaris system" on page 134 for the next step in the overall procedure, which is selecting the type of installation to perform.

Preparing Windows systems for installation

This topic describes how to prepare your Windows systems for the installation of IBM WebSphere Application Server Version 6.x products.

The installation uses an InstallShield for Multiplatforms (ISMP) wizard. You can use the graphical interface of the wizard. You can also use the wizard in silent mode.

Silent mode is a command line invocation with a parameter that identifies an options response file. Edit the options response file before installing.

If you encounter a problem such as needing more temporary space or missing prerequisite packages on your operating system, cancel the installation, make the required changes, and restart the installation.

Preparing the operating system involves such changes as allocating disk space and installing patches to the operating system. IBM tests WebSphere Application Server products on each operating system platform. Such tests verify whether an operating system change is required for WebSphere Application Server products to run correctly. Without the required changes, WebSphere Application Server products do not run correctly.

1. Log on to a user ID that belongs to the administrator group.

    Log on as a member of the administrator group to successfully install the product. You cannot create Windows services from a user ID that does not belong to the administrator group. The creation of Windows services requires the user to have the advanced user rights *Act as part of the operating system* and *Log on as a service*.

2. **Optional:** Download and install the latest supported version of Internet Explorer so that you can use the launchpad on the product disc. Download Internet Explorer 6 from the following location:

    http://www.microsoft.com/windows/ie/default.mspx

3. **Optional:** Download and install Mozilla 1.7.5 or later.

    If you plan to use the Mozilla browser, install the 1.7.5 version to avoid a known problem that causes two browser windows to open when using the launchpad.bat script. This problem is caused by a known bug with the Mozilla -CreateProfile feature. See bugzilla bug 249585 for more information.

4. Stop all WebSphere Application Server-related Java processes on the machine where you are installing the product.

5. Stop any Web server process such as the IBM HTTP Server.

6. Stop all instances of the process_spawner.exe program.

7. Provide adequate disk space.

    Attention:

        The Network Deployment product requires the following disk space:

730 MB for the C:\Program Files\IBM\WebSphere\AppServer directory before creating profiles

> The installation root directory includes the core product files. This size does not include space for profiles or applications. Profiles require 40 MB of temp space in addition to the sizes shown. Profiles have the following space requirements:

> **30 MB for the Deployment manager profile**

>> This size does not include space for Sample applications that you might install. The size also does not include space for applications that you might deploy.

> **200 MB for an Application Server profile with the Sample applications**

>> This size does not include space for applications that you might develop and install.

> **10 MB for an unfederated custom profile**

>> This size does not include space for applications that you might develop and install. The requirement does include space for the node agent. However, you must federate a custom profile to create an operational managed node.

>> After federating a custom profile, the resulting managed node contains a functional node agent only. Use the deployment manager to create server processes on the managed node.

100 MB for the C:\temp directory

> The temporary directory is the working directory for the installation program.

830 MB total requirement

> This amount is the total space requirement when installing the product from the CD and when not installing service. Installing profiles requires more space.

The following space is required for the IBM HTTP Server product:

110 MB for the C:\Program Files\IBM HTTP Server directory

> The IBM HTTP Server product requires this space.

25 MB for the C:\Program Files\ibm\gsk7 directory

> The IBM Global Security Kit (GSKit) requires this space.

The following space is the maximum amount that is required for the Web server plug-ins for WebSphere Application Server:

200 MB for the C:\Program Files\IBM\WebSphere\Plugins directory

> The Web server plug-ins require this space.

25 MB for the C:\Program Files\ibm\gsk7 directory

> The IBM Global Security Kit (GSKit) requires this space.

The following space is required for the Application Client for WebSphere Application Server:

150 MB for the C:\Program Files\IBM\WebSphere\AppClient directory

> The amount of space required to install the application clients is actually less than 150 MB. The amount of space depends on the clients that you install as features.

The following space is required for the Update Installer:

200 MB for the C:\Program Files\IBM\WebSphere\UpdateInstaller directory

Attention:

The following space is required for the Application Server Toolkit:

550 MB maximum for the C:\Program Files\IBM\WebSphere\AST directory

The Application Server Toolkit does not include an integrated test environment.

Install the WebSphere Application Server Network Deployment product and configure an application server to create a test environment.

The Installation wizard for each component displays required space on the confirmation panel before you install the product files and selected features. The Installation wizard also warns you if you do not have enough space to install the product.

If you plan to migrate applications and the configuration from a previous version, verify that the application objects have enough disk space. As a rough guideline, plan for space equal to 110 percent of the size of the application objects:

- **For Version 4.0.x:** The size of enterprise archive (EAR) files
- **For Version 5.0.x:** The size of EAR files

8. Verify that prerequisites and corequisites are at the required release levels.

Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

9. Download Windows Script 5.6 to create Start menu items correctly on Windows 2000 and Windows XP.

Download Windows Script 5.6 from the following Microsoft Web page: http://www.microsoft.com/downloads/ details.aspx? FamilyId= C717D943-7E4B-4622-86EB-95A22B832CAA.

10. Verify that the Java 2 SDK on your copy of the product CD is functioning correctly.

If you created your own product CD from an ISO image or by copying the actual CD, perform the following steps to verify that the Java 2 SDK on the product CD-ROM is working correctly.

a. Change directories to the \win\WAS\jdk\java\bin directory on the product CD-ROM. Type the following command:

```
cd CD_Drive_D:\WAS\jdk\java\bin
```

b. Verify the version of the Java 2 SDK. Type the following command:

```
.\java -version
```

The command completes successfully with no errors when the Java 2 SDK is intact.

This procedure results in preparing the operating system for installing the product.

After preparing the operating system for installation, you can install the WebSphere Application Server product.

Go to "Preparing to install Network Deployment on a Windows system" on page 135 for the next step in the overall procedure, which is selecting the type of installation to perform.

Preparing to install Network Deployment on an AIX system

This topic describes how to get started installing the IBM WebSphere Application Server Network Deployment, Version 6 product on an AIX operating system.

Before using this topic to prepare for installing the Network Deployment product, decide the sort of topology you want to install and prepare your operating system. See the following topics for more information:

- "Planning to install Network Deployment" on page 83
- "Preparing AIX systems for installation" on page 107

Manually verify that the required space for creating a profile is available on AIX. A known problem in the underlying InstallShield for Multiplatforms (ISMP) code prevents proper space checking on AIX systems at the time that the product disk was created.

After verifying prerequisites, verifying the product CD, and setting your installation goals, you can start installing. Use one of the following links to open the installation procedure that you require. Then install the Network Deployment product on your operating system.

- Perform a custom installation.

  The custom installation lets you select features to install. The features include the core product files (required), the Javadoc (optional), and the Sample applications (optional).

  See "Installing Network Deployment" on page 141.

- Perform a silent installation.

  A silent installation requires you to edit the example response file to contain all of your installation choices. After creating a valid response file, issue the install command with the silent parameter from a command window.

  See "Installing silently" on page 150.

- Install additional features to an existing product.

  After using a custom installation to omit one or both of the optional features, you can install the product again to add the features. Select a missing feature to install it.

  See "Installing additional features on an existing Network Deployment product" on page 145.

The Installation wizard installs the product files into the installation root directory.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Preparing to install Network Deployment on an HP-UX system

This topic describes how to install the IBM WebSphere Application Server Network Deployment, Version 6 product on an HP-UX operating system.

Before using this topic to prepare for installing the Network Deployment product, decide the sort of topology you want to install and prepare your operating system. See the following topics for more information:

- "Planning to install Network Deployment" on page 83
- "Preparing HP-UX systems for installation" on page 112

After verifying prerequisites, verifying the product CD, and setting your installation goals, you can start installing. Use one of the following links to open the installation procedure that you require. Then install the Network Deployment product on your operating system.

- Perform a custom installation.

  The custom installation lets you select features to install. The features include the core product files (required), the Javadoc (optional), and the Sample applications (optional).

See "Installing Network Deployment" on page 141.

- Perform a silent installation.

  A silent installation requires you to edit the example response file to contain all of your installation choices. After creating a valid response file, issue the install command with the silent parameter from a command window.

  See "Installing silently" on page 150.

- Install additional features to an existing product.

  After using a custom installation to omit one or both of the optional features, you can install the product again to add the features. Select a missing feature to install it.

  See "Installing additional features on an existing Network Deployment product" on page 145.

The Installation wizard installs the product files into the installation root directory.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Preparing to install Network Deployment on a Linux system

This topic describes how to install IBM WebSphere Application Server Network Deployment, Version 6 on a Linux platform.

Before using this topic to prepare for installing the Network Deployment product, decide the sort of topology you want to install and prepare your operating system. See the following topics for more information:

- "Planning to install Network Deployment" on page 83
- "Preparing Linux systems for installation" on page 117

After verifying prerequisites, verifying the product CD, and setting your installation goals, you can start installing. Use one of the following links to open the installation procedure that you require. Then install the Network Deployment product on your operating system.

Korean locale only: A known problem in the SDK prevents the Installation wizard from displaying the graphical user interface properly. Use the silent installation method instead.

- Perform a custom installation.

  The custom installation lets you select features to install. The features include the core product files (required), the Javadoc (optional), and the Sample applications (optional).

  See "Installing Network Deployment" on page 141.

- Perform a silent installation.

  A silent installation requires you to edit the example response file to contain all of your installation choices. After creating a valid response file, issue the install command with the silent parameter from a command window.

  See "Installing silently" on page 150.

- Install additional features to an existing product.

  After using a custom installation to omit one or both of the optional features, you can install the product again to add the features. Select a missing feature to install it.

  See "Installing additional features on an existing Network Deployment product" on page 145.

The Installation wizard installs the product files into the installation root directory.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Preparing to install Network Deployment on a Solaris system

This topic describes how to install the IBM WebSphere Application Server Network Deployment, Version 6 product on a Solaris platform.

Before using this topic to prepare for installing the Network Deployment product, decide the sort of topology you want to install and prepare your operating system. See the following topics for more information:
- "Planning to install Network Deployment" on page 83
- "Preparing Solaris systems for installation" on page 125

After verifying prerequisites, verifying the product CD, and setting your installation goals, you can start installing. Use one of the following links to open the installation procedure that you require. Then install the Network Deployment product on your operating system.
- Perform a custom installation.

  The custom installation lets you select features to install. The features include the core product files (required), the Javadoc (optional), and the Sample applications (optional).

  See "Installing Network Deployment" on page 141.
- Perform a silent installation.

  A silent installation requires you to edit the example response file to contain all of your installation choices. After creating a valid response file, issue the install command with the silent parameter from a command window.

  See "Installing silently" on page 150.
- Install additional features to an existing product.

  After using a custom installation to omit one or both of the optional features, you can install the product again to add the features. Select a missing feature to install it.

  See "Installing additional features on an existing Network Deployment product" on page 145.

The Installation wizard installs the product files into the installation root directory.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Preparing to install Network Deployment on a Windows system

This topic describes how to install the IBM WebSphere Application Server Network Deployment, Version 6.x product on a Windows operating system.

Before using this topic to prepare for installing the Network Deployment product, decide the sort of topology you want to install and prepare your operating system. See the following topics for more information:

- "Planning to install Network Deployment" on page 83
- "Preparing Windows systems for installation" on page 129

Log on as a member of the administrator group to successfully install the product. Creating a Windows service for the server1 process requires you to have the following advanced user right: *Act as part of the operating system*.

During the procedure, you can assign another ID or the one you are using to install as the user who will log on the Windows service. That user requires the advanced user right: *Log on as a service*.

However, if you do not have this advanced user right or if the user ID that is to log on the Windows service does not have the advanced user right, the Installation wizard assigns the advanced right to the user.

After verifying prerequisites, verifying the product CD, and setting your installation goals, you can start installing. Use one of the following links to open the installation procedure that you require. Then install the Network Deployment product on your operating system.

- Perform a custom installation.

  The custom installation lets you select features to install. The features include the core product files (required), the Javadoc (optional), and the Sample applications (optional).

  See "Installing Network Deployment" on page 141.

- Perform a silent installation.

  A silent installation requires you to edit the example response file to contain all of your installation choices. After creating a valid response file, issue the install command with the silent parameter from a command window.

  See "Installing silently" on page 150.

- Install additional features to an existing product.

  After using a custom installation to omit one or both of the optional features, you can install the product again to add the features. Select a missing feature to install it.

  See "Installing additional features on an existing Network Deployment product" on page 145.

The Installation wizard installs the product files into the installation root directory.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Chapter 7. Installing the product and additional software

Install WebSphere Application Server Network Deployment on AIX 5L, HP-UX, Linux, Linux on zSeries, Solaris, or Windows operating systems.

This topic also describes installing IBM HTTP Server and the application clients.

Read through this topic and its related topics to prepare for installation and to make yourself familiar with installation options, before you start to use the installation tools. Also read the hardware and software requirements on the Supported hardware and software Web site to get started.

The launchpad is the preferred method of starting the installation. Use the launchpad console to access the product overview, the installation guide, and the readme file. Use the launchpad to launch each installation procedure.

See "Using the launchpad to start the installation" on page 24 for more information.

If you encounter a problem such as needing more disk space or temporary space or missing prerequisite packages on your Linux or UNIX system, cancel the installation, make the required changes, and restart the installation.

Windows The installation procedure requires the installer ID to have the following advanced user rights, *Act as part of the operating system* and *Log on as a service* to install Windows services.

Linux The installer ID can be a non-root user ID. However, some installation procedures might require the installer ID to be the root user. One such example is the GSKit, which is required for using SSL with the IBM HTTP Server. After installing the IBM HTTP Server or the Web server plug-ins as a non-root user, log on as the root user and install GSKit. For detailed information on non-root limitations see, "Limitations of non-root installers" on page 175.

This topic provides an overview of installation procedures. Use the information in this topic to learn about the types of installation available. This topic has links to more detailed installation topics.

The Installation wizard performs the following actions:
- Automatically checks prerequisites
- Looks for a previous WebSphere Application Server Version 6.1 installation to determine whether to let you add features to the product binaries or to install a new set of product binaries
- Looks for a previous Version 6.1 installation to determine whether to let you upgrade from a trial installation to the real product
- Installs the necessary product binaries
- Prompts you to create a cell profile, a deployment manager profile, a stand-alone application server profile, or a custom profile; or prompts you to start the Profile Management tool to create a profile

There are several steps to installing WebSphere Application Server that are outlined in this topic. Use this outline when you are ready to begin the planning and installation process.

1. Plan your installation as described in Chapter 5, "Planning the installation," on page 81.
2. Prepare your operating platform for installation as described in Chapter 6, "Preparing the operating system for product installation," on page 107.
3. Review the roadmap for installing the Network Deployment product as described in "Roadmap: Installing the Network Deployment product" on page 138.
4. Install the Network Deployment product.

   If you cannot use a graphical user interface on your operating system for some reason, use the wizard in silent mode.

Choose an installation scenario to continue the installation:

- **Graphical user interface:** Perform the installation with the wizard, as described in "Installing Network Deployment" on page 141.

    The installation lets you select features to install.

- **Graphical user interface:** Install additional features to an existing installation as described in "Installing additional features on an existing Network Deployment product" on page 145.

    After installing the product, you can install it again to update the system files by installing previously uninstalled features.

- **Command-line interface:** Perform a silent installation as described in "Installing silently" on page 150.

    A silent installation requires you to edit the response file that contains all of your installation choices. After creating a valid response file, issue the install command with the -silent parameter and the -options parameter from a command window.

    The installer program does not support the ISMP-console installation method at this time.

5. **Optional:** Install IBM HTTP Server.

    After installing a WebSphere Application Server product, you can use the application server to serve applications over the Internet. It is not necessary to install the IBM HTTP Server or another Web server.

    The installation solution diagrams in Chapter 5, "Planning the installation," on page 81 show the components that are present in different types of environments.

6. **Optional:** Install Web server plug-ins for IBM HTTP Server or another supported Web server.

    If you install the IBM HTTP Server or another Web server, you must then install a binary module for the Web server to enable it to communicate with WebSphere Application Server products.

    After installing a Web server plug-in, the Plug-ins installation wizard configures a new element in the application server configuration called a *Web server definition*. You can then manage applications for the Web server using the administrative console.

7. **Optional:** Install the application clients.

    You do not need to install the Application Client unless an application that you are deploying was designed to run as a client application.

8. **Optional:** Install the Update Installer for WebSphere Software.

    Use the Update Installer to install maintenance packages for any of the installable WebSphere software components in the product package. See "Installing the Update Installer for WebSphere Software" on page 172 for more information.

9. **Optional:** Use the Install and Migration Tools disk to access the Update Installer, migration tools, the IBM Support Assistant, and World Type fonts.

    See "WebSphere Application Server supplements disc" on page 175 for more information.

You can install WebSphere Application Server Network Deployment Version 6.x by following this procedure.

You can also install IBM HTTP Server, the Web server plug-ins for WebSphere Application Server, and the application clients for WebSphere Application Server.

Roadmap: Installing the Network Deployment product

Use the launchpad to install IBM WebSphere Application Server Network Deployment from the product disc or from an installation image that you can download from the Passport Advantage site.

See Chapter 7, "Installing the product and additional software," on page 137 for information about installing any of the products in the WebSphere Application Server family of products.

This topic provides an overview of installing the WebSphere Application Server Network Deployment product.

The installation program uses the InstallShield for Multiplatforms (ISMP) product to perform the installation. You can use the Installation wizard either from a graphical interface or from the command line. If you use the -silent parameter on the command line option, the Installation wizard does not display the graphical user interface.

At a high-level view, the steps for installing and configuring the Network Deployment product are:
1. Install the Network Deployment product
2. Use the Profile Management tool to create one of the following profiles:
   - Deployment manager profile
   - Application Server profile
   - Cell profile
   - Custom profile
1. Use the launchpad to get started, if possible.

   The launchpad gives you important clues about creating typical topologies. The installation solution diagrams identify some of the system topologies that you can create. The launchpad is in the root directory of the product CD.

   Use the launchpad to launch the installation program for each of the installable components in the primary disk packet. See "Using the launchpad to start the installation" on page 24.

   The launchpad also provides access to the documentation for each of the installable components on the product CD.

   Start the launchpad with the launchpad command.

   - ▶ Linux ./launchpad.sh
   - ▶ Windows launchpad.bat

   The launchpad requires a supported browser. Supported browsers are:
   - Internet Explorer, Version 5.5 with SP 2 or later
   - Mozilla browser, Version 1.4 and 1.7.5 or later

     AIX requires Mozilla 1.7.8 or later as described in "Preparing AIX systems for installation" on page 107.
2. Explore the solution installation diagrams.

   Select the *Solution installation diagrams* link in the navigation area on the launchpad to view typical topologies for the product. The diagrams are also in "Planning to install Network Deployment" on page 83, where the installation steps for each solution are described in detail.
3. Install a deployment manager.

   The steps for installing the Network Deployment product and creating a deployment manager are:
   a. Prepare the operating system.
   b. Insert the product disc.
   c. Start the launchpad.
   d. Launch the installation program for the WebSphere Application Server Network Deployment product.
   e. Install the Network Deployment product
   f. Check for and install any recommended maintenance packages.
   g. Use the Profile Management tool to create a deployment manager profile.
   h. Open the First steps console and start the deployment manager.

      Or, start the deployment manager from the command line:
      1) Change directories to the *profile_root*/bin directory.

For example, if the profile is named dmgr01, use the following commands to change directories:

- Linux   `cd profile_root/bin`

- Windows   `cd profile_root\bin`

2) Start the deployment manager with the startManager command.

- Linux   ./startManager.sh

- Windows   startManager.bat

4. Install a stand-alone application server.

The steps for installing a stand-alone application server are:

a. Prepare the operating system.

b. Insert the product disk.

c. Start the launchpad.

d. Launch the installation program for the product.

e. Install the product.

f. Check for and install any recommended maintenance packages.

g. Use the Profile Management tool to create an application server profile.

h. Open the First steps console and start the application server.

Or start the application server from the command line:

1) Change directories to the *profile_root*/bin directory:

`cd profile_root/bin`

2) Start the application server named server1 with the startServer command.

- Linux   ./startServer.sh server1

- Windows   startServer.bat server1

5. Install a cell: a deployment manager with a federated application server.

The steps for installing the Network Deployment product and creating a managed node are:

a. Insert the product disc.

b. Start the launchpad.

c. Launch the installation program for the WebSphere Application Server Network Deployment product.

d. Install the Network Deployment product.

e. Check for and install any recommended maintenance packages.

f. Use the Profile Management tool to create the cell, which includes a deployment manager profile with a federated application server profile.

g. Open the First steps console and start the deployment manager.

Or, start the deployment manager from the command line:

1) Change directories to the *profile_root*/bin directory.

For example, if the profile is named dmgr01, use the following commands to change directories:

- Linux   `cd profile_root/bin`

- Windows   `cd profile_root\bin`

2) Start the deployment manager with the startManager command.

- Linux   `./startManager.sh`

- Windows   `startManager.bat`

h. Start the application server from the administrative console of the deployment manager.

You can also use the startServer command from the *profile_root*/bin directory.

If you cannot start the application server because the nodeagent is not running, issue the startNode command from the *profile_root*/bin<

Installing Network Deployment

Select installation options using the Installation wizard graphical user interface for installing IBM WebSphere Application Server Network Deployment.

This topic describes one of the available installation procedures.

- Installing Network Deployment, which is this topic
- "Installing additional features on an existing Network Deployment product" on page 145
- "Installing silently" on page 150

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see "Planning to install Network Deployment" on page 83. The diagrams show typical topologies for the product. The solutions are also in the *Installation solution diagrams* in the launchpad. See "Using the launchpad to start the installation" on page 24.

Select available features and characteristics for WebSphere Application Server Network Deployment and the profile that you can create.

1. Log on to the operating system.

   > **Linux** In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

   > **Windows** When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

   - Act as part of the operating system
   - Log on as a service

   For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

   > **Windows** If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Insert the disc labeled **WebSphere Application Server Network Deployment** into the disc drive.

   Mount the drive if necessary as described in tins_mount.dita{ IDEP205A: tins_mount.dita not found. }.

3. Start the installation.

   Start the installation of a product image with the launchpad script:

   - > **Linux** launchpad.sh
   - > **Windows** launchpad.bat

Or you can start the installation directly with the **install** command.

- ▶ `Linux` /WAS/install

- ▶ `Windows` \WAS\install

If a problem occurs with the Java Runtime Environment (JRE), force the installation to use the correct JRE with the following command:

- ▶ `Linux` `./install -is:javahome` *disc_mount_point*`/WAS/java/jre`

- ▶ `Windows` `install -is:javahome` *disc_drive:*`\WAS\java\jre`

If you have a problem starting the launchpad, use the troubleshooting information in "Using the launchpad to start the installation" on page 24 to correct the problem.

When using the launchpad, launch the Installation wizard for WebSphere Application Server Network Deployment.

After launching the Installation wizard from the launchpad or from the command line, the installer wizard initializes and then displays the Welcome panel.

4. Click **Next** to continue.

   The license agreement displays.

5. Click the radio button beside the **I accept the terms in the license agreement** message to agree to the license agreement and click **Next** to continue.

   After you accept the licensing terms, the Installation wizard checks for a supported operating system and prerequisite patches.

   If you encounter a problem such as not having the right prerequisite updates on your system, cancel the installation, make the required changes, and restart the installation.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

6. After confirming that your operating system is supported and that you have installed all necessary patches, click **Next** to continue.

   The Installation wizard checks for a previous installation at the same product level.

   Specifically, the wizard looks for an existing Version 6.1 installation.

   If the wizard detects a previous installation, it displays the Existing installation panel, where you can:

   - Add features to the existing installation
   - Perform a new installation to another directory

   See "Installing additional features on an existing Network Deployment product" on page 145 for more information about the scenario that adds features.

   This procedure assumes that you do not have an existing installation that you intend to update.

7. Select features to install and click **Next**.

   In Version 6.1, just one feature is available, which installs the Samples Gallery.

Table 43. Features for the WebSphere Application Server Network Deployment product

Feature	Description
Application Server Samples	Installs the Samples Gallery applications.

Performance considerations

For better performance in either a development or production environment, do not install the Samples. By omitting the Samples, you can improve application server startup time by 60 percent and save 15 percent of disk space. You can save up to 30 percent of process footprint (based on a maximum heap size of 256 MB).

The Installation wizard displays a confirmation panel.

8. Specify the destination of the installation root directory and click **Next**.

   Specify the location of the installation root directory for the product binaries, which are also known as the core product files or system files.

   The core product files do not change unless you:

   - Add a feature
   - Install service, such as refresh packs, fix packs, or interim fixes
   - Install another product that extends the Network Deployment product.

   The system-owned default *app_server_root* directories for installing as a root user or an administrator user are different than the user-owned default *app_server_root* directories when installing as a non-root installer.

   Restriction:

   - Deleting the default target location and leaving an installation directory field empty prevents you from continuing.

   - ▷ Linux ◁ Do not use symbolic links as the destination directory. Symbolic links are not supported.

   - ▷ Linux ◁ Spaces are not supported in the name of the installation directory on Linux and UNIX systems.

   - ▷ Windows ◁ Do not use a semicolon in the directory name on Windows systems. WebSphere Application Server cannot install properly on a Windows platform if the target directory includes a semicolon. A semicolon is the character used to construct the class path on Windows systems.

   The installer program checks for required space before calling the Installation wizard. If you do not have enough space, stop the installation program, free space by deleting unused files and emptying the recycle bin, and restart the installation.

9. Select an initial profile on the WebSphere Application Server environments panel.

   Valid values include:

   Application Server
   Create a stand-alone application server profile.

   Deployment Manager
   Create a deployment manager profile.

   Cell
   Create a cell with two profiles: a deployment manager and an application server node that is already federated into the deployment manager cell.

   Custom
   Create a profile with an empty node.

   You must federate this node to use it.

   None
   Do not create a profile.

10. Enable administrative security.

    The default setting is to enable administrative security. Clear the check box to disable security or supply an administrative ID and password.

Tip:

- In environments where you plan to have multiple stand-alone application servers, the security policy of each application server profile is independent of the others. Changes to the security policies in one application server profile are not synchronized with the other profiles.
- Write down the user name and password. You cannot log onto the administrative console without it. You cannot use WebSphere Application Server at all unless you know the ID and password.

11. Review the summary information, then click **Next** to install the product code or **Back** to change your specifications.

   The Installation wizard creates the uninstaller program and then displays a progress panel that shows which components are being installed. At the end of the installation, the wizard displays the Installation completion panel.

12. Verify the success of the installer program by examining the completion panel and the log.txt file for installation status.

   Examine the *app_server_root*/logs/install/log.txt file to verify that there were no file system or other unusual errors while installing. If there are problems, correct them, and reinstall the product.

   If problems occur, consult the following applicable logs:

   Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 44. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root/logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/manageprofiles/*profile_name*_create.log	• Traces all events that occur during the creation of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile creation failure.
		
		INSTCONFSUCCESS
		    Successful profile creation.
		
		INSTCONFPARTIALSUCCESS
		    Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

app_server_root/logs/manageprofiles/*profile_name*_delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile deletion failure.
		
		INSTCONFSUCCESS
		    Successful profile deletion.
		
		INSTCONFPARTIALSUCCESS
		    Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		    Unsuccessful ANT script configuration.
		
		Configuration action succeeded:
		    Successful ANT script configuration.

If the installation of the core product files fails, fix the error and reinstall.

If the creation of a profile fails, fix the error and run the Profile Management tool to recreate the profile.

Troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *app_server_root*/logs/manageprofiles/*profile_name_*create.log file does not contain a record of any problems, but problems exist.

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

> `Windows` Examine the Start menu entry. The menu is an indication of a successful installation:

- **[All] Programs > IBM WebSphere > Application Server Network Deployment v6.1**

If problems exist that cause you to reinstall the product, correct the errors, uninstall the product as described in Chapter 10, "Uninstalling the product," on page 229, reboot a Windows machine or log off and back on as root on a Linux or UNIX machine, and reinstall.

13. Click **Finish** to close the Installation wizard.

    If you did not create a profile during the installation, the option to launch the Profile Management tool is displayed. Use the Profile Management tool to create an operational environment that includes a profile.

    If you did create a profile, select the check box to open the First Steps console.

The Installation wizard installs the product files into the installation root directory.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Installing additional features on an existing Network Deployment product

This topic describes how to install additional features on an existing IBM WebSphere Application Server Network Deployment installation.

This topic describes one of the available installation procedures.

- "Installing Network Deployment" on page 141
- "Installing silently" on page 150

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see "Planning to install Network Deployment" on page 83. The diagrams show typical topologies for the product. The solutions are also in the *Installation solution diagrams* in the launchpad. See "Using the launchpad to start the installation" on page 24.

Use the following procedure to add features to an existing WebSphere Application Server Network Deployment installation.

1. Log on to the operating system.

   > `Linux` In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

```
umask
```

To set the umask setting to 022, issue the following command:

```
umask 022
```

 Windows When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

- Act as part of the operating system
- Log on as a service

For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

 Windows If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Stop each running Application Server with the stopServer command.

   Stop all server processes in all profiles on the machine. For example, issue the following command from the *profile_root*/bin directory to stop the server1 process in the application server profile:

   ```
   ./stopServer.sh server1
   ```

   If servers are running and security is enabled, use the following commands:

   ```
   ./stopServer.sh server1 -user user_ID -password password
   ```

3. Stop the nodeagent process with the stopNode command.

   Stop the nodeagent process that might be running on the machine. For example, issue the following command from the *profile_root*/bin directory of a federated node on a Linux machine to stop the nodeagent process:

   ```
   ./stopNode.sh
   ```

   If servers are running and security is enabled, use the following command:

   ```
   ./stopNode.sh -user user_ID -password password
   ```

4. Stop the deployment manager dmgr process with the stopManager command.

   Stop all dmgr processes that are running on the machine. For example, issue this command on a Linux machine from the *profile_root*/bin directory of the deployment manager profile:

   ```
   ./stopManager.sh -user user_ID -password password
   ```

5. Uninstall all maintenance packages.

   You are using the product installation image to install additional features. The features have not had any maintenance applied to them. If you remove all maintenance packages, your entire product will be at the same release level. You can then reapply the maintenance packages as described in a later step.

   Start the Update Installer program with the *updi_root*/update command to search for and uninstall all maintenance packages.

6. Insert the disc labeled **WebSphere Application Server Network Deployment** into the disc drive.

   Mount the drive if necessary as described in tins_mount.dita{ IDEP205A: tins_mount.dita not found. }.

7. Start the installation.

   Start the installation of a product image with the launchpad script:

   - Linux launchpad.sh
   - Windows launchpad.bat

   Or you can start the installation directly with the **install** command.

   - Linux /WAS/install

- \WAS\install

If a problem occurs with the Java Runtime Environment (JRE), force the installation to use the correct JRE with the following command:

- Linux `./install -is:javahome` *disc_mount_point*`/WAS/java/jre`

- Windows `install -is:javahome` *disc_drive:*`\WAS\java\jre`

If you have a problem starting the launchpad, use the troubleshooting information in "Using the launchpad to start the installation" on page 24 to correct the problem.

When using the launchpad, launch the Installation wizard for WebSphere Application Server Network Deployment.

After launching the Installation wizard from the launchpad or from the command line, the installer wizard initializes and then displays the Welcome panel.

8. Click **Next** to continue.

   The license agreement displays.

9. Click the radio button beside the **I accept the terms in the license agreement** message to agree to the license agreement and click **Next** to continue.

   After you accept the licensing terms, the Installation wizard checks for a supported operating system and prerequisite patches.

   If you encounter a problem such as not having the right prerequisite updates on your system, cancel the installation, make the required changes, and restart the installation.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

10. After confirming that your operating system is supported and that you have installed all necessary patches, click **Next** to continue.

    The Installation wizard checks for a previous installation at the same product level. This task describes the scenario where a previous installation exists and you are adding features with an incremental installation.

    When the wizard detects a previous installation, it displays the Existing installation panel. The panel lets you add features to the existing installation, or perform a new installation to another directory.

11. Choose to install additional features. Click **Next** to continue to the Features selection panel.

    Do not change the installation directory unless another existing installation is in the directory that you specify. An incremental installation adds features to the shared binaries identified in the field.

    You can add features to the core product files at any time by running the Installation wizard again. Installing additional features does not affect profiles that you might have already created.

    When adding features during an incremental installation, the wizard displays the Features selection panel next.

12. Select features to install and click **Next**.

    In Version 6.1, just one feature is available, which installs the Samples Gallery.

Table 45. Features for the WebSphere Application Server Network Deployment product

Feature	Description
Application Server Samples	Installs the Samples Gallery applications.

Performance considerations

For better performance in either a development or production environment, do not install the Samples. By omitting the Samples, you can improve application server startup time by 60 percent and save 15 percent of disk space. You can save up to 30 percent of process footprint (based on a maximum heap size of 256 MB).

The Installation wizard displays a confirmation panel.

13. Review the summary information and click **Next** to install the product code or **Back** to change your specifications.

The disk space shown on the pre-installation summary panel includes space for the Java Virtual Machine (JVM). Subtract the size of the JVM for your operating system to determine the installed size on disk for the features that you selected.

Table 46. JVM sizes

AIX	HP-UX	Linux	Solaris	Windows
59 MB	pa-risc: 109 MB 64 bit: 137 MB	ia32: 83 MB 64 bit: 133 MB	81 MB	ia32: 75 MB 64 bit: 71 MB

Verify that you have the total amount of free space shown before installing. Space is required for a working copy of the JVM during the installation.

The Installation wizard creates the uninstaller program and then displays a progress panel that shows which components are being installed. At the end of the installation, the wizard displays the Installation completion panel.

At the end of the installation, the wizard displays the Installation completion panel.

14. Verify the success of the installer program by examining the completion panel and the log.txt file for installation status.

Examine the *app_server_root*/logs/install/log.txt file to verify that there were no file system or other unusual errors while installing. If there are problems, correct them, and reinstall the product.

If problems occur, consult the following applicable logs:

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 47. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root/logs/install/ log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/
manageprofiles/
*profile_name*_create.log
	• Traces all events that occur during the creation of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile creation failure.
		
		INSTCONFSUCCESS
		    Successful profile creation.
		
		INSTCONFPARTIALSUCCESS
		    Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

Table 47. Installation and profile creation logs for WebSphere Application Server Network Deployment (continued)

Log	Content	Indicators

app_server_root/logs/ manageprofiles/ *profile_name_*delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		      Total profile deletion failure.
		
		INSTCONFSUCCESS
		      Successful profile deletion.
		
		INSTCONFPARTIALSUCCESS
		      Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		      Unsuccessful ANT script configuration.
		
		Configuration action succeeded:
		      Successful ANT script configuration.

If the installation of the core product files fails, fix the error and reinstall.

If the creation of a profile fails, fix the error and run the Profile Management tool to recreate the profile.

Troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *app_server_root*/logs/ manageprofiles/*profile_name_*create.log file does not contain a record of any problems, but problems exist.

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

> Windows   Examine the Start menu entry. The menu is an indication of a successful installation:

• **[All] Programs > IBM WebSphere > Application Server Network Deployment v6.1**

If problems exist that cause you to reinstall the product, correct the errors, uninstall the product as described in Chapter 10, "Uninstalling the product," on page 229, reboot a Windows machine or log off and back on as root on a Linux or UNIX machine, and reinstall.

15. Click **Finish** to close the Installation wizard.

   If you did not create a profile during the installation, the option to launch the Profile Management tool is displayed. Use the Profile Management tool to create an operational environment that includes a profile.

   If you did create a profile, select the check box to open the First Steps console.

The Installation wizard installs the new features in the existing installation root directory. The Installation wizard configures the WebSphere Application Server Network Deployment product for the new features.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Note: Adding the samples feature does not automatically deploy the samples to existing profiles that did not have samples deployed to them initially. New profiles need to be created to deploy the samples.

Installing silently

Installing WebSphere Application Server Network Deployment using silent installation refers to using a file to supply installation options without user interaction. To configure the installation, change the options in the response file before you issue the installation command. Silent installation mode does not accept interactive installation options. To specify non-default options during a silent installation, you must use the response file. To install silently, you must accept the license agreement in the agreement option.

This topic describes one of the available installation procedures.

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

- "Installing Network Deployment" on page 141
- "Installing additional features on an existing Network Deployment product" on page 145
- Installing silently on any supported operating system, which is this procedure

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see "Planning to install Network Deployment" on page 83. The diagrams show typical topologies for the product. The solutions are also in the *Installation solution diagrams* in the launchpad. See "Using the launchpad to start the installation" on page 24.

Use this procedure to perform a silent installation of WebSphere Application Server Network Deployment.

A silent installation uses the Installation wizard to install the product in silent mode, without the graphical user interface. Instead of displaying a wizard interface, the silent installation causes the installation program to read all of your responses from a file that you provide.

1. Log on to the operating system.

   > Linux | In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

   > Windows | When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

   - Act as part of the operating system
   - Log on as a service

   For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

   > Windows | If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Copy the response file as myoptionsfile to your disk drive and customize it.

   See "Customizing the response file" on page 152.

   The name of the original file is "responsefile.nd.txt" on page 154.

   Do not add an options line to any of the profile creation response files that includes the following parameter:

```
-silent
```
The -silent parameter is not required. If it exists in any of the files, the file cannot create a profile during a silent product installation.

3. Issue the proper command to use your custom response file. For example, issue one of the following commands:

- **Linux** *mnt_cdrom*/WAS/install -options /tmp/WAS/myoptionsfile.txt -silent

- **Windows** ″*disc_drive_D*:\WAS\install″ -options ″C:\temp\WAS\myoptionsfile.txt″ -silent

The Installation wizard and the Profile Management tool record installation events in the following log files:

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 48. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root /logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/ manageprofiles/ *profile_name*_create.log	• Traces all events that occur during the creation of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile creation failure.
		INSTCONFSUCCESS
		    Successful profile creation.
		INSTCONFPARTIALSUCCESS
		    Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

app_server_root/logs/ manageprofiles/ *profile_name*_delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile deletion failure.
		INSTCONFSUCCESS
		    Successful profile deletion.
		INSTCONFPARTIALSUCCESS
		    Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		    Unsuccessful ANT script configuration.
		Configuration action succeeded:
		    Successful ANT script configuration.

Log more information when InstallShield for MultiPlatforms (ISMP) cannot start the Installation wizard.

If the *profile_root* directory does not exist, the pctLog.txt file is in the USER_HOME directory and is named .$~pctLog.txt. Issue the env command to display the USER_HOME directory on Linux and UNIX systems. See the environment variable settings on Windows system to display the value of the variable.

Certain events can prevent ISMP from starting the Installation wizard. Such an event is not enough disk space to launch the Installation wizard for example. If your installation fails and there is no information in the installation logs, use the -is:javaconsole parameter to record entries for events that cause the ISMP program to fail to start the Installation wizard. The syntax of the **install** command for observing such events is:

> Windows

```
install.exe -is:javaconsole
```

Please ensure that you have at least 250 MB free in your temporary directory before attempting to install WebSphere Application Server.

Go to Chapter 7, "Installing the product and additional software," on page 137 to continue the installation and configuration of your system.

Customizing the response file

Customize the response file before installing WebSphere Application Server Network Deployment from a command line without using the graphical user interface of the Installation wizard.

Customize the response file to add your selections before attempting to install silently.

Use the response file to supply values to the Installation wizard as the wizard runs in silent mode. The wizard does not display interactive panels when it runs in silent mode, but reads values from the response file instead.

Be precise when supplying values in the file: Customize the options response file precisely to let the installation program read the option values that the file contains. Incorrect specifications affect the silent interface of the Installation wizard. For example, always enclose values in double quotation marks.

If you customize the response file incorrectly, the Installation wizard cannot install the product with the -options or -silent parameters. If the error is an invalid option value, the installer displays a warning message that you must confirm and stops the installation.

Compare your options response file to the file that is shipped with the product to make the necessary corrections. After correcting the file, reinstall.

Perform the following procedure to edit the response file.

1. Locate the sample options response file. The file is named responsefile.nd.txt in the WAS directory on the product CD-ROM.
2. Copy the file to preserve it in its original form. For example, copy it as *myoptions* on your disk drive.
3. Edit the copy in your flat file editor of choice, on the target operating system. Read the directions within the response file to choose appropriate values.

   Important: To prepare the file for a silent installation on AIX, use UNIX line-end characters (0x0D0A) to terminate each line of the options response file. The safest method of preparing the file is to edit the file on the target operating system.

4. Include custom option responses that reflect parameters for your system.

   See "responsefile.nd.txt" on page 154 for an example response file and a description of each option.

5. Save the file.
6. Log on to the operating system.

   > Linux   In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is

recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

```
umask
```

To set the umask setting to 022, issue the following command:

```
umask 022
```

> Windows   When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

- Act as part of the operating system
- Log on as a service

For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

> Windows   If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

7. Issue the proper command to use your custom response file. For example, issue one of the following commands:

- > Linux   *mnt_cdrom*/WAS/install -options /tmp/WAS/myoptionsfile.txt -silent
- > Windows   ″*disc_drive_D*:\WAS\install″ -options ″C:\temp\WAS\myoptionsfile.txt″ -silent

This procedure results in creating a customized response file and using the file to start a silent installation. The silent installation takes some time to complete.

Edit the version of the file that ships with the WebSphere Application Server Network Deployment product. The example in "responsefile.nd.txt" on page 154 is not guaranteed to be an accurate representation of what ships with the product.

After installing the product from the installation image, the next step is to check for available updates. See Chapter 9, "Installing maintenance packages," on page 211 for more information.

After updating the product, create a profile if you have not yet done so. Start the Profile Management tool, and create a deployment manager cell. The cell contains a deployment manager profile and a federated application server profile.

> Windows   On Windows systems, use the Start menu to locate IBM WebSphere and select appropriate menu options to display the **First steps** option for the profile that you intend to verify.

> Linux   The First steps console, firststeps.sh, is available in the *profile_root*/firststeps directory. A separate First steps console exists for each profile, except custom profiles. Use the First Steps console of each profile to verify the profile.

Use the installver program to compare the checksum of all installed files against the bill of materials that ships with the product, if you want to perform more installation verification. See "Verifying checksums of installed files" on page 189.

After verifying the product installation and starting the deployment manager or a stand-alone application server, use the administrative console to deploy an existing application.

responsefile.nd.txt

Installing WebSphere Application Server Network Deployment using silent installation refers to using a file to supply installation options without user interaction. To configure the installation, change the options in the response file before you issue the installation command. Silent installation mode does not accept interactive installation options. To specify non-default options during a silent installation, you must use the response file. To install silently, you must accept the license agreement in the agreement option.

Verify that the required disk space is available.

See Chapter 6, "Preparing the operating system for product installation," on page 107 for more information.

Do not use the default response file that is shipped on the product disk to install the product because the value of the silentInstallLicenseAcceptance option is false. Copy the file to change the value to true.

Location of the response file: The sample options response file is named `responsefile.nd.txt`.

Creating an operational environment: Installing a new installation of WebSphere Application Server Network Deployment with the response file creates an operational environment by default. The installer program:

1. Installs the new product code.
2. Creates the default profile.

   You can create additional profiles using any of these available methods:

   - Use the Profile Management tool.
   - Use the **manageprofiles** command.
   - Install with the response file with the createProfile=″true″ option and select a cell profile, a deployment manager profile, a custom profile, or a stand-alone application server profile with the -OPT profileType=″*profile_type*″ option.

   Note: The only other way to create a profile is when installing with the Installation wizard GUI. The wizard installs the product files and creates the selected profile.

Installing with a response file:

1. Copy the `responsefile.nd.txt` file from the `WAS` directory on the product disk to a place that you can easily identify on your system.
2. Edit the file to customize the values for your installation.
3. Save the file as `myresponsefile.txt`, for example.
4. Start the installation. For example:

   ▶ Linux

   ```
   install -options /tmp/WAS/myresponsefile.txt -silent
   ```

   ▶ Windows

   ```
   install -options C:\temp\WAS\myresponsefile.txt -silent
   ```

5. After the installation, examine the logs for success.

Logging:

The Installation wizard and the Profile Management tool record installation events in the following log files.

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 49. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root /logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/ manageprofiles/ *profile_name_*create.log	• Traces all events that occur during the creation of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile creation failure.
		INSTCONFSUCCESS
		    Successful profile creation.
		INSTCONFPARTIALSUCCESS
		    Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

app_server_root/logs/ manageprofiles/ *profile_name_*delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile deletion failure.
		INSTCONFSUCCESS
		    Successful profile deletion.
		INSTCONFPARTIALSUCCESS
		    Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		    Unsuccessful ANT script configuration.
		Configuration action succeeded:
		    Successful ANT script configuration.

Information that ISMP can log when it cannot start the Installation wizard

Verify or troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *profile_root*/logs/pctLog.txt file does not contain a record of a problem, but problems exist. If the *profile_root* directory exists, the pctLog.txt file is in the logs directory. If the error happens early in the installation, look for the logs in the system temporary area. The installation program copies the logs from the system temporary area to the logs directory at the end of the installation.

If the *profile_root* directory does not exist, the pctLog.txt file is in the USER_HOME directory and is named .$~pctLog.txt. Issue the env command to display the USER_HOME directory on Linux and UNIX systems. See the environment variable settings on Windows system to display the value of the variable.

Certain events can prevent the installer from starting the Installation wizard. Such an event is not enough disk space to launch the Installation wizard, for example. If your installation fails and there is no information in the installation logs, use the -log parameter to record entries for events that cause the installer program to fail to start the installation wizard. The syntax of the install command for logging such events is:

```
install  -options fully_qualified_options_response_file_name
        -silent
        -log # !fully_qualified_log_file_name  @ALL
```

-

```
install -options "/usr/IBM/WebSphere/silentFiles/myresponsefile.txt"
        -silent -log # !/usr/IBM/WebSphere/myOptionFiles/log.txt  @ALL
```

- Linux   HP-UX   Solaris

```
install -options "/opt/IBM/WebSphere/silentFiles/myresponsefile.txt"
        -silent -log # !/opt/IBM/WebSphere/myOptionFiles/log.txt  @ALL
```

- Windows

```
install.exe -options "C:\IBM\WebSphere\silentFiles\myresponsefile.txt"
            -silent -log # !C:\IBM\WebSphere\silentFiles\log.txt  @ALL
```

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

Example of the default file: Edit the version of the file that ships with the WebSphere Application Server Network Deployment product. The following example is not guaranteed to be an accurate representation of the file that ships with the product.

```
#############################################################################
#
# V6.1 InstallShield Options File
#
# Wizard name: Install
# Wizard source: setup.jar
#
# This file can be used to configure Install with the options specified below
# when the wizard is run with the "-options" command line option. Read each
# setting's documentation for information on how to change its value.
#
# A common use of an options file is to run the wizard in silent mode. This lets
# the options file's author to specify wizard settings without having to run the
# wizard in graphical or console mode. To use this options file for silent mode
# execution, use the following command line arguments when running the wizard:
#
#    -options "/<responsefile.path>/responsefile.nd"
#
#############################################################################

#############################################################################
#
# Invoke the install wizard in silent mode for both local and remote install
# whenever the response file is used.
#

-silent

#############################################################################
#
# License Acceptance
#
# Valid options:
# true - Accepts the license. Will install the product.
# false - Declines the license. Install will not occur.
#
# If no install occurs, this will be logged to a temporary log file in the
# /tmp/InstallShield/niflogs temporary directory.
#
# By changing the silentInstallLicenseAcceptance property in this response file
# to "true", you agree that you have reviewed and agree to the terms of the
# IBM International Program License Agreement accompanying this program, which is
# located at <CD_ROOT>/WAS/lafiles.  If you do not agree to these terms, do not
# change the value or otherwise download, install, copy, access, or use the
# program and promptly return the program and proof of entitlement to the party
# from whom you acquired it to obtain a refund of the amount you paid.
#

-OPT silentInstallLicenseAcceptance="false"

#############################################################################
# Operating System Prerequisite Checking
#
# If you want to disable operating system prerequisite checking, uncomment
# the following line. This will notify the installer to continue with
# the installation and log the warnings even though the prerequisite checking
# has failed.
#
#-OPT disableOSPrereqChecking="true"

#############################################################################
#
```

```
# Install Type Settings
#
# The installType option designates the type of installation that will be performed.
# The default installType option is to install a new copy of WebSphere Application Server.
#
# Valid values:
# installNew - default value, installs a new copy.
# addFeature - add features to an existing installation.

#

##########################################################################
#
# Install a New Copy
#
# To install a new copy, be sure that the installLocation option is set to a
# new install location.
#

-OPT installType="installNew"

##########################################################################
#
# Incremental Install
#
# If you are installing additional features on top of an existing installation,
# (e.g. incremental install), uncomment the following line.  This will notify
# the installer that you are doing an incremental install.
#
#-OPT installType="addFeature"
#
# Define the new features you want to install on top of an existing WebSphere
# Application Server.  The only additional feature available in WebSphere
# Application Server is Application Server Samples.
#
# Ensure the feature option below is set to "samplesSelected" (-OPT feature="samplesSelected")
# and the installLocation option is set to an "existing" WebSphere Application
# Server install location.
#

##########################################################################
#
# Create Profile for an Existing V6.1 Installation
#
# Valid values: true or false
#
# To create a profile for an ***existing installation***, UNcomment the following entry (by removing '#')
# and set the value to "true", and then comment out (by adding '#') "installType" option above
#
#-OPT createProfile="false"
#
# Be sure the installLocation option is set to your existing install location.
#

##########################################################################
#
# "Application Server samples" feature
#
# The selection state of the "Application Server samples" feature.
#
# Valid values:
#    samplesSelected  - Indicates that the feature is selected for installation
#    noFeature - Indicates that the feature is not selected for installation
#
# For example, to select "Application Server samples" for installation, use
#
#    -OPT feature="samplesSelected"
#

-OPT feature="samplesSelected"

##########################################################################
#
# Install Location
#
# The desired install location of the product. Specify a valid directory into which
# the product should be installed.  For new installs, this directory must be
# either empty or not exist.  Otherwise, this directory must be the product install
# location for the product to be modified.
#
# Below is the default WebSphere Application Server install location for the i5
# operating system.
#
# i5OS Default Install Location:
#
#   -OPT installLocation="/QIBM/ProdData/WebSphere/AppServer/V61/ND"
#

-OPT installLocation="/QIBM/ProdData/WebSphere/AppServer/V61/ND"
```

```
#############################################################################
#
# Profile Location
#
# The desired install location of profiles.  For new installs, Specify a valid
# directory into which the profiles should be installed.  This directory must be
# either empty or not exist.
#
# Below is the default profile install location for the i5 operating system.
#
# i5OS Default Profile Install Location:
#
#   -OPT defaultProfileLocation="/QIBM/UserData/WebSphere/AppServer/V61/ND"
#

-OPT defaultProfileLocation="/QIBM/UserData/WebSphere/AppServer/V61/ND"

#############################################################################
#
# Allow Profile Location Override
#
# This option allows users to overrule the empty default profile location requirement.
#
# Valid values:
# true - Allow profile location override
# false - Do not allow profile location override
#
# If desired, uncomment the following entry
#
# -OPT allowOverrideProfileLocation="true"
#


#############################################################################
#
# Profile Creation Selection
#
# Valid values:
# standAlone - a profile will be created with a stand alone Application server.
# deploymentManager - a profile will be created with a deployment manager.
# cell - two profiles will be created, one with a deployment manager and
#  and another with a managed node that is pre-federated into the cell.
# custom - a profile will be created with an empty node.
# none - a profile will not be created during installation.
#
# For example, to select "cell" profile creation for installation, use
#

-OPT profileType="cell"

#############################################################################
# Administrative security
#
# Choose to enable Administrative Security for the selected profile/s which
# will be created during install.
#
# *** If profileType="custom" or profileType="none", Administrative Security should
# be disabled.  Use -OPT PROF_enableAdminSecurity="false" to disable security.
#
# Valid Values:
# true - Administrative security is enabled, user name and password required
# false - Administrative security is not enabled
#

-OPT PROF_enableAdminSecurity="false"

# The following two options should only be uncommented when PROF_enableAdminSecurity="true"
# *** If PROF_enableAdminSecurity="false", the following entries will be disregarded.
#
# Replace ADMIN_USER_NAME with the user name for administrative security
# Replace ADMIN_PASSWORD with the password for the user specified under PROF_adminUserName for adminstrative security
#
#-OPT PROF_adminUserName="ADMIN_USER_NAME"
#-OPT PROF_adminPassword="ADMIN_PASSWORD"
#


#####################################################################################
# There following options are related to creating profiles and are dependent on the profileType option
# specified in the previous section.
#############################################################################
# if profileType="standAlone", you may use the following profile creation options:
#############################################################################
#############################################################################
#
# Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
```

```
#-OPT PROF_profileName=
###########################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

###########################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

###########################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

###########################################################################
#
# Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
###########################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
###########################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

###########################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

###########################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

###########################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

###########################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

###########################################################################
# WebServer Check
#
# Please specify whether you wish to set the web server definition
# Valid values: true or false
```

```
#-OPT PROF_webServerCheck=

############################################################################
# WebServer Type
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the type of web server you are creating
# Valid values: IHS | IIS | SUNJAVASYSTEM | DOMINO | APACHE | HTTPSERVER_ZOS
#-OPT PROF_webServerType=

############################################################################
# WebServer OS
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the operating system of the system where the web server is
# Valid values: linux | windows | aix | hp | solaris | os390 | os400
#-OPT PROF_webServerOS=

############################################################################
# WebServer Name
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the name of the web server
# Valid values: a string with valid characters
#-OPT PROF_webServerName=

############################################################################
# WebServer Hostname
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the host name of the system with the web server
# Valid values: a valid hostname
#-OPT PROF_webServerHostname=

############################################################################
# WebServer Port
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the port that the web server can be accessed from
# Valid values: a valid port number
#-OPT PROF_webServerPort=

############################################################################
# WebServer Install Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the installation path of the web server (local or remote)
# Valid values: a valid directory path
#-OPT PROF_webServerInstallPath=

############################################################################
# WebServer Plugin Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the path to the plugins that will be used by this web server
# Valid values: a valid directory path
#-OPT PROF_webServerPluginPath=

############################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=


############################################################################
# if profileType="deploymentManager", you may use the following profile creation options:
############################################################################
############################################################################
#
# Profile name
#
# Specify the name of the profile for the Deployment Manager. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_profileName=
############################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
```

```
#-OPT PROF_profilePath=

################################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

################################################################################
#
# Host name
#
# Specify the host name for the Deployment Manager. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

################################################################################
#
# Node name
#
# Please specify the node name for the Deployment Manager. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
################################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created.
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
################################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Deployment Manager.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

################################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

################################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

################################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

################################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

################################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=


################################################################################
# if profileType="custom", you may use the following profile creation options:
################################################################################
################################################################################
#
# Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
```

```
#
#-OPT PROF_profileName=
############################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

############################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

############################################################################
# Deployment Manager Host
#
# Please specify the hostname or address of the machine where the deployment manager is running.
# Valid values: a valid dmgr hostname
#-OPT PROF_dmgrHost=

############################################################################
# Deployment Manager Port
#
# Please specify the SOAP port of the deployment manager.
# Valid values: a valid port number
#-OPT PROF_dmgrPort=


############################################################################
# Deployment Manager Admin User Name
#
# Please specify an administrative user name that can be authenticated, if the administrative security on the
# deployment manager is enabled.
# Valid values: a valid deployment manager admin userName
#-OPT PROF_dmgrAdminUserName=

############################################################################
# Deployment Manager Admin Password
#
# Please specify an password that can be authenticated, if the administrative security on the
# deployment manager is enabled.
# Valid values: a valid deployment manager password
#-OPT PROF_dmgrAdminPassword=

############################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

############################################################################
#
# Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
############################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created.
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
############################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

############################################################################
```

```
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=

###########################################################################
# if profileType="cell", you may use the following profile creation options:
###########################################################################
###########################################################################
#
# Deployment Manager Profile name
#
# Specify the name of the profile for the deployment manager. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_dmgrProfileName=
###########################################################################
#
# Application Server Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_appServerProfileName=

###########################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

###########################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

###########################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

###########################################################################
#
# Node name
#
# Please specify the node name for the deployment manager. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=

###########################################################################
#
# Application Server Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_appServerNodeName=
###########################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
###########################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
```

```
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

###########################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

###########################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

###########################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

###########################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

###########################################################################
# WebServer Check
#
# Please specify whether you wish to set the web server definition
# Valid values: true or false
#-OPT PROF_webServerCheck=

###########################################################################
# WebServer Type
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the type of web server you are creating
# Valid values: IHS | IIS | SUNJAVASYSTEM | DOMINO | APACHE | HTTPSERVER_ZOS
#-OPT PROF_webServerType=

###########################################################################
# WebServer OS
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the operating system of the system where the web server is
# Valid values: linux | windows | aix | hp | solaris | os390 | os400
#-OPT PROF_webServerOS=

###########################################################################
# WebServer Name
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the name of the web server
# Valid values: a string with valid characters
#-OPT PROF_webServerName=

###########################################################################
# WebServer Hostname
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the host name of the system with the web server
# Valid values: a valid hostname
#-OPT PROF_webServerHostname=

###########################################################################
# WebServer Port
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the port that the web server can be accessed from
# Valid values: a valid port number
#-OPT PROF_webServerPort=

###########################################################################
# WebServer Install Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the installation path of the web server (local or remote)
# Valid values: a valid directory path
#-OPT PROF_webServerInstallPath=

###########################################################################
# WebServer Plugin Path
#
```

```
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the path to the plugins that will be used by this web server
# Valid values: a valid directory path
#-OPT PROF_webServerPluginPath=

##########################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=

##########################################################################
# Node Omit Action
#
# Use this option to omit the config action for the cell node
# Valid values: name of a config action
#-OPT PROF_nodeOmitAction=


##########################################################################
# Tracing Control
#
# The trace output format can be controlled via the option
# -OPT traceFormat=ALL
#
# The choices for the format are 'text' and 'XML'. By default, both formats will be produced, in two different trace files.
#
# If only one format is required, use the traceFormat option to specify which one, as follows:
#
# Valid Options:
#       text - Lines in the trace file will be in a plain text format for easy readability.
#       XML  - Lines in the trace file will be in the standard Java logging XML format which can be viewed using
#       any text or XML editor or using the Chainsaw tool from Apache (http://logging.apache.org/log4j/docs/chainsaw.html).
#
#
#
# The amount of trace info captured can be controlled using the option:
# -OPT traceLevel=INFO
#
# Valid Options:
#
#       Level           Numerical Level      Description
#       OFF             0                    No trace file is produced
#       SEVERE          1                    Only severe errors are output to trace file
#       WARNING         2                    Messages regarding non-fatal exceptions and warnings are added to trace file
#       INFO            3                    Informational messages are added to the trace file (this is the default trace level)
#       CONFIG          4                    Configuration related messages are added to the trace file
#       FINE            5                    Tracing method calls for public methods
#       FINER           6                    Tracing method calls for non public methods except getters and setters
#       FINEST          7                    Trace all method calls, trace entry/exit will include parameters and return value

##########################################################################
# Custom Install Package (CIP) Special Paramaters
#
# By using the following option, you can choose whether to install profile customization at CIP install time.
#
# Valid Options:
#       maintenanceOnly               - Only installs product binary files.  If the CIP contains profile customizations, they will NOT be installed.
#       customizationAndMaintenance   - Installs both product binary files and profile customizations (if any).
#
#
-OPT if_cip_modifyexistinginstall=customizationAndMaintenance
```

Installation type options and options for profiles: Options that you can use to install silently vary according to the installation task that you are performing:

- installNew
- addFeature

Options for creating profiles vary according to the profile that you are creating:

- Cell
- Deployment manager
- Stand-alone application server
- Custom
- None

Options for a new installation:

```
-OPT silentInstallLicenseAcceptance=
-OPT allowNonRootSilentInstall=
-OPT installType="installNew"
-OPT feature=
-OPT installLocation=
```

Options for creating a cell:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="cell"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_appServerNodeName=
-OPT PROF_appServerProfileName=
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_dmgrProfileName=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_nodeOmitAction=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
-OPT PROF_validatePorts=
-OPT PROF_webServerCheck=
-OPT PROF_webServerHostname=
-OPT PROF_webServerInstallPath=
-OPT PROF_webServerName=
-OPT PROF_webServerOS=
-OPT PROF_webServerPluginPath=
-OPT PROF_webServerPort=
-OPT PROF_webServerType=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a deployment manager:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="deploymentManager"
-OPT silentInstallLicenseAcceptance="false"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
```

```
-OPT PROF_validatePorts=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a stand-alone application server cell:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="standAlone"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
-OPT PROF_validatePorts=
-OPT PROF_webServerCheck=
-OPT PROF_webServerHostname=
-OPT PROF_webServerInstallPath=
-OPT PROF_webServerName=
-OPT PROF_webServerOS=
-OPT PROF_webServerPluginPath=
-OPT PROF_webServerPort=
-OPT PROF_webServerType=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a custom profile:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="custom"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_dmgrAdminPassword=
-OPT PROF_dmgrAdminUserName=
-OPT PROF_dmgrHost=
-OPT PROF_dmgrPort=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
```

Option descriptions:
- The response file is in English and is intended to be copied and edited.
- Edit this file directly with your flat file editor of choice.
- All lines preceded by a hash mark (#) are comments.
- The file must exist to perform a silent installation. The installation program reads this file to determine installation option values when you install silently.
- Save the file in a location that you can identify when you specify the fully qualified path as part of the installation command.
- If you do not specify a value for a property, the default value is used. Note that for the silentInstallLicenseAcceptance option, the default value of false prevents the installation from running.
- **Windows** If you are installing on a Windows platform, your user ID must belong to the administrator group and must have the advanced rights *Act as part of the operating system* and *Log on as a service*. If you select the following option when your user ID does not comply, the installation fails:

  `-OPT PROF_winserviceCheck="true"`
- Avoid using the following reserved folder names as values:

  Reserved names: Avoid using reserved folder names as field values. The use of reserved folder names can cause unpredictable results. The following words are reserved:
  - cells
  - nodes
  - servers
  - clusters
  - applications
  - deployments

See the "install command" on page 55 for more information about installation types and profile types.

Updating ports in an existing profile

Use the updatePorts.ant script to change ports in an installed profile.

Each profile template has its own updatePorts.ant script.

The updatePorts.ant script for application server profiles is in the *app_server_root*/profileTemplates/ *template_name*/actions directory. To use the script, you have to identify which profile to update.

Use the following procedure to become familiar with using the updatePorts.ant script. Each step is an exercise that results in reassigning ports using a particular method that the updatePorts.ant script supports.

Look at steps for all of the operating systems mentioned. The differences are mainly in the extension of the script file and the direction of the directory delimiters. Linux and UNIX shell scripts (*.sh) and other commands require a ./ before the command to tell the operating system that the command is in the current working directory.

- **Linux** Assign nonconflicting ports to the AppSrv01 profile.

  The ANT script assigns nonconflicting ports by default. No special arguments are needed. Identify the fully qualified directory paths, profile name, unique node name, and unique cell name. Then issue the command.

  1. Create the Java properties file encoded in ISO-8895-1 file encoding, to assign nonconflicting port values to the application server profile.

     For this example, assume that the system is a Linux operating system and that you create the following /TMP/was_props/appserver.props properties file.

     ```
     WAS_HOME=/opt/IBM/WebSphere/AppServer
     was.install.root=/opt/IBM/WebSphere/AppServer
     profileName=AppSrv01
     ```

```
profilePath=/opt/IBM/WebSphere/AppServer/profiles/AppSrv01
templatePath=/opt/IBM/WebSphere/AppServer/profileTemplates/default
nodeName=appserver_node01
cellName=appserver_cell01
hostName=myserver.ibm.com
```

2. Open a command shell window.

3. Change directories to the /opt/IBM/WebSphere/AppServer/bin directory.

   ```
   cd /opt/IBM/WebSphere/AppServer/bin
   ```

   (Or, if the product is installed to a non-default directory, change directories to the
   <install_root_directory>/bin directory.)

4. Issue the command.

   ```
   ./ws_ant.sh -propertyfile /TMP/was_props/appserver.props  -file /opt/IBM/WebSphere/AppServer/profileTemplates/defa
   ```

5. Open the administrative console and view the changed port assignments.

   To view the port assignments, click **Servers > Application servers > server1 > [Communications]
   > Ports**.

6. Run the script again and view the ports. Are they the same as before?

The resulting dynamically assigned port values apply to all of the ports currently assigned to the
AppSrv01 profile, for every server listed in the serverindex.xml file for the profile node name. Each port
receives a new nonconflicting value. None of the old port value assignments are used because the port
values are in use at the time of the new assignment.

- ▶ Windows   Assign default ports to the AppSrv02 profile.

The ANT script assigns nonconflicting ports by default. The defaultPorts=true special argument is
needed. Identify the fully qualified directory paths, profile name, unique node name, and unique cell
name. Then issue the command.

1. Create the Java properties file encoded in ISO-8895-1 file encoding, to assign default port values to
   the application server profile.

   For this example, assume that the system is a Windows operating system and that you create the
   following C:\temp\was_props\appserver.props properties file.

   ```
   WAS_HOME="C:\Program Files\IBM\WebSphere\AppServer"
   was.install.root="C:\Program Files\IBM\WebSphere\AppServer"
   profileName=AppSrv02
   profilePath="C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv02"
   templatePath="C:\Program Files\IBM\WebSphere\AppServer\profileTemplates\default"
   nodeName=appserver_node02
   cellName=appserver_cell02
   hostName=myserver2.ibm.com
   defaultPorts=true
   ```

   ▶ Windows   Use double quotation marks around a Windows path name with spaces. Do not use
   quotation marks around the path name if there are no spaces in the path.

2. Open a DOS command window.

3. Change directories to the C:\Program Files\IBM\WebSphere\AppServer\bin directory.

   ```
   cd "C:\Program Files\IBM\WebSphere\AppServer\bin"
   ```

   (Or, if the product is installed to a non-default directory, change directories to the
   <install_root_directory>/bin directory.)

4. Issue the command.

   ```
   ws_ant.bat -propertyfile C:\temp\was_props\appserver.props  -file "C:\Program Files\IBM\WebSphere\AppServer\profil
   ```

5. Open the administrative console and view the changed port assignments.

   To view the port assignments, click **Servers > Application servers > server1 > [Communications]
   > Ports**.

6. Run the script again and view the ports. Are they the same as before?

The resulting assigned port values are the same each time because the values are the default values. This method does not resolve conflicting port assignments. To view all port assignments for a profile, see the C:\Program Files\IBM\WebSphere\AppServer\profiles\AppSrv02\config\cells\appserver_cell02\nodes\appserver_node02\serverindex.xml file. Issue the netstat -a command to see all ports in use on the machine.

- ▶ AIX ◀ Assign ports starting at 2050 to the AppSrv03 profile.

  The ANT script assigns nonconflicting ports by default. The startingPort=2050 special argument is needed. Identify the fully qualified directory paths, profile name, unique node name, and unique cell name. Then issue the command.

  1. Create the Java properties file encoded in ISO-8895-1 file encoding, to assign default port values to the application server profile.

     For this example, assume that the system is an AIX operating system and that you create the following /usr/tmp/was_props/appserver.props properties file.

     ```
     WAS_HOME=/usr/IBM/WebSphere/AppServer
     was.install.root=/usr/IBM/WebSphere/AppServer
     profileName=AppSrv03
     profilePath=/usr/IBM/WebSphere/AppServer/profiles/AppSrv03"
     templatePath=/usr/IBM/WebSphere/AppServer/profileTemplates/default"
     nodeName=appserver_node03
     cellName=appserver_cell03
     hostName=myserver3.ibm.com
     startingPort=2050
     ```

  2. Open a command shell window.

  3. Change directories to the /usr/IBM/WebSphere/AppServer/bin directory.

     ```
     cd /usr/IBM/WebSphere/AppServer/bin
     ```

     (Or, if the product is installed to a non-default directory, change directories to the <install_root_directory>/bin directory.)

  4. Issue the command.

     ```
     ./ws_ant.sh -propertyfile /usr/tmp/was_props/appserver.props  -file /usr/IBM/WebSphere/AppServer/profileTemplates/def
     ```

  5. Open the administrative console and view the changed port assignments.

     To view the port assignments, click **Servers > Application servers > server1 > [Communications] > Ports**.

  6. Run the script again and view the ports. Are they the same as before?

  After using the -startingPort option, the resulting dynamically assigned port values are not the same each time because the ANT script assigns nonconflicting port values starting from the startingPort number (port 2050 in this case). This method resolves conflicting port assignments.

This procedure results in four different methods of port assignments with the updatePorts.ant script.

You can change port values in a variety of ways. The **install** command and the silent installation response file also support setting port values in the same manner as described in this article. In fact, the two installation methods use the same options:

- -OPT PROF_defaultPorts= [No value is required. The equal sign is a standardization misnomer.]
- -OPT PROF_startingPort=″nnnn″
- -OPT PROF_portsFile=″path_to_portsdef.props file″
- If you omit one of the preceding arguments when calling the **install** command or leave one of the preceding arguments out of your silent response file, the default action is to assign nonconflicting port values.

The use of the exact same options for a GUI installation and a silent installation is no coincidence. Most WebSphere Application Server component installation programs are implementations of the Common

Install Engine for WebSphere Application Server. The use of the exact same actions for the ANT script is also because of the same pervading design theme, which is to simplify your installation experience.

Mounting disc drives on Linux and UNIX operating systems

Some Linux and UNIX operating systems require you to mount the drive before you can access data on the compact disc.

Insert the compact disc into the drive before mounting the drive.

Use these procedures to mount the product discs for WebSphere Application Server.

- Mounting the CD-ROM on AIX

    To mount the CD-ROM on AIX using the System Management Interface Tool (SMIT), perform the following steps:

    1. Log in as a user with root authority.
    2. Insert the CD-ROM in the drive.
    3. Create a CD-ROM mount point by entering the mkdir -p /cdrom command, where cdrom represents the CD-ROM mount point directory.
    4. Allocate a CD-ROM file system using SMIT by entering the smit storage command.
    5. After SMIT starts, click **System Storage Management (Physical & Logical Storage) > File Systems > Add / Change / Show / Delete File Systems > CDROM File Systems > Add a CDROM File System**.
    6. In the Add a CDROM File System window:
        - Enter a device name for your CD-ROM file system in the **DEVICE Name** field. Device names for CD-ROM file systems must be unique. If there is a duplicate device name, you may need to delete a previously-defined CD-ROM file system or use another name for your directory. The example uses /dev/cd0 as the device name.
        - Enter the CD-ROM mount point directory in the **MOUNT POINT** window. In our example, the mount point directory is /cdrom.
        - In the **Mount AUTOMATICALLY at system restart** field, select yes to enable automatic mounting of the file system.
        - Click **OK** to close the window, then click **Cancel** three times to exit SMIT.
    7. Next, mount the CD-ROM file system by entering the smit mountfs command.
    8. In the Mount a File System window:
        - Enter the device name for this CD-ROM file system in the **FILE SYSTEM name** field. In our example, the device name is /dev/cd0.
        - Enter the CD-ROM mount point in the **Directory over which to mount** field. In our example, the mount point is /cdrom.
        - Enter cdrfs in the **Type of Filesystem** field. To view the other kinds of file systems you can mount, click List.
        - In the **Mount as READ-ONLY system** field, select yes.
        - Accept the remaining default values and click **OK** to close the window.

    Your CD-ROM file system is now mounted. To view the contents of the CD-ROM, place the disk in the drive and enter the cd /cdrom command where *cdrom* is the CD-ROM mount point directory.

- Mounting the CD-ROM on HP-UX Because WebSphere Application Server contains several files with long file names, the mount command can fail. The following steps let you mount successfully your WebSphere Application Server product CD-ROM on the HP-UX platform:

    1. Log in as a user with root authority.
    2. In the /etc directory, add the following line to the pfs_fstab file:

        ```
        /dev/dsk/c0t2d0 mount_point pfs-rrip ro,hard
        ```

where *mount_point* represents the mount point of the CD-ROM.

  3. Start the *pfs* daemon by entering the following commands (if they are not already running):

  ```
  /usr/sbin/pfs_mountd &
  /usr/sbin/pfsd 4 &
  ```

  4. Insert the CD-ROM in the drive and enter the following commands:

  ```
  mkdir /cdrom
  /usr/sbin/pfs_mount /cdrom
  ```

  The */cdrom* variable represents the mount point of the CD-ROM.

  5. Log out.

- Mounting the CD-ROM on Linux To mount the CD-ROM on Linux:

  1. Log in as a user with root authority.

  2. Insert the CD-ROM in the drive and enter the following command:

  ```
  mount -t iso9660 -o ro /dev/cdrom /cdrom
  ```

  The */cdrom* variable represents the mount point of the CD-ROM.

  3. Log out.

  Some window managers can automatically mount your CD-ROM for you. Consult your system documentation for more information.

- Mounting the CD-ROM on Solaris To mount the CD-ROM on Solaris:

  1. Log in as a user with root authority.

  2. Insert the CD-ROM into the drive.

  3. If the Volume Manager is not running on your system, enter the following commands to mount the CD-ROM:

  ```
  mkdir -p /cdrom/unnamed_cdrom
  mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom/unnamed_cdrom
  ```

  The */cdrom/unnamed_cdrom* variable represents the CD-ROM mount directory and the /dev/dsk/c0t6d0s2 represents the CD-ROM drive device.

  If you are mounting the CD-ROM drive from a remote system using NFS, the CD-ROM file system on the remote machine must be exported with root access. You must also mount that file system with root access on the local machine.

  If the Volume Manager (vold) is running on your system, the CD-ROM is automatically mounted as:

  ```
   /cdrom/unnamed_cdrom
  ```

  4. Log out.

Return to the installation procedure to continue.

Installing the Update Installer for WebSphere Software

The Update Installer for WebSphere Software has a new installation program for Version 6.1, Installation Wizard for the Update Installer. The Update Installer now uses the Common Install Engine for WebSphere Software.

The Update Installer can be used to install maintenance on the following WebSphere software products:
- IBM WebSphere Application Server Version 6 or above
- IBM WebSphere Application Server Network Deployment Version 6 or above
- IBM WebSphere Application Server - Express Version 6 or above
- IBM Application Client for WebSphere Application Server Version 6 or above
- Web server plug-ins for WebSphere Application Server Version 6 or above
- IBM WebSphere Extended Deployment Version 5.1 or above

- IBM HTTP Server Version 6 or above
- IBM WebSphere Process Server Version 6.0 or above
- IBM WebSphere Enterprise Service Bus Version 6.0.1 or above

The Update Installer ships on the Version 6.1 supplements disc.

The Update Installer undergoes regular maintenance and offers updated versions on the WebSphere software support pages. See Recommended Updates for WebSphere Application Server. Look under your release of the WebSphere software for a link to the Update Installer download page.

Important: Only one copy of the Update Installer should be installed on your system at any one time for use with all Version 6.x products. Before installing a newer version of the Update Installer, you must first remove the existing Update Installer.

Hardware and software requirements

The hardware and software requirements for the Update Installer are the same as the product or component requirements that the Update Installer is used to update. For example, you can use the Update Installer to install maintenance for WebSphere software on distributed platforms and iSeries platforms. The Update Installer does not install maintenance for WebSphere Application Server for z/OS.

The official statements of support for hardware and software for the IBM WebSphere Application Server Version 6.1 are on the IBM WebSphere Application Server supported hardware and software Web site. The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

This topic describes how to install the Update Installer from the installation image provided in the product package.
1. Install one of the products that the Update Installer can update.

   See Chapter 7, "Installing the product and additional software," on page 137 for more information.
2. Insert the supplements disc in a disk drive.

   Mount the drive if necessary.
3. Change directories to the UpdateInstaller directory on the supplements disc.
4. Issue the **install** command or the **install -silent** command.
5. Identify the installation root where you intend to install the Update Installer.
6. Install the code.

The Update Installer is installed under the root directory that you specified during installation.

See Chapter 9, "Installing maintenance packages," on page 211 for information about using the Update Installer to install maintenance packages.

Operating system registry keys

Use the installation procedures to register WebSphere Application Server and the associated products with the native operating system registry. Associated products include the IBM HTTP Server, the Web server plug-ins, the Application Client, the Application Server Toolkit, and the Edge Components. This topic describes possible registry key values.

Installations are registered with the native operating system registries, such as the Red Hat Package Manager (RPM) on Linux systems. The InstallShield for Multiplatforms (ISMP) installation wizard also creates the vpd.properties file that contains a list of product codes that ISMP uses to track installations that it has performed.

See "Limitations of non-root installers" on page 175 for more information about registry entries.

Table 50. Keys used to register WebSphere Application Server

Registry file location	WebSphere Application Server	Application Client	IBM HTTP Server	Web Server Plug-ins	Application Server Toolkit	Edge Components	Update Installer (UPDI)
vpd.properties	WSBAA61	WSCAA61	WSIHS61	WSPAA61	WSAST61	WSEDG61	WSUPD61
AIX	WSBAA61	WSCAA61	lslpp -L|grep WSIHS61	lslpp -L|grep WSPAA61	N/A	WSEDG61	WSUPD61
HP-UX	WSBAA61	WSCAA61	swlist|grep WSIHS61	swlist|grep WSPAA61	N/A	WSEDG61	WSUPD61
Linux	WSBAA61	WSCAA61	rpm -qa|grep "WSIHS61"	rpm -qa|grep "WSPAA61"	rpm –q|grep "WSAST61"	WSEDG61	WSUPD61
Solaris	WSBAA61	WSCAA61	WSIHS61	WSPAA61	N/A	WSEDG61	WSUPD61
Windows	HKEY_ CURRENT_ USER\ SOFTWARE\ IBM\ WebSphere Application Server Network Deployment\ 6.1.0.0	HKEY_ CURRENT_ USER\ SOFTWARE\ IBM\ Application Client for WebSphere Application Server\6.1.0.0	HKLM\ SOFTWARE\ IBM\ HTTP Server\6.1.0.0	HKLM\ SOFTWARE\ IBM\ Web server Plug-ins for IBM WebSphere Application Server\6.1.0.0	HKEY_ CURRENT_ USER\ SOFTWARE\ IBM\ WebSphere Application Server Toolkit\6.1.0.0	N/A	HKLM\ SOFTWARE\ IBM\ WAS Update Installer\ 6.1.0.0

In addition to the vpd.properties file, the WebSphere Application Server installation programs also create a record of installed products in an install registry file. The WebSphere Application Server Network Deployment installation program also creates a catalog signature file for use by IBM Tivoli License Manager (ITLM).

The install registry file

The Version 6.1 install registry file is an XML file that contains data entries for all of the installed products that are listed in the preceding table:
- **Product information**: product id (offering), product installation location, and product version
- **Package information**: package name, package installation location, product installation location, and any associated products

Version 6.1 does not use the .WASRegistry file that is used in Version 6.0.

The catalog signature files

WebSphere Application Server Network Deployment provides catalog signature files to support IBM Tivoli License Manager 2.2. The ITLMReadinessComponents.xml file enables ITLM to detect and monitor WebSphere Application Server Network Deployment software components. The ITLMReadinessOfferings.xml file contains the offering product structure.

Example package entries ▶ Linux

Issue the following command on a Linux system to show packages for the WebSphere Application Server products:

```
rpm -qa | grep WS
```

WebSphere Application Server supplements disc

Use the supplements disc to access installation programs and documentation for Application Client, IBM Support Assistant, Update Installer, GSKit, IBM HTTP Server, Installation Factory, and Web server plug-ins. You can also use the migration tools from this disc or copy the tools to your system.

The launchpad application in the root directory of the supplements disc lets you install and view information about many of the the components on the disc.

Limitations of non-root installers

Non-root installers can install WebSphere Application Server Network Deployment Version 6.1 in both silent and interactive mode for full product installations and removals, incremental feature installations, and silent profile creation. Installing as a non-root user in Version 6.1 works the same as installing as a root user does in previous versions. The term *non-root* implies a Linux or UNIX installer, but also means a non-administrator group installer on a Windows system. However, there are limitations. In the current version of WebSphere Application Server Network Deployment, the IBM HTTP Server, or the Web server plug-ins components, a non-root installation does not install the GSKit security components needed by the IBM HTTP Server or the Web server plug-ins for SSL support. As a result, you must have root access to install the GSKit to use SSL communication. Also, non-root install for the plugins component is only supported if WebSphere Application Server is also installed as non-root.

For existing installations, the root or non-root installer who owns the currently installed files is the only user who can perform subsequent installation or removal operations on that installation. Such restricted operations include profile creation, unless the owner reassigns ownership of the appropriate profile directories and files to another user. The root user is not under the same restriction, and can delete an installation owned by a non-root user.

Initially, the owner is the installer. However, the installer can assign ownership of an existing installation to another user.

The set of post-install operations that are subject to this rule includes installing a feature (incremental installation), installing maintenance, uninstalling the product, and installing a customized installation package (a CIP from the Install Factory) on top of an existing installation in a *slip* installation.

Allowing a non-owning user to perform the post-install operations introduces ownership complexities that Version 6.1 does not support. The full installer programs and the Update Installer (UPDI) check to verify that the current installer is also the owner of the installed files. A non-owner is not allowed to continue the operation.

The following expectations help define the parameters for using a non-root installer ID.

- **Non-root installations apply to all of the WebSphere software components in the product package**

  Non-root installers can install all of the components, including:
  - WebSphere Application Server
  - IBM HTTP Server
  - Web server plug-ins
  - Application Client
  - Application Server Toolkit
  - Update Installer
- **Non-root installations install an operational product**

Whenever possible, if some portion of an installation requires root privileges, the installation programs provide an option so that the non-root installer can install an operational product, but without enabling the privileged option.

- **Installation programs identify root-only options**

  Installation programs clearly identify privileged options by disabling such options in the interface of the non-root installer.

- **Default installation locations are within your home directory**

  Default installation locations are within the home directory of the non-root installer to verify a writable disk space. Default installation directories for root installers are the same as for Version 6.0. The installation programs verify that specified disk locations are writable.

- **Installation programs display a list of limitations**

  Non-root installers see a panel in the installation user interface after prerequisite checking completes. The panel clearly summarizes limitations that exist for a non-root installation.

  For example, messages might say that the GSKit cannot install and that the product cannot register natively with the operating system. The non-root installer can continue with the knowledge of the existing limitations or can cancel to install as root without the limitations.

- **Silent installers support non-root installations**

  Silent installations have a new option across all installation packages that achieves a similar objective. The allowNonRootSilentInstall option has a default value of false:

  - The installation program checks the value of this option when a non-root installer attempts the installation. The installation program ignores the option when root is installing.

  - A false value discontinues a non-root installation. The resulting message in the installation log indicates that the allowNonRootSilentInstall value must be true. The log also indicates non-root installation limitations.

  - A true value permits the installation to proceed. The resulting message in the log indicates conditions that might exist because of the non-root limitations.

  - Comments for the non-root installer option in the sample response file clearly summarize the limitations.

- **Root can use specialized installation routines to install privileged options**

  Whenever possible, separately installed privileged options are integrated with the non-root installation.

  ▶ `Linux`   For example, a routine to install menu options on Linux systems lets a root user intervene to allow the entries for a non-root installer. See the description of using the moveWebSphereMenu.sh script later in this topic.

The following limitations and differences exist when installing as a non-root installer:

- **Port value assignment limitations**

  - Creating a profile is optional during WebSphere Application Server Network Deployment installation.

    Port value assignments for the profile occur only when the installation creates a profile. The port value assignments are part of the profile configuration.

    The installation program does not prompt an installer for which port values to use, but instead, generates and assigns a set of non-conflicting port values. The installation program assigns appropriate port values to a non-root installer, such as greater than 1024, for example.

  - In WebSphere Application Server Version 6.0, profile creation avoids port value conflicts by examining port values in use by other WebSphere Application Server installations.

    Multiple non-root installers diminish the ability to detect and avoid port value conflicts. WebSphere Application Server installations are visible to the installer ID only, because the non-root installations do not register globally. If the root user performs all WebSphere Application Server installations, the problem is avoided.

  - When running as non-root, the IBM HTTP Server installation program displays a default port value of 8080.

The default value for a root installer is 80.

- `Linux` **Operating system and ISMP registration limitations**
    - Packages installed by a non-root installer cannot register using the native operating system mechanisms, such as Red Hat Package Manager (RPM) on Linux.

        WebSphere software registers in the WebSphere Application Server install registry file and the vpd.properties file. All installable components are fully functional despite the lack of native registration.

    - `Solaris` `HP-UX` ISMP uses native operating system registration on these platforms when installing as root, and does not create a vpd.properties file.

        When installing as a non-root installer, the installer programs create a vpd.properties file on all platforms, including Solaris and HP-UX.

- `Windows` **Operating system and ISMP registration limitations**

    Registry entries are on a non-administrator per-user basis instead of registering the software for the entire machine, which occurs when an administrator user installs.

- **GSKit limitation**

    GSKit is included in the IBM HTTP Server component and in the Web server plug-ins component. As mentioned, GSKit provides SSL capability.

    - `Linux` GSKit v7 relies on an absolute path to locate and correctly initialize the open source based ICC software subcomponent that handles low-level cryptography.

        GSKit cannot find ICC during a non-root installation. Because of the potential of having no cryptographic support (and possibly other unexpected effects), the installer programs do not allow a non-root installation of GSKit.

    - Additionally, GSKit v7 and earlier versions are not implemented for multiple different instances of the GSKit libraries within a single Linux or UNIX process.
    - GSKit v7 uses native installation methods that require root authority, such as:
        - `AIX` pkgadd
        - `HP-UX` installp
        - `Linux` rpm (Linux),
        - `Solaris` swinstall
    - The installation programs indicate that GSKit is not installable to a non-root installer.

- `Windows` **Adaptive Fast Path Architecture (AFPA) limitations**

    AFPA is a software architecture that dramatically improves the efficiency, and therefore the capacity, of Web servers and other network servers by caching static files.

    AFPA is a Windows kernel-level device driver within the IBM HTTP Server. AFPA provides caching of static files served from IBM HTTP Server. AFPA is recommended for very high-volume (tens of millions of hits per day) static-file Web sites only.

    Dynamic Web pages, such as those generated by WebSphere Application Server, are not usually cacheable. Most application servers should not enable AFPA.

    - A Windows kernel-level device driver cannot install from a non-administrator installer. Windows requires administrator group privileges when installing device drivers.
    - The IBM HTTP Server installation program indicates to non-admininstrator installers that AFPA is not installed.

- **Edge Components limitations**

    Edge requires root privileges because of its native installation mechanisms.

- `Windows` **Web Start limitations**

Application Client Version 6.1 supports Java Web Start (JWS) on all supported platforms. Particularly on a Windows system, the Application Client requires administrator access in order to configure JWS properly, by updating Windows native registry entries with some JWS-specific entries.

Non-administrator installers cannot register the update, which provides less than full support for JWS. For example, a JWS application cannot launch from the Internet Explorer or Mozilla browser.

JWS is not an installable feature for the Client and cannot be separately installed by an administrator installer. The installation program lists JWS as one of the non-administrator limitations on Windows systems.

- Windows **Windows services limitations**
  - The non-root installer cannot create Windows services for any of the WebSphere Application Server processes, including the application server, the node agent, the deployment manager, the IBM HTTP Server, or the IBM HTTP Server Administrative server.
  - An administrator installer can create the service after the fact using the WASService command.

- Windows **Start Menu entry limitations**

  Entries in the menu are for the non-administrator installer, but are not available to all users.

- Linux **Gnome and KDE menu entry limitations**

  Entries in the menus are for the non-root installer instead of being applicable to all users.

- **Users and group definition limitations**

  IBM HTTP Server Administrative Server configuration creates users and user groups. A root user is required to perform such configuration.

- **Installation visibility limitations**

  The non-root installer cannot register software packages natively. The installer programs register installed components. ISMP registers installed programs in its vpd.properties file. The installer programs register installed components in the WebSphere Application Server install registry file. Both files are in the home directory of the non-root installer as opposed to being a globally shared resource available to all users.

  In case a non-root or non-administrator user is granted access or visiblity to share install information with a root or administrator user, all install information cannot be accessed in certain scenarios. If the non-root or non-administrator user has previously installed WebSphere Application Server before increased access rights are granted, the scope of the install registry will still be local instead of a global.

  However, if the non-root or non-administrator user has not installed WebSphere Application Server before and access is upgraded, it becomes possible to access global install information generated by a root or admin user.

Host name values

WebSphere Application Server requires a host name specification during installation, profile creation, and for some configuration activities. This topic describes acceptable values for host name fields.

The host name is the network name for the physical machine on which the node is installed. The host name must resolve to a physical network node on the server. When multiple network cards exist in the server, the host name or IP address must resolve to one of the network cards. Remote nodes use the host name to connect to and to communicate with this node. Selecting a host name that other machines can reach within your network is extremely important. Do not use the generic identifier, localhost, for this value. Also, do not attempt to install WebSphere Application Server products on a machine with a host name that uses characters from the double-byte character set (DBCS). DBCS characters are not supported when used in the host name.

If you define coexisting nodes on the same computer with unique IP addresses, define each IP address in a domain name server (DNS) look-up table. Configuration files for stand-alone Application Servers do not provide domain name resolution for multiple IP addresses on a machine with a single network address.

The value that you specify for the host name is used as the value of the hostName property in configuration documents for the stand-alone Application Server. Specify the host name value in one of the following formats:

- Fully qualified domain name servers (DNS) host name string, such as xmachine.manhattan.ibm.com
- The default short DNS host name string, such as xmachine
- Numeric IP address, such as 127.1.255.3

The fully qualified DNS host name has the advantage of being totally unambiguous and also flexible. You have the flexibility of changing the actual IP address for the host system without having to change the Application Server configuration. This value for host name is particularly useful if you plan to change the IP address frequently when using Dynamic Host Configuration Protocol (DHCP) to assign IP addresses. A format disadvantage is being dependent on DNS. If DNS is not available, then connectivity is compromised.

The short host name is also dynamically resolvable. A short name format has the added ability of being redefined in the local hosts file so that the system can run the Application Server even when disconnected from the network. Define the short name to 127.0.0.1 (local loopback) in the hosts file to run disconnected. A format disadvantage is being dependent on DNS for remote access. If DNS is not available, then connectivity is compromised.

A numeric IP address has the advantage of not requiring name resolution through DNS. A remote node can connect to the node you name with a numeric IP address without DNS being available. A format disadvantage is that the numeric IP address is fixed. You must change the setting of the hostName property in Express configuration documents whenever you change the machine IP address. Therefore, do not use a numeric IP address if you use DHCP, or if you change IP addresses regularly. Another format disadvantage is that you cannot use the node if the host is disconnected from the network.

Chapter 8. Configuring the product after installation

This topic summarizes how to configure the application serving environment.

Use the First steps console to configure and test the WebSphere Application Server environment after creating a profile.

This procedure starts the second and final step of Network Deployment installation. This second step creates and configures server processes by creating profiles.

1. At the end of product installation, select the **Launch the Profile Management tool** check box to create a deployment manager profile.

   This step creates the deployment manager and the cell. Later steps in this procedure create an application server profile and optionally, a custom profile.

2. Start the First steps console by selecting the check box on the last panel of the wizard.

   The First steps console for the deployment manager profile can start automatically at the end of profile creation. Select the check box on the last panel of the Profile Management tool.

   The First steps console is an easy way to start using the product. The console provides one-stop access to the administrative console, Samples Gallery, Profile Management tool, installation verification test, Migration wizard, and other activities.

   See the description of the "firststeps command" on page 182 for more information.

3. Click **Installation verification** on the First steps console.

   The installation verification test starts the deployment manager process named dmgr and runs several tests to verify that the dmgr process can start without error.

   See "Using the installation verification tools" on page 186 for more information.

4. Click Profile Management tool on the First steps console to create an application server profile.

5. Start the First steps console by selecting the check box on the last panel of the Profile Management tool.

   This First steps console belongs to the Application Server profile that you just created. Each profile has its own First steps console.

6. Click **Installation verification** on the First steps console.

   The installation verification test starts the new application server process named server1 and runs several tests to verify that the server1 process can start without error.

7. Federate the application server into the deployment manager cell.

   If both server processes are running, use the administrative console of the deployment manager to add the application server node into the cell.

   Point your browser at http://localhost:9060/ibm/console for example, to start the administrative console. Or start it from the First steps console of the deployment manager profile.

   Log in and click **System administration > Nodes > Add Node** and follow the wizard to add the node into the cell. You can use localhost for the Host field if both processes are on the same machine. The SOAP port for the application server node is 8880 unless you changed the port during profile creation.

   If the deployment manager is running, you can use the addNode command instead..

8. **Optional:** Click **Profile Management tool** on the First steps console to create a custom profile.

   Verify that the deployment manager is running. The Profile Management tool can federate the custom node for you if the deployment manger is running.

   Supply the host name and the SOAP port for the deployment manager while creating the custom profile.

   Choose to federate the custom node into the deployment manager cell. A custom profile must be part of a cell.

Use the deployment manager to customize the node at your leisure. Add servers, add clusters, and install applications on the node, for example.

This procedure results in configuring and testing the application server environment.

See "Planning to install Network Deployment" on page 83 for diagrams of topologies that you can create using the First steps console and the Profile Management tool.

firststeps command

The firststeps command starts the First steps console. The First steps console is a post-installation ease-of-use tool for directing WebSphere Application Server Network Deployment elements from one place. Options display dynamically on the First steps console, depending on features that you install and the availability of certain elements on a particular operating system platform. Options include verifying the installation, starting and stopping deployment manager and application server processes, creating profiles, accessing the administrative console, launching the Migration wizard, accessing the online information center, and accessing the Samples gallery.

First steps overview

This version lets you start the Profile Management tool to get started defining a cell, a deployment manager, and application servers for the cell. A cell consists of a deployment manager profile and a federated application server profile. You can also define stand-alone application servers. Each profile has its own First steps console.

A prompt to launch the First steps console displays on the last panel of the Profile Management tool.

You can also start the First steps console from the command line as described later in this topic.

First steps consoles exist for the cell profile, the deployment manager profile, the stand-alone application server profile, and the custom profile. Options that display on each First steps console are shown in the following table:

Table 51. Available options for Network Deployment

Option	Product	Profiles		Deployment Manager	Stand-Alone Application Server	Custom
		Cell *				
		Cell Dmgr	Cell Node			
Installation verification	No	Yes	No	Yes	Yes	No
Start and stop the deployment manager	No	Yes	No	Yes	No	No
Start and stop the server	No	No	No	No	Yes	No
Administrative console	No	Yes (if available)	No	Yes (if available)	Yes (if available)	No
Profile Management tool	Yes (if available)	Yes (if available)	Yes (if available)	Yes (if available)	Yes (if available)	Yes (if available)
Samples gallery (when feature exists)	No	Yes	No	No	Yes	No
Information center	Yes	Yes	Yes	Yes	Yes	Yes
Migration wizard	Yes	Yes	Yes	Yes	Yes	Yes
Exit	Yes	Yes	Yes	Yes	Yes	Yes

Table 51. Available options for Network Deployment (continued)

Option	Product	Profiles				
		Cell *		Deployment Manager	Stand-Alone Application Server	Custom
		Cell Dmgr	Cell Node			
* When launching the First steps console from the Profile Management tool in a cell-creation flow, the Dmgr instance is used.						

Option descriptions

Installation verification

This option starts the installation verification test. The test consists of starting and monitoring the deployment manager or the stand-alone application server during its start up.

If this is the first time that you have used the First steps console since creating a deployment manager or stand-alone application server profile, click **Installation verification** to verify your installation. The verification process starts the deployment manager or the application server.

The **Start the deployment manager** option or the **Start the application server** option is unavailable while the IVT runs.

The IVT provides the following useful information about the deployment manager or the application server:

* The name of the server process: cellmgr, cellnode, dmgr, or server1
* The name of the profile
* The profile path, which is the file path and the name of the profile
* The type of profile: cellmgr, cellnode, dmgr, or default
* The cell name
* The node name
* The current encoding
* The port number for the administrative console, which is 9060 by default
* Various informational messages that include the location of the SystemOut.log file and how many errors are listed within the file
* A completion message

Start the deployment manager

This option toggles to **Stop the deployment manager** when the deployment manager runs.

This option displays when the First steps console is in a deployment manager profile or a cell profile.

After selecting the **Start the deployment manager** option, an output screen displays with status messages. The success message informs you that the deployment manager is open for e-business. Then the menu item changes to **Stop the deployment manager**.

If you select the **Start the deployment manager** option, the **Installation verification** option is unavailable while the deployment manager runs.

Start the server

This option toggles to **Stop the server** when the application server runs.

This option displays when the First steps console is in a stand-alone application server profile or a cell profile.

After selecting the **Start the server** option, an output screen displays with status messages. The success message informs you that the server is open for e-business. Then the menu item toggles to **Stop the server** and both the **Administrative console** option and the **Samples gallery** option enable.

If you select the **Start the server** option, the **Installation verification** option is unavailable while the application server runs.

Administrative console

This option is unavailable until the application server or deployment manager runs.

The administrative console is a configuration editor that runs in one of the supported Web browsers. The administrative console lets you work with XML configuration files for the stand-alone application server or the deployment manager and all of the application servers that are in the cell.

To launch the administrative console, click **Administrative console** or point your browser to http://localhost:9060/ibm/console. Substitute the host name for localhost if the address does not load. Verify the installation to verify the administrative console port number, if 9060 does not load.

The administrative console prompts for a login name. This is not a security item, but merely a tag to identify configuration changes that you make during the session. Secure signon is also available when administrative security is enabled.

The installation procedure in the information center cautions you to write down the administrative user ID and password when security is enabled during installation. Without the ID and password, you cannot use the administrative console or scripting.

Profile Management tool

This option starts the Profile Management tool. The PMT creates stand-alone application server profiles, a deployment manager profile, a cell profile, or a custom profile.

Each profile has its own administrative interface. A custom profile is an exception. A custom profile is an empty node that you can federate into a deployment manager cell and customize. No default server processes or applications are created for a custom profile.

Each profile also has its own First steps console. The location of the command is within the profile as described later in this topic.

Samples gallery

This option starts the Samples gallery. The option is unavailable until you start the application server. The option displays when you have installed the Samples during installation.

To launch the Samples gallery, click **Samples gallery** or point your browser to http://localhost:9080/WSsamples. The Web address is case sensitive.

Substitute your own host name and default host port number if the address does not load. Verify the port number by opening the administrative console and clicking **Servers > Application servers > server1 > [Communications] Ports**. Use the WC_defaulthost port number value or the WC_defaulthost_secure value instead of 9080, which is the default.

If you do not install the Samples during the initial installation of the product, the option does not display on the First steps console. You can perform an incremental installation to add the Samples feature. After adding the Samples, the option displays on the First steps console.

Information center for WebSphere Application Server

This option links you to the online information center at http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp.

Migration wizard

This option starts the Migration wizard, which is the graphical interface to the migration tools.

The migration tools are described in the *Migrating, coexisting, and interoperating* PDF.

Exit   This option closes the First steps console.

Location of the command file

The location of the firststeps command that starts the First steps console for a profile is:

- Linux *profile_root*/firststeps/firststeps.sh
- Windows *profile_root*\firststeps\firststeps.bat

Parameters

No parameters are associated with this command.

Syntax for the firststeps command

Use the following syntax for the command:

- Linux ./firststeps.sh
- Windows firststeps.bat

Link tips

The following links exist on the First steps console for the WebSphere Application Server Network Deployment product:

Network Deployment provides different types of profiles. Not all profiles have all of the links shown in the table. See the previous description of available options for each profile.

Option	Link
Installation verification	Calls the ivt command. The location of the installation verification test command is: - Linux *profile_root*/bin/ivt.sh - Windows *profile_root*\bin\ivt.bat
Start the server	Calls the startServer command. The location of the startServer command is: - Linux *profile_root*/bin/startServer.sh server1 - Windows *profile_root*\bin\startServer.bat server1 When you have more than one application server on the same machine, the command starts the same application server that is associated with the First steps console.
Stop the server	Calls the stopServer command. The location of the stopServer command is: - Linux *profile_root*/bin/stopServer.sh server1 - Windows *profile_root*\bin\stopServer.bat server1

Option	Link
Start the deployment manager	Calls the startManager command. The location of the startManager command is: • ▶ Linux *profile_root*/bin/startManager.sh • ▶ Windows *profile_root*\bin\startManager.bat When you have more than one deployment manager on the same machine, the command starts the same deployment manager that is associated with the First steps console.
Stop the deployment manager	Calls the stopManager command. The location of the stopManager command is: • ▶ Linux *profile_root*/bin/stopManager.sh • ▶ Windows *profile_root*\bin\stopManager.bat
Administrative console	Opens the default browser to the http://localhost:9060/ibm/console Web address. When you have more than one application server on the same machine, the port varies. The First steps console starts the administrative console that is associated with the First steps console.
Profile Management tool	The command file name is: • ▶ Linux *app_server_root*/bin/ProfileManagement/pmt.sh • ▶ Windows *app_server_root*/bin/ProfileManagement/pmt.bat
Samples gallery	Opens the default browser to the http://localhost:9080/WSsamples Web address.
Information center for WebSphere Application Server products	Opens the default browser to the online information center: http://publib.boulder.ibm.com/infocenter/wasinfo/v6r1/index.jsp
Migration wizard	Calls the **migration** command to start the Migration wizard. The location of the **migration** command is: • ▶ Linux *app_server_root*/bin/migration.sh • ▶ Windows *app_server_root*\bin\migration.bat The migration tools are also in the /migration folder on the supplements disc.

Using the installation verification tools

Use the installation verification tools to verify that the installation of the product and the application server or deployment manager profile is successful. A *profile* consists of files that define the runtime environment for a deployment manager or an application server. Verify the core product files with the installver checksum tool. Verify each profile from its First steps console with the IVT tool.

After installing the Network Deployment product and creating a deployment manager or application server profile, you are ready to use the installation verification tools.

Use the installation verification tools to gain assurance that the product is successfully installed. Two tools exist. This task describes when and how to use to both tools. One tool is the checksum tool (the installver tool). The installver tool compares the checksum of each installed file to the correct checksum value for

each file and reports differences. The other tool is the installation verification test (IVT). The IVT tests deployment manager profiles and stand-alone application server profiles to make sure that the server processes can start.

The IVT program scans product log files for errors and verifies core functionality of the product installation.

The Profile Management tool creates profiles. After creating a profile, the Profile Management tool displays a prompt for starting the First steps console. The First steps console is unique for each profile. See "firststeps command" on page 182 for more information.

Installation verification is the first option on the First steps console.

The IVT program for an application server profile starts and monitors the application server process, which is the server1 process. The installation verification for a deployment manager profile starts and monitors the deployment manager process, which is the dmgr process. The IVT works differently for the deployment manager profile than for a stand-alone application server. On a stand-alone application server, the IVT queries servlets from the ivtApp application. However, the deployment manager does not have the ivtApp application, so the IVT looks at log files only.

1. Run the installver tool to verify that all files are correctly installed.

    See "Verifying checksums of installed files" on page 189 for more information.

2. Use the installation verification test to verify the proper creation of profiles.

    a. Start the First steps console and select **Installation verification** after creating a deployment manager profile or an application server profile.

        No installation verification is possible for a custom profile. After federating the node and using the deployment manager to create a server, you can start the server process to verify its functionality.

        Select the check box to launch the First steps console at the end of profile creation. You can also start the First steps console from the command line as described in "firststeps command" on page 182.

        You can also start the "ivt command" on page 188 directly from the bin directory of the profile:

        - ▶ Linux   *profile_root*/bin/ivt.sh
        - ▶ Windows   *profile_root*\bin\ivt.bat

        If you create profiles in another location, the ivt script location is within the *plugins_root*/bin directory.

    b. Observe the results in the First steps status window.

        The log file for installation verification is the *profile_root*/logs/ivtClient.log.

        The IVT provides the following useful information about the application server:

        - The application server name
        - The name of the profile
        - The profile file path
        - The type of profile
        - The node name
        - The current encoding
        - The port number for the administrative console
        - Various informational messages that include the location of the SystemOut.log file and how many errors are listed within the file
        - A completion message

        As the IVT starts the application server on a Windows platform, the IVT attempts to start the Windows service for the application server, if a Windows service exists. This is true even though the Windows service might have a manual startup type.

        If you federate a stand-alone application server, you can still run the IVT on the server.

The IVT provides the following useful information about the deployment manager:

- The deployment manager server name: dmgr
- The name of the profile
- The profile file path
- The type of profile: dmgr
- The cell name
- The node name
- The current encoding
- The port number for the administrative console
- Various informational messages that include the location of the SystemOut.log file and how many errors are listed within the file
- A completion message

As the IVT starts the deployment manager on a Windows platform, the IVT attempts to start the Windows service for the deployment manager if a Windows service exists. This is true even though the Windows service might have a manual startup type.

   c. If the log shows that errors occurred during the installation verification, correct the errors and run the IVT again. If necessary, create a new profile after correcting the error, and run the IVT on the new profile.

The installver tool validates the integrity of all installed files.

The IVT tool starts the server process of a profile automatically if the server is not running. Once the server initializes, the IVT runs a series of verification tests. The tool displays pass or fail status in a console window. The tool also logs results to the *plugins_root*/logs/ivtClient.log file. As the IVT verifies your system, the tool reports any detectable errors in the SystemOut.log file.

After installing the product and verifying the installation, you can configure the installation by creating more profiles.

You can also install other packages on the product installation image, such as IBM HTTP server, the Web server plug-ins, or the Application Client.

ivt command

The ivt command starts the installation verification test (IVT) program. The IVT verifies that the installation of the application server or deployment manager profile was successful. A *profile* consists of files that define the run-time environment for a deployment manager or an application server. Each profile has its own IVT command.

The IVT program starts the application server or deployment manager automatically if the server process is not already running. After the server process initializes, the IVT runs a series of verification tests and displays pass or fail status in a console window.

The IVT program scans the SystemOut.log file for errors and verifies core functionality of the profile.

You can start the IVT program from the command line or from the First steps console.

Location of the command file

Parameters

The following parameters are associated with this command.

server_name
Required parameter that identifies the name of the server process, such as server1 or dmgr.

profile_name
Required parameter that identifies the name of the profile that contains the server definition.

-p *server_port_number*
Optional parameter that identifies the default_host port when the port is not 9080, which is the default.

-host *machine_host_name*
Optional parameter that identifies the host machine of the profile to test. The default is localhost.

Syntax for the ivt command

Use the following syntax for the command:

*   **Linux**   *profile_root*/bin/ivt.sh
*   **Windows**   *profile_root*\bin\ivt.bat

Logging

The ivt command logs results to the *profile_root*/logs/ivtClient.log file.

Example

The following examples test the server1 process in the profile01 profile on the myhost machine using the default_host on port 9081.

Windows

```
ivt.bat server1 profile01 -p 9081 -host myhost
```

Linux

```
ivt.sh server1 profile01 -p 9081 -host myhost
```

Verifying checksums of installed files

After installing the product or after installing maintenance packages, you can use the installation verification utility (IVU) to compute checksums of the installed file set to verify the checksum against the checksum in the product bill of materials.

Installing the product also installs the IVU, which is the installver command-line tool.

This topic describes using the **installver** command to compute a checksum on the installed files and compare the checksum to the product bill of materials.

The IVU tool is installed during the installation of the following product components:
*   WebSphere Application Server Network Deployment
*   Application Client
*   IBM HTTP Server
*   Web server plug-ins
*   Update Installer for WebSphere Application Server

You can also use the IVU to compute a new checksum for a system after you make significant configuration changes. The installver tool computes a new baseline checksum for each file in the inventory of a configured system to use to identify file changes in the later comparisons. Such a comparison is useful for detecting file tampering on the configured system, for example.

You can use the new checksums to compare installations on multiple systems. The following graphic illustrates the main use-cases where you can perform product verification at any point of the product life-cycle or use the inventory file, which is part of the baseline checksum feature, to provide full-file verification of a configured system.
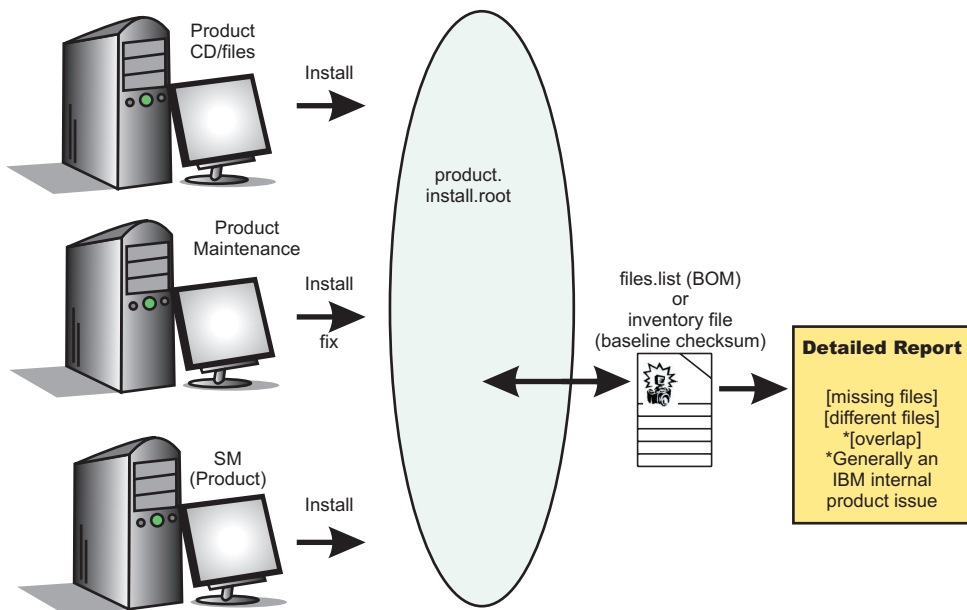
Although the most common use of the tool is to compare the product bill of materials to the installed file set after installation or after installing maintenance, other tasks are also possible.

- Verify the installed files against the bill of materials.

  See "Verifying against the bill of materials" on page 191 for more information.

- Create and use a new baseline checksum.

  See "Computing a new baseline checksum for an inventory of configured files" on page 194 for more information.

- Exclude files and components from the comparison.

  See "Excluding files from a checksum comparison" on page 196 for more information.

- Include only specific files and components in the comparison.

  See "Comparing specific file and component checksums" on page 199 for more information.

- Change the default message digest algorithm for computing checksums.

  See "Changing the default message digest algorithm" on page 201 for more information.

- Handle out-of-memory conditions.

  See "Handling out-of-memory situations" on page 202 for more information.

- Verify the installver command files.

  See "Verifying the installver command" on page 202 for more information.

When you are satisfied that your installed or updated file set matches the product bill of materials, you are finished installing and verifying the product or updating and verifying the product.

If you detect a problem, see if the problem is a known problem by checking the Support page.

IBM Support has documents and tools that can save you time gathering information needed to resolve problems. Before opening a problem report, see the Support page:

- http://www.ibm.com/software/webservers/appserv/was/support/

The IVU performs the tasks using the logic described in the following graphic:
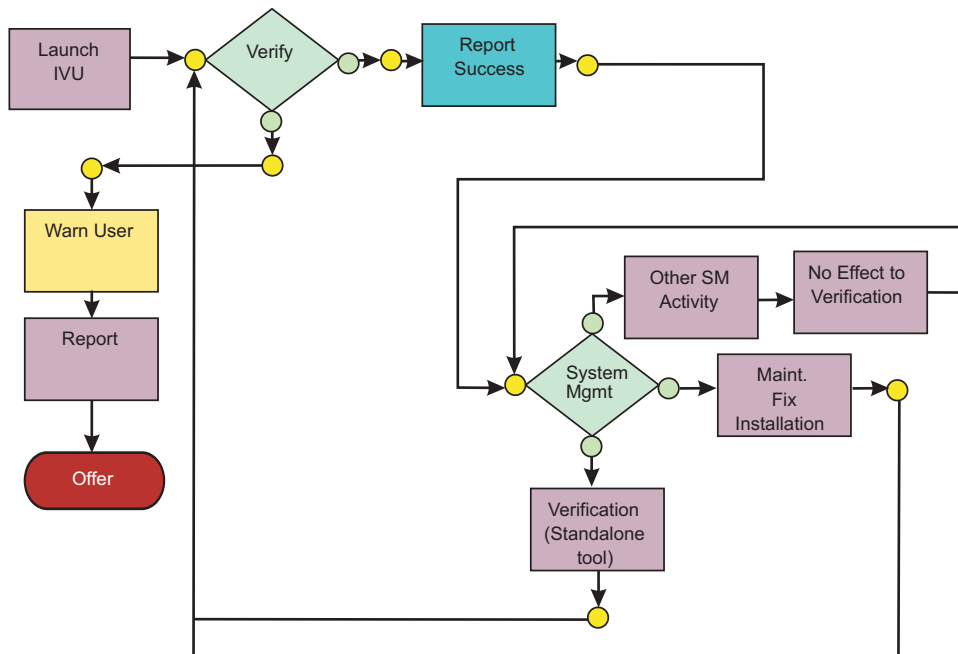
Verifying against the bill of materials

After installation, verify actual checksums of installed files against a bill of materials that ships with the product. If the checksums match, the installed product is installed correctly. If the checksums differ, review the differences to determine whether a problem exists.

Install the product before attempting to compare checksums of the installed files to the shipped bill of materials.

This topic describes using the installver command to compare a set of bill-of-material files against a checksum of the installed files to verify that all installed files are correct. The product includes a bill-of-materials file for each component to provide this system of verifying installation files.

The installver tool dynamically generates a list of total components found in the installation.
- Check the bill of materials against the installed file system.

   Compare the checksum of product files to the correct checksum in the bill-of-material files:

   – ▶ Linux   *app_server_root*/bin/installver.sh

   – ▶ Windows   *app_server_root*\bin\installver.bat

- Compare checksums and display trace results:

   – ▶ Linux   ./installver.sh -trace

   – ▶ Windows   installver.bat -trace

- Display usage information:

   – ▶ Linux   ./installver.sh -help

   – ▶ Windows   installver.bat -help

- Compare checksums and include only specified files and components in the comparison:

   See "Comparing specific file and component checksums" on page 199 for more information about comparing only files and components that you list in the command.

- Compare checksums and ignore user-excluded files:

  See "Excluding files from a checksum comparison" on page 196 for information about creating a list of user-excluded files.

  Ignore the list of files to exclude and include the files in the comparison:

  – ▷ `Linux` ./installver.sh -ignoreuserexclude

  – ▷ `Windows` installver.bat -ignoreuserexclude

- Compare checksums and ignore IBM-excluded files:

  Ignore the list of IBM-excluded files and include the files in the comparison:

  – ▷ `Linux` ./installver.sh -ignoreibmexclude

  – ▷ `Windows` installver.bat -ignoreibmexclude

When you issue one of the checksum commands from the *app_server_root*/`bin` directory, the status of the command is displayed on the terminal console.

Logging results: The installver tool creates messages for each component. The tool also reports overall success based on the verification of all components in the bill of materials. The following messages indicate completion:

- I CWNVU0400I: [ivu] Total issues found : 625
- I CWNVU0340I: [ivu] Done.

The messages report the total number of issues found. If the issue count is zero, all of the components exist and no problems exist. The tool logs the results of the command to the *app_server_root*/logs/installver.log file if you use the -log parameter without specifying a file name for the log.

You can redirect the output using the -log parameter and an argument. The directory that you specify must already exist. For example:

```
./installver.sh -log /tmp/waslogs/my_installver.log
```

The following command produces this example, which shows the results of comparing the installed product against the product bill of materials.

- ▷ `Linux` `./installver.sh`

- ▷ `Windows` `installver.bat`

Example output from components with errors

This example shows errors that the comparison finds.

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\Program Files\eclipse\eclipse3.x\workspace\
  WAS.installver\test\v6x\product.installroot\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 0.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\backup for file listing:
  files.list
I CWNVU0260I: [ivu] The total number of components found is: 6
I CWNVU0270I: [ivu] Gathering installation root data.
W CWNVU0280W: [ivu] Component mismatch: expected mismatchcomponentname
  but found mismatchingname
I CWNVU0360I: [ivu] The following bill of materials issue is found for component
  nullvaluesample: Hash must not be null or an empty string.
I CWNVU0360I: [ivu] The following bill of materials issue is found for component
  nullvaluesample: Name must not be null or an empty string.
I CWNVU0360I: [ivu] The following bill of materials issue is found for component
  nullvaluesample: Hash must not be null or an empty string.
I CWNVU0360I: [ivu] The following bill of materials issue is found for component
```

```
     nullvaluesample: Permission must not be null or an empty string.
I CWNVU0360I: [ivu] The following bill of materials issue is found for component
  symlinksample: Hash must not be null or an empty string.
I CWNVU0290I: [ivu] Starting the verification for 6 components.

I CWNVU0470I: [ivu] Starting to analyze: _binarycomponentsample
I CWNVU0480I: [ivu] Done analyzing: _binarycomponentsample

I CWNVU0470I: [ivu] Starting to analyze: nullvaluesample
I CWNVU0430I: [ivu] The following file is missing: testpath
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: nullvaluesample

I CWNVU0470I: [ivu] Starting to analyze: overlapbinarycomponentsample
W CWNVU0422W: [ivu] The following file is overlapped: lib/binaryTest.jar
W CWNVU0425W: [ivu] The overlap is caused by: _binarycomponentsample
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: overlapbinarycomponentsample

I CWNVU0470I: [ivu] Starting to analyze: regularcomponentsample
I CWNVU0440I: [ivu] The following file is different: lib/different.jar
I CWNVU0410I: [ivu] fc19318dd13128ce14344d066510a982269c241b is the checksum in the bill of materials.
I CWNVU0420I: [ivu] 517d5a7240861ec297fa07542a7bf7470bb604fe is the checksum on the file system.
I CWNVU0440I: [ivu] The following file is different: lib/ibmtemplateexclude.jar
I CWNVU0410I: [ivu] d3ac7a4ef1a8ffb4134f2f6e7f3c0d249d74b674 is the checksum in the bill of materials.
I CWNVU0420I: [ivu] d3ac7a4ef1a838b4134f2f6e7f3c0d249d74b674 is the checksum on the file system.
I CWNVU0430I: [ivu] The following file is missing: lib/missing.jar
I CWNVU0440I: [ivu] The following file is different: lib/usertemplateexclude.jar
I CWNVU0410I: [ivu] 12dea96fec20593566ab75ff2c9949596833adc9 is the checksum in the bill of materials.
I CWNVU0420I: [ivu] 12dea96fec20593566ab75692c9949596833adc9 is the checksum on the file system.
I CWNVU0430I: [ivu] The following file is missing: missingfilebutwithbaddirectory/missingBadDirectory.jar
I CWNVU0390I: [ivu] Component issues found : 5
I CWNVU0480I: [ivu] Done analyzing: regularcomponentsample

I CWNVU0470I: [ivu] Starting to analyze: symlinksample
I CWNVU0480I: [ivu] Done analyzing: symlinksample

I CWNVU0400I: [ivu] Total issues found : 7
I CWNVU0340I: [ivu] Done.
```

Example output from a typical successful installation

This example shows typical results from checking a successful installation.

You can safely ignore issues from the prereq.wccm component. These known issues do not cause overall system issues.

Carefully examine an issue before assuming that the issue is a problem.

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\WebSphere\V6x-ND\
I CWNVU0300I: [ivu] The total number of user excluded files found are 1.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 75.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 285 components.

I CWNVU0470I: [ivu] Starting to analyze: activity
I CWNVU0480I: [ivu] Done analyzing: activity

I CWNVU0470I: [ivu] Starting to analyze: activity.impl
I CWNVU0480I: [ivu] Done analyzing: activity.impl
```

```
I CWNVU0470I: [ivu] Starting to analyze: activity.session
I CWNVU0480I: [ivu] Done analyzing: activity.session

I CWNVU0470I: [ivu] Starting to analyze: activity.session.impl
I CWNVU0480I: [ivu] Done analyzing: activity.session.impl

I CWNVU0470I: [ivu] Starting to analyze: acwa
I CWNVU0480I: [ivu] Done analyzing: acwa

I CWNVU0470I: [ivu] Starting to analyze: adapter
I CWNVU0480I: [ivu] Done analyzing: adapter
...
I CWNVU0470I: [ivu] Starting to analyze: prereq.wccm
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/activitysessionejbext/
  ActivitySessionEJBJarExtension.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/activitysessionejbext/
  ActivitySessionEnterpriseBeanExtension.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/activitysessionejbext/
  ContainerActivitySession.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/activitysessionejbext/
  classes-frame.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/activitysessionservice/
  ActivitySessionService.html

...
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/wssecurity/consumer-binding.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/wssecurity/default-bindings.html
I CWNVU0430I: [ivu] The following file is missing: web/configDocs/wssecurity/generator-binding.html
I CWNVU0390I: [ivu] Component issues found : 625
I CWNVU0480I: [ivu] Done analyzing: prereq.wccm

I CWNVU0470I: [ivu] Starting to analyze: prereq.webtlsrn
I CWNVU0480I: [ivu] Done analyzing: prereq.webtlsrn

I CWNVU0470I: [ivu] Starting to analyze: prereq.wsadie
I CWNVU0480I: [ivu] Done analyzing: prereq.wsadie

...
I CWNVU0470I: [ivu] Starting to analyze: wsexception
I CWNVU0480I: [ivu] Done analyzing: wsexception

I CWNVU0470I: [ivu] Starting to analyze: wsif
I CWNVU0480I: [ivu] Done analyzing: wsif

I CWNVU0400I: [ivu] Total issues found : 627
I CWNVU0340I: [ivu] Done.
```

See the description of the "installver command" on page 204 for explanations of each parameter.

Go to "Computing a new baseline checksum for an inventory of configured files" to learn more about the installver command.

Computing a new baseline checksum for an inventory of configured files

After installation, you can verify the actual checksums of installed files against a bill of materials that ships with the product. After configuring your system, create a new checksum so that you can compare the system periodically to the new checksum. Use the result to analyze changes to your configured system.

After configuring the product, save a new baseline checksum to establish a new checksum standard for your system.

This topic describes using the installver command to create and compare an inventory of configured files to the currently installed files.

The installver tool can compute a new baseline checksum for the inventory of all files in the installation root directory. The tool stores the new checksum by default in the sys.inv file within the current working directory. You can specify a different file path and file name. Create the file outside of the installation root directory or exclude the file from comparisons.

Later, compare the checksums in the sys.inv file (or the file that you specified when creating the inventory) to the checksums of the currently installed files to see what files have changed.

The baseline checksum report identifies missing files, additional files, and changed files.

- Create an inventory list of the files that are currently installed in the installation root directory:

  - ▶ Linux   `./installver.sh -createinventory`

  - ▶ Windows   `installver.bat -createinventory`

  For example, the following messages might display on a Windows system when you issue the `installver.bat -createinventory` command to create the default *app_server_root*\bin\sys.inv file:

  ```
  W CWNVU0320W: [ivu] The
  C:\IBM\WebSphere\AppServerV602\bin\sys.inv
  inventory file is within the product installation root directory:
  C:\IBM\WebSphere\AppServerV602.

  Create the file outside of the installation root directory to omit the file from the verification.
  I CWNVU0300I: [ivu] The total number of user excluded files found are 2.
  I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
  I CWNVU0310I: [ivu] Creating the following inventory file:
  C:\IBM\WebSphere\AppServerV602\bin\sys.inv
  I CWNVU0460I: [ivu] The utility is running.
  ```

  When it finishes running, a completion message is displayed:

  ```
   I CWNVU0340I: [ivu] Done.
  ```

  The sys.inv contains the new inventory:

  ```
  #C:\IBM\WebSphere\AppServer\
  #2005.10.10_06.24.06PM_EDT
  #user_ID
  #-createinventory -log
  241fe4e309abfd8f2c5911216dbabd61dd4751a6
     |_jvm\bin\appletviewer.exe
     |42032
     |2004.10.28 05.37.02AM EDT
  e00c6ea688ab67e004ec6cfac26ec48541a5b9ff
     |_jvm\bin\dbghelp.dll
     |712192
     |2004.10.28 05.36.50AM EDT
  916e244deeb44b9d3218aafa3b56c8680aa31f2f
     |_jvm\bin\extcheck.exe
     |42040
     |2004.10.28 05.37.02AM EDT
  ...
  7fc3bb38e8b90fed05cd0440953000c2cc965b44
     |web\spidocs\stylesheet.css
     |1240
     |2005.10.09 12.14.17AM EDT
  22706a0d900c52f1c015c870ddeee25581c5d57b
     |web\spidocs\toHTML\index.html
     |867
     |2005.10.09 12.14.17AM EDT
  ```

- Create the inventory file in a directory outside of the installation root directory to exclude the inventory file from the comparison.

  - ▶ Linux   `./installver.sh -createinventory /tmp/system.inv`

  - ▶ Windows   `installver.bat -createinventory "C:\temp\system.inv"`

- Compare the inventory list to files that are currently installed in the installation root directory:

- $\quad$ `Linux` `./installver.sh -compare`
- $\quad$ `Windows` `installver.bat -compare`

If you created the inventory file somewhere other than the default location, use the following syntax:

- $\quad$ `Linux` `./installver.sh -compare /tmp/system.inv`
- $\quad$ `Windows` `installver.bat -compare "C:\temp\system.inv"`
- Compare and display trace results:
    - $\quad$ `Linux` `./installver.sh -compare -trace`
    - $\quad$ `Windows` `installver.bat -compare -trace`
- Compare and exclude specified files from the inventory comparison:
    - $\quad$ `Linux` `./installver.sh -compare -exclude` *fn1;fn2;fn3;...*
    - $\quad$ `Windows` `installver.bat -compare -exclude` *fn1;fn2;fn3;...*
- Compare and include only specified files in the inventory comparison:
    - $\quad$ `Linux` `./installver.sh -compare -include` *fn1;fn2;fn3;...*
    - $\quad$ `Windows` `installver.bat -compare -include` *fn1;fn2;fn3;...*

When you issue an installver commands from the *app_server_root*/`bin` directory, the status of the command is displayed on the terminal console. To create a log, use the -log parameter.

See the description of the "installver command" on page 204 for explanations of each parameter.

Go to "Excluding files from a checksum comparison" to learn more about the installver command.

Excluding files from a checksum comparison

Specify individual files to exclude from a comparison, specify individual components to exclude, or create a single configurable properties file to specify a list of files to exclude from the bill of materials verification.

Install the product before comparing checksums and using exclusion properties.

This topic describes how to use exclusion properties.

By default, IBM excludes some files from the checksum comparison. You can also exclude files. The number of files excluded is reported within the first few messages:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 285 components.

I CWNVU0470I: [ivu] Starting to analyze: activity
I CWNVU0480I: [ivu] Done analyzing: activity
```

...

Several different methods are provided to exclude files from the comparison.

- Compare checksums and exclude all of the files within one or more components from the comparison:

    - $\quad$ `Linux` `./installver.sh -excludecomponent` *comp1;comp2;comp3;...*

– `Windows` installver.bat -excludecomponent *comp1;comp2;comp3;...*

For example, you might exclude the prereq.wccm component to avoid known but acceptable issues in the component:

```
./installver.sh -log -excludecomponent prereq.wccm
```

The resulting messages show the exclusion:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is /opt/IBM/WebSphere/AppServerV602/
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties/version/install/6.0.0.0/
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 284 components.
...
I CWNVU0400I: [ivu] Total issues found : 0
I CWNVU0340I: [ivu] Done.
```

- Exclude certain files from the comparison:

  – `Linux` *app_server_root*/bin/installver.sh -exclude *fn1;fn2;fn3*

  – `Windows` *app_server_root*\bin\installver.bat -exclude *fn1;fn2;fn3*

For example, suppose that you include only the prereq.wccm component for comparison:

```
installver.bat -log -includecomponent prereq.wccm
```

The comparison shows all of the missing file issues in the component:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: prereq.wccm
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/activitysessionejbext/ActivitySessionEJBJarExtension.html
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/activitysessionejbext/ActivitySessionEnterpriseBeanExtension.html
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/activitysessionejbext/ContainerActivitySession.html
...
I CWNVU0390I: [ivu] Component issues found : 625
I CWNVU0480I: [ivu] Done analyzing: prereq.wccm

I CWNVU0400I: [ivu] Total issues found : 625
I CWNVU0340I: [ivu] Done.
```

You can exclude files. For example, exclude the highlighted files in the previous example:

```
installver -log -includecomponent prereq.wccm
 -exclude web/configDocs/activitysessionejbext/
ActivitySessionEJBJarExtension.html;web\configDocs\activitysessionejbext\
ActivitySessionEnterpriseBeanExtension.html
```

Tip: `Windows` Use Windows-style slashes or UNIX-style slashes to delimit directories.

The result shows that the excluded files were not compared:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: prereq.wccm
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/activitysessionejbext/ContainerActivitySession.html
...
I CWNVU0390I: [ivu] Component issues found : 623
I CWNVU0480I: [ivu] Done analyzing: prereq.wccm

I CWNVU0400I: [ivu] Total issues found : 623
I CWNVU0340I: [ivu] Done.
```

If the two files were in the comparison, they would be in the list and the count would be 625, as in the previous example.

Tip: The highlighted line in the example is reserved for excluded files listed in the user template file, as described in the next step. The highlighted line does not count files that you list in the installver command line with the -exclude parameter.

- Compare checksums and exclude certain files from the comparison by creating and using a user template file:

A single user configurable properties file is available to specify a list of files to exclude from the bill of materials verification.

1. Create an empty template file.

    – **Linux** *app_server_root*/bin/installver.sh -createtemplate *template_name*

    – **Windows** *app_server_root*\bin\installver.bat -createtemplate *template_name*

    For example, create the default user template file on a Windows system:

    ```
    installver -createtemplate
    I CWNVU0200I: [ivu] Creating template:
    C:\IBM\WebSphere\AppServerV602\profiles\
    Dmgr01\properties\ivu_user.template
    I CWNVU0340I: [ivu] Done.
    ```

    The ivu_user.template file is created in the properties directory of the default profile, which in this case, is a deployment manager profile.

    The -template_name parameter is optional. However, a template file must reside in the properties directory of the default profile, such as the *app_server_root*/profiles/Dmgr01/properties directory.

2. List files to exclude in the templates file.

    The properties file has the following format:

    ```
    <template>
     <componentfiles componentname="name_of_component">
       <file>
         <relativepath action="exclude">file_name</relativepath>
       </file>
     </componentfiles>
    </template>
    ```

    For example, list the component and files from the previous example:

    ```
    <template>
     <componentfiles componentname="prereq.wccm">
      <file>
       <relativepath action="exclude">
    ```

```
web/configDocs/activitysessionejbext/ActivitySessionEnterpriseBeanExtension.html
   </relativepath>
  </file>
  <file>
    <relativepath action="exclude">
web/configDocs/activitysessionejbext/ActivitySessionEJBJarExtension.html
    </relativepath>
  </file>
 </componentfiles>
</template>
```

Tip: Do not use quotation marks or double quotation marks to delimit a file name.

3. Use the template file to exclude files from the comparison:

```
installver -log
```

If the ivu_user.template file exists in the properties directory of the default profile, the installver command uses it.

The result shows that some user files are excluded:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 2.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: prereq.wccm
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/activitysessionejbext/ContainerActivitySession.html

...
I CWNVU0430I: [ivu] The following file is missing:
web/configDocs/wssecurity/generator-binding.html
I CWNVU0390I: [ivu] Component issues found : 623
I CWNVU0480I: [ivu] Done analyzing: prereq.wccm

I CWNVU0400I: [ivu] Total issues found : 623
I CWNVU0340I: [ivu] Done.
```

When you issue one of the checksum commands from the *app_server_root*/`bin` directory, the status of the command is displayed on the terminal console or in a log file.

Go to "Comparing specific file and component checksums" to learn more about the installver command.

Comparing specific file and component checksums

Specify individual files or components to include in the bill of materials verification.

Install the product before comparing checksums of individual files and components.

This topic describes how to use inclusion properties to specify individual files and components.

By default, IBM includes all files in the checksum comparison except for the 78 IBM excluded files.

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
```

```
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 285 components.

I CWNVU0470I: [ivu] Starting to analyze: activity
I CWNVU0480I: [ivu] Done analyzing: activity
```

...

Several different methods are provided to include only certain files in the comparison.

- Compare checksums and include specified components only in the comparison:

    - ▶ Linux   ./installver.sh -includecomponent *comp1;comp2;comp3;...*

    - ▶ Windows   installver.bat -includecomponent *comp1;comp2;comp3;...*

    For example, you might include the activity component:

    - ▶ Linux   ./installver.sh -log -includecomponent activity

    - ▶ Windows   installver.bat -log -includecomponent activity

    The resulting messages show the inclusion:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: activity
I CWNVU0480I: [ivu] Done analyzing: activity

I CWNVU0400I: [ivu] Total issues found : 0
I CWNVU0340I: [ivu] Done.
```

- Include only certain files in the comparison:

    - ▶ Linux   *app_server_root*/bin/installver.sh -include *fn1;fn2;fn3*

    - ▶ Windows   *app_server_root*\bin\installver.bat -include *fn1;fn2;fn3*

    For example, you might include only the properties/version/proxy.server.component file, which was changed to generate the checksum difference in this example.

```
installver.bat -log
 -include properties/version/proxy.server.component
```

    The result shows that the included file was in the comparison, which scanned 285 components looking for all components that refer to the file:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 285 components.

I CWNVU0470I: [ivu] Starting to analyze: activity
I CWNVU0480I: [ivu] Done analyzing: activity
```

```
...
I CWNVU0470I: [ivu] Starting to analyze: proxy.server
I CWNVU0440I: [ivu] The following file is different: properties/version/
                    proxy.server.component
I CWNVU0410I: [ivu] f385fc95977092e0482d52f9d1d5bebbc39fbb10 is the checksum
                    in the bill of materials.
I CWNVU0420I: [ivu] b43bda7f1e7202d1f9495fc74ac14b8d85830aab is the checksum
                    on the file system.
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: proxy.server
...
I CWNVU0400I: [ivu] Total issues found : 1
I CWNVU0340I: [ivu] Done.
```

If you know that a file is in only one component, you can speed up the comparison by restricting the comparison of the file to the relevant component:

```
installver.bat -log -includecomponent proxy.server -include properties/version/
    proxy.server.component
```

The result shows the comparison was restricted to one component:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\IBM\WebSphere\AppServerV602\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 78.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\
                    backup for file listing: files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: proxy.server
I CWNVU0440I: [ivu] The following file is different: properties/version/
                    proxy.server.component
I CWNVU0410I: [ivu] f385fc95977092e0482d52f9d1d5bebbc39fbb10 is the checksum
                    in the bill of materials.
I CWNVU0420I: [ivu] b43bda7f1e7202d1f9495fc74ac14b8d85830aab is the checksum
                    on the file system.
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: proxy.server

I CWNVU0400I: [ivu] Total issues found : 1
I CWNVU0340I: [ivu] Done.
```

When you issue one of the checksum commands from the *app_server_root*/bin directory, the status of the command is displayed on the terminal console or in a log file.

Go to "Changing the default message digest algorithm" to learn more about the installver command.

Changing the default message digest algorithm

Change the default message digest algorithm from SHA to MD5 only if absolutely necessary. Edit the installver.bat file or the installver.sh file to make the change. Changing the algorithm invalidates the SHA-based checksums in the product bill of materials. For this reason, verify the product files before changing the message digest algorithm.

Install the product before attempting to change the default message digest algorithm from SHA to MD5.

The default message digest algorithm is one of the secure hash algorithms (SHA) that are part of the Secure Hash Standard (SHS) from the National Institute of Standards and Technology (NIST). See the Federal Information Processing Standards (FIPS) publication 180-2 for more information. SHA-1 is the standard hash function of the U.S. government.

Also available is the older MD5 message digest algorithm. MD5 is a deprecated type of message algorithm that is not as secure as SHA and is provided only for backward compatibility.

This topic describes changing the default message digest algorithm. You must edit the installver.bat file or the installver.sh file to change the algorithm.

Add the following environmental property to the script file:

`-Dchecksum.type=MD5`

The default value is:

`-Dchecksum.type=SHA`

Go to "Handling out-of-memory situations" to learn more about the installver command.

Handling out-of-memory situations

Memory requirements for using the installver command are related to the size of the installed file set for the product. For the basic verification scenario, comparing an installed file set with the provided bill of materials might require a maximum heap size of 128 MB to 256 MB.

Install the product at the V6.0.2 level or later to install the installver command tool. After installing the command, you can increase the maximum heap size setting.

If you need more memory for either a product verification or a baseline checksum verification, increase the maximum heap size setting for your Java virtual machine (JVM) by including a setting in the installver command script.

- Edit the installver command script:

  – **Linux** Edit the *app_server_root*/bin/installver.sh file.

  – **Windows** Edit the *app_server_root*\bin\installver.bat file.

- Add or increase the maximum heap size setting:

  – **Linux** Change the following line:

    `"$JAVA_HOME"/bin/java \`

    to:

    `"$JAVA_HOME"/bin/java -Xmx256M \`

  – **Windows** Change the following line:

    `"%JAVA_HOME%\bin\java" "-Dproduct.home=%WAS_HOME%"`

    to:

    `"%JAVA_HOME%\bin\java" -Xmx256M "-Dproduct.home=%WAS_HOME%"`

After you change the setting, run the installver command to verify that it works correctly.

Go to "Verifying the installver command" to learn more about the installver command.

Verifying the installver command

Use the verifyinstallver command to perform a checksum on the files that comprise the installver command.

Install the product at the V6.0.2 level or later before attempting to verify the checksums of the files that comprise the installver command.

This topic describes using the verifyinstallver command to compute a checksum on the installed files that comprise the installver command. Verifying the checksums of the command files ensures that the command can function properly.

1. Change directories to the *app_server_root*/bin directory.
   - `Linux` cd *app_server_root*/bin
   - `Windows` cd *app_server_root*\bin

2. Start the verifyinstallver command script from the command line.
   - `Linux` ./verifyinstallver.sh
   - `Windows` verifyinstallver.bat

   You can use the -trace parameter to show verbose results. You can use the -help parameter to see usage information.

If the command successfully verifies the installver files, you see messages that are similar to the following example:

```
I CWNVU0160I: [ivu] Verifying.
I CWNVU0170I: [ivu] The installation root directory is C:\WebSphere\V6X-ND\
I CWNVU0300I: [ivu] The total number of user excluded files found are 0.
I CWNVU0300I: [ivu] The total number of IBM excluded files found are 75.
I CWNVU0180I: [ivu] Searching directory properties\version\install\6.0.0.0\backup for file listing:
 files.list
I CWNVU0260I: [ivu] The total number of components found is: 285
I CWNVU0270I: [ivu] Gathering installation root data.
I CWNVU0460I: [ivu] The utility is running.
I CWNVU0290I: [ivu] Starting the verification for 1 components.

I CWNVU0470I: [ivu] Starting to analyze: installver
I CWNVU0480I: [ivu] Done analyzing: installver

I CWNVU0400I: [ivu] Total issues found : 0
I CWNVU0340I: [ivu] Done.
```

Go to the description of the "verifyinstallver command" to learn more.

verifyinstallver command

The verifyinstallver command is a verification program that performs a checksum on the files that comprise the installver command.

Purpose

This topic describes the command-line syntax for the verifyinstallver command. Start the verifyinstallver command script from the command line. This topic describes how to locate the command and use it to verify that the installver command is valid.

Use the following syntax for the command to automatically check the bill of materials against the installed file system:

- `Linux` *app_server_root*/bin/verifyinstallver.sh
- `Windows` *app_server_root*\bin\verifyinstallver.bat

Display verbose results:

`verifyinstallver.bat -trace`

Display usage information:

`verifyinstallver.bat -help`

The location of the verification program for installver command is:

- **`Linux`** *app_server_root*/bin/verifyinstallver.sh
- **`Windows`** *app_server_root*\bin\verifyinstallver.bat

Parameters

The command has optional parameters.

path_name_and_file_name
> Optional parameter to identify the location of the installver command file.
>
> The default location and filename are:
>
> - **`Linux`** *app_server_root*/bin/installver.sh
> - **`Windows`** *app_server_root*\bin\installver.bat

-help
> Displays usage information.

-trace
> Provides trace output of what the tool checks and what the tool discovers.

Next

Go to the description of the "installver command" to learn more.

installver command

The installver command performs two main functions. The tool computes a checksum on the installed files and compares the checksum to the shipped bill of materials for the product. The installver command can also compute a new baseline checksum for each file in the inventory of a configured system to use to identify file changes in later comparisons.

Purpose

This topic describes the location of the command file, command syntax, and links to task information about using the tool.

The default log file is the *app_server_root*/logs/installver.log file. You can redirect the output using the -log parameter and an argument. Use the -log parameter without the file argument to generate the default log file.

Computing the checksum

The installver tool computes a checksum for each installed file in the product. The tool compares each computed checksum to the correct checksum for the file. The correct checksums are shipped in the bill-of-material files. One bill-of-materials file exists for each component.

The tool parses the bill-of-materials file for each component to find the correct checksum value for each file in the component. Each product file has an entry in some bill-of-materials file. The entry for a product file lists the product file path and the correct checksum value.

Shipped bill-of-material files

Each bill-of-materials file is named files.list. Each component has one files.list file. Each files.list file is in one of the *app_server_root*/properties/version/install/6.1.0.0/backup/ *component_name* directories. A *component_name* directory exists for each component.

For instance, the files.list file for the activity component is in the *app_server_root* /properties/version/install/ 6.1.0.0/backup/activity directory. The file resembles the following example:

```
<?xml version="1.0" encoding="UTF-8"?>

<componentfiles componentname="activity">
      <file>
            <relativepath>properties/version/activity.component</relativepath>
            <checksum>1a20dc54694e81fccd16c80f7c1bb6b46bba8768</checksum>
            <permissions>644</permissions>
            <installoperation>remove</installoperation>
      </file>
      <file>
            <relativepath>lib/activity.jar</relativepath>
            <checksum>2f056cc01be7ff42bb343e962d26328d5332c88c</checksum>
            <permissions>644</permissions>
            <installoperation>remove</installoperation>
      </file>
</componentfiles>
```

Comparing the computed checksum to the correct checksum

As the tool processes each product file in each bill-of-materials file, the tool also computes the actual checksum value of the corresponding installed product file. The tool then compares the checksum of the product file to the correct checksum value in the bill-of-materials file. The tool then reports any differences.

Location of the command file

The installver command file is located in the `bin` directory of the installation root directory:

- ` Linux ` *app_server_root*/bin/installver.sh
- ` Windows ` *app_server_root*\bin\installver.bat

Change directories to the `bin` directory to start the installver tool from the command line. The tool runs on any supported operating system except z/OS.

For example, use the following command to run the tool from a user profile that has *ALLOBJ authority on iSeries systems:

`installver`

Or use the following command to start the tool on a Linux system or a UNIX system:

`./installver.sh`

See the following topics for more information about the purpose of the command:
- "Verifying against the bill of materials" on page 191
- "Computing a new baseline checksum for an inventory of configured files" on page 194
- "Excluding files from a checksum comparison" on page 196
- "Comparing specific file and component checksums" on page 199
- "Changing the default message digest algorithm" on page 201
- "Handling out-of-memory situations" on page 202
- "Verifying the installver command" on page 202

Syntax for displaying usage information

- ` Linux ` `./installver.sh -help`
- ` Windows ` `installver.bat -help`

Syntax for listing all components

- `Linux` ./installver.sh -listcomponents

- `Windows` installver.bat -listcomponents

Syntax for comparing product files to the bill-of-material files

Use the following command syntax to automatically check the bill of materials against the installed file system.

- `Linux` *app_server_root*/bin/installver.sh

- `Windows` *app_server_root*\bin\installver.bat

See "Verifying against the bill of materials" on page 191 for examples of using the command to compare the installed files to the product bill-of-materials files.

Example comparisons and command usage

Compare checksums and include specified files only in the comparison:

- `Linux` ./installver.sh -include *fn1;fn2;fn3*

- `Windows` installver.bat -include *fn1;fn2;fn3*

See "Comparing specific file and component checksums" on page 199 for examples of using the command to compare only files or components that you specify.

Compare checksums and include specified components only in the comparison:

- `Linux` ./installver.sh -includecomponent *comp1;comp2;comp3;...*

- `Windows` installver.bat -includecomponent *comp1;comp2;comp3;...*

Compare checksums and exclude certain components from the comparison:

- `Linux` ./installver.sh -excludecomponent *comp1;comp2;comp3;...*

- `Windows` installver.bat -excludecomponent *comp1;comp2;comp3;...*

See "Excluding files from a checksum comparison" on page 196 for examples of using the command to exclude files from the comparison.

Compare checksums and ignore user-excluded files:

- `Linux` ./installver.sh -ignoreuserexclude

- `Windows` installver.bat -ignoreuserexclude

Compare checksums and ignore IBM-excluded files:

- `Linux` ./installver.sh -ignoreibmexclude

- `Windows` installver.bat -ignoreibmexclude

List all components only:

- `Linux` ./installver.sh -listcomponents

- `Windows` installver.bat -listcomponents

Create template (for listing excluded files) only:

- ▶ `Linux` ./installver.sh -createtemplate

- ▶ `Windows` installver.bat -createtemplate

Parameters for comparing checksums against the bill of materials

The following parameters are associated with the command when comparing product file checksums to the correct checksums in the bill of material files.

-componentdir *directory_1*; *directory_2*; *directory_n*
Optional parameter that identifies the names of directories where WebSphere Application Server products store the individual bill-of-material lists for each component.

The default value is the *app_server_root* /properties/version/install/6.1.0.0/backup directory.

The directory path delimiter can be either a colon (:) or a semi-colon (;).

-createtemplate [*file_name* **]**
Creates a template properties file for excluding files from the checksum comparison. Edit the template properties file to add a line for each file that you want to exclude from verification.

Without a file specification argument, the installver tool creates the *profile_root*/properties/ivu_user.template file.

If you specify a file name, the installver tool creates the file in the working directory, which is the *profile_root*/bin directory by default.

- ▶ `Linux` Perform the following procedure:
  1. cd *app_server_root*/bin
  2. ./installver.sh -createtemplate

- ▶ `Windows` Perform the following procedure:
  1. cd *app_server_root*\bin
  2. installver.bat -createtemplate

The installver tool creates the template properties file in the properties directory of the default profile.

- ▶ `Linux` *profile_root*/properties/ivu.user.template

- ▶ `Windows` *profile_root*\properties\ivu.user.template

-exclude *file1;file2;file3; ...*
Excludes files from verification.

Use a semi-colon (;) or a colon (:) to delimit file names.

-excludecomponent *component1;component2;component3; ...*
Excludes components from verification.

Use a semi-colon (;) or a colon (:) to delimit component names.

-filelist *file_name*
Optional parameter that identifies the name of the file that IBM uses to identify the correct checksums of product files in a particular product component.

The default value is files.list.

-help

Displays usage information.

-ignoreuserexclude

Ignores the default *profile_root*/properties/ivu_user.template file, if the file exists and compares the files listed in the template.

If you use the -createtemplate parameter with a file specification to create a template file in another location, the -ignoreusertemplate parameter has no effect.

-ignoreibmexclude

Compares checksums for all of the files in the installation root directory. IBM specifies certain files to exclude from the verification by default. You can cause the installver tool to verify those files as well by using the -ignoreibmexclude parameter.

-include *file1;file2;file3; ...*
    Includes files in the verification and excludes all other files.

    Use a semi-colon (;) or a colon (:) to delimit file names.

-includecomponent *component1;component2;component3; ...*
    Includes components in the verification and excludes all other components.

    Use a semi-colon (;) or a colon (:) to delimit component names.

-installroot *directory_name*
    Overrides the default installation root directory.

-listcomponents

Displays a list of components in the product. Each component must have a files.list file.

-log [*file_path_and_file_name_of_log_file***]**

The default log file is the *app_server_root*/logs/installver.log file. You can redirect the output using the -log parameter and an argument.

-profilehome *directory_name*
    Overrides the default profiles directory in the installation root directory.

-trace

Provides trace output of what the tool checks and what the tool discovers.

Syntax for creating and using a new baseline checksum for an inventory of configured files

Use the following syntax to create and compare an inventory of configured files to the currently installed files.

Create an inventory list of the files that are currently installed in the installation root directory

- ▶ `Linux` `./installver.sh -createinventory` [*path/file_name*], such as `./installver.sh -createinventory /tmp/system.inv`
- ▶ `Windows` `installver.bat -createinventory` [*path\file_name*], such as `installver.bat -createinventory C:\temp\system.inv`

Compare the inventory list to files that are currently installed in the installation root directory

- ▶ `Linux` `./installver.sh -compare` */path/file_name*
- ▶ `Windows` `installver.bat -compare` *path\file_name*

Compare and display trace results

- ▶ `Linux` `./installver.sh -compare` */path/file_name* `-trace`
- ▶ `Windows` `installver.bat -compare` */path/file_name* `-trace`

Display usage information

- **Linux** `./installver.sh -help`
- **Windows** `installver.bat -help`

Compare and exclude specified files from the inventory comparison

- **Linux** `./installver.sh -compare /path/file_name -exclude fn1;fn2;fn3;...`
- **Windows** `installver.bat -compare \path\file_name -exclude fn1;fn2;fn3;...`

Compare and include only specified files in the inventory comparison

- **Linux** `./installver.sh -compare /path/file_name -include fn1;fn2;fn3;...`
- **Windows** `installver.bat -compare /path/file_name-include fn1;fn2;fn3;...`

Parameters for creating and using checksums for a file inventory

The following parameters are associated with this command.

-compare *file_path_and_file_name_of_existing_inventory_file*
  Compares the existing inventory list to the existing files to determine changes.

  First use the -createinventory parameter to create an inventory list. Then use the -compare parameter to compare the inventory list to the actual files that exist in the system at the time of the comparison.

  The result of the comparison shows changed classes, changed files, missing files, and added files. Such a comparison is very useful for verifying the absence of virus files, for example.

-createinventory *directory_name*
  Creates the new checksum by default in the sys.inv file within the current working directory, such as the *profile_root*/bin directory. You can specify a file path and file name. Create the file outside of the installation root directory or exclude the file from comparisons.

  You can point the installver tool at any directory. The default directory is the installation root directory.

  You can exclude files or components from the inventory.

  The installver tool computes a checksum for each file. Each file entry in the inventory has the following general pattern:

  `checksum|relativepath/file_name|file_size|last_modfiied_time`

  After creating an inventory list, use the -compare parameter to compare the list to the actual files that exist in the system at the time of the comparison.

-exclude *file1;file2;file3;...*
  Excludes files from comparison.

  Use a semi-colon (;) or a colon (:) to delimit file names.

-help
  Displays usage information.

-include *file1;file2;file3; ...*
  Includes files in the comparison and excludes all other files.

  Use a semi-colon (;) or a colon (:) to delimit file names.

-installroot *directory_name*
  Overrides the *default installation root directory.*

-log [*file_path_and_file_name_of_log_file***]**

  The default log file is the *app_server_root*/logs/installver.log file. You can redirect the output using the -log parameter and an argument.

-trace
　　Provides trace output of what the tool checks and what the tool discovers.

Example issues

The following examples show issues that might occur when you run the installver command to compare checksums.

Ignore entries for checksum mismatches that you introduce on purpose, such as might occur when you extend a component

The checksums differ for each file that you change:
```
I CWNVU0470I: [ivu] Starting to analyze: regularcomponentsample
I CWNVU0440I: [ivu] The following file is different: lib/different.jar
I CWNVU0410I: [ivu] fc19318dd13128ce14344d066510a982269c241b is the checksum in the bill of materials.
I CWNVU0420I: [ivu] 517d5a7240861ec297fa07542a7bf7470bb604fe is the checksum on the file system.
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: regularcomponentsample
```

Ignore issues that are obvious informational (I) messages

Some messages indicate deviations from the normally expected result, but are not indicators of a serious issue:
```
I CWNVU0360I: [ivu] The following bill of materials issue is found for component nullvaluesample:
  Hash must not be null or an empty string.
```

Overlapped files are either a potential product issue or potential tampering with the IBM provided bill of materials
```
I CWNVU0470I: [ivu] Starting to analyze: overlapbinarycomponentsample
W CWNVU0422W: [ivu] The following file is overlapped: lib/binaryTest.jar
W CWNVU0425W: [ivu] The overlap is caused by: _binarycomponentsample
I CWNVU0390I: [ivu] Component issues found : 1
I CWNVU0480I: [ivu] Done analyzing: overlapbinarycomponentsample
```

Contact IBM support for the following issue

If you see any messages with the following format, contact IBM support:
```
W CWNVU0280W: [ivu] Component mismatch: expected ... but found ...
```

IBM Support has documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see this IBM Support page.

Next

After verifying your installation, you can create profiles or deploy an application on an existing application server profile.

After installing, updating, and verifying, the next step is to use the product. If you created a stand-alone application server or a cell, start the application server, or the deployment manager, node agent, and federated application server, to use the administrative console to deploy an existing application.

Chapter 9. Installing maintenance packages

This topic describes how to use the IBM Update Installer for WebSphere Software to install interim fixes, fix packs, and refresh packs. The Update Installer for WebSphere Software is also known as the Update Installer program, the UpdateInstaller program, and the Update installation wizard.

Use the proper authorizations to successfully install product updates.

When administrative security is enabled on WebSphere Application Server Network Deployment, for example, you must supply the administrative user ID and password before you can update the files.

Use the Update Installer program from the same installer ID that installed the product that you are updating. Otherwise, the file ownership mismatches might require correction by the root user. See "Limitations of non-root installers" on page 175 for more information.

Important:

- The user account that originally installed the WebSphere Application Server product to be updated should be used to launch the Installation Wizard to install the Update Installer, and the same user account should be used to launch the Update Installer program to update a product.
  - When a different user account uses the *updi_root* location, that user account must have reading and running access to that location. It must also have writing access to the *updi_root*/logs directory and its subdirectory.
  - When a different user account is used to update the target WebSphere Application Server product location, that user account must have full access (reading, writing, and running) to the target location where a maintenance package is to be applied.
- ▶ **AIX** If a non-root user launches the Update Installer program, that user account must be able to run the **slibclean** command; otherwise, a root user must run the **slibclean** command whenever the Update Installer program is used. For more information, refer to the following Web page: http://www-128.ibm.com/developerworks/eserver/tutorials/linking102/linking102-4-1.html.
- Make sure that no processes from any users are locking any files in the target location where a maintenance package is to be installed.

The Update Installer wizard is an InstallShield for Multiplatforms wizard that runs with either a graphical user interface or in silent mode with a response file.

The following descriptions contain reference information about installing interim fixes, fix packs, and refresh packs on WebSphere Application Server products and components:

Overview of the installation procedure

1. Download, unpack, and install the Update Installer for WebSphere Software; or install the Update Installer that is on the WebSphere Application Server supplements disc.
2. Download the most current version of the interim fix, fix pack, or refresh pack file from the Support site.
3. Download the interim fix, fix pack, or refresh pack from the Support Web site into the maintenance directory.
4. Use the Update Installer to install the interim fix, fix pack, or refresh pack.

    The Update Installer creates a backup file in the *app_server_root*properties/version/nif/backup directory.

    IBM does not support restoring a backup file that you have modified.

Updating existing profiles in WebSphere Application Server products

The Update Installer updates the core product files in a WebSphere Application Server product. Service in a maintenance package might update the following files in the installation root directory:

- The SDK, Java technology edition, in the java/jre directory
- JAR files in the lib directory
- Scripts in the bin directory
- Profile templates

Some maintenance packages provide required service for existing profiles in addition to service for the core product files. Each maintenance package that has profile maintenance provides a script that changes the profile. The Update Installer prompts you to back up your configuration when installing a maintenance package that has required maintenance for profiles.

Some maintenance packages provide optional service for existing profiles. The readme file for the maintenance package describes whether the maintenance package contains optional service for existing profiles. If so, the readme file describes how to use the script provided with the maintenance package.

Use the **backupConfig** command to back up the configuration of each profile that the maintenance package can update. Or archive the *app_server_root*/profiles directory to back up all of the profiles at once.

If you uninstall a maintenance package, the Update Installer does not uninstall the maintenance package from profiles. The reason for not removing the maintenance is that you might have configured the profile after installing the maintenance. To restore an original profile, use the **restoreConfig** command or copy the profile from the archived *profile_root* directory to replace the changed profile.

Viewing the fix level of the product

Use the versionInfo command and the historyInfo command in the bin directory of the installation root directory to display the exact fix and version level of the product. However, do not use either command while installing or uninstalling a maintenance package.

Updating cluster members

Apply the same maintenance packages to all of the WebSphere Application Server installations in a cluster. When all of the cluster members are not at the same service level, the following exception can occur:

```
DRSCacheApp   E DRSW0008E:
   Exception is: com.ibm.disthub.impl.jms.JMSWrappedException:
   {-1361012295|unknown|java.io.OptionalDataException|}
```

This error can cause memory replication to not function properly.

Required information. The graphical interface requires you to supply the following information:

Table 52. Information required when installing a maintenance package

Field	Valid values	Description
File path of the installation root directory of the WebSphere product or component. Installation root directory of the Update Installer. See *updi_root* for more information.	Identify the installation root directory for one of the following products: • IBM WebSphere Application Server • IBM WebSphere Application Server - Express • Embedded version of the IBM WebSphere Application Server - Express • IBM WebSphere Application Server Network Deployment • IBM WebSphere Extended Deployment • IBM Application Client for WebSphere Application Server • IBM WebSphere Business Integration Server Foundation • Web server plug-ins for WebSphere Application Server	Download, unpack, and install the Update Installer for WebSphere Software. Or install the Update Installer that is on the WebSphere Application Server supplements disc. Install the Update Installer into each component that you intend to update. The Update Installer application updates the product in its parent directory by default.
File name of the maintenance package to install.	Select a maintenance package to install from the maintenance directory.	The default maintenance package is the package with the latest date stamp and time stamp.

Important: See "Known problems and workarounds for the update command" on page 228 and the release notes for your product for the latest information about the Update Installer.

The following procedure describes how to install a maintenance package. See "Uninstalling maintenance packages" on page 219 for a description of how to roll back a maintenance package.

1. Log on as root on a Linux or UNIX operating system, or log on as a member of the administrator group on a Windows system.

   ▷ **Linux**   In addition, verify that the umask setting is 022. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

2. Install the product that you intend to update.

   You have very likely already installed the software that you are now updating. But if not, install the software now.

3. **Optional:** Install a new version of the Update Installer.

   Back up and uninstall any older copy of the Update Installer before downloading and installing the current Update Installer. To use a newer version of the Update Installer, you must first remove the older version.

   a. Back up any files and subdirectories in the *updi_root*/maintenance directory if necessary.

   b. Uninstall the older version of the Update Installer using the program under *updi_root*/uninstall.

   c. Download, unpack, and install the Update Installer for WebSphere Software; or install the Update Installer that is on the WebSphere Application Server supplements disc.

4. Download the maintenance package *.pak file from the Support Web site into the maintenance directory.

Download maintenance packages for the Update Installer for WebSphere Software to install from the following IBM Web pages:

- Download maintenance packages for IBM WebSphere Extended Deployment from the IBM Support site for IBM WebSphere Extended Deployment.
- Download maintenance packages for Version 6.x of the WebSphere Application Server products from the IBM Support site for WebSphere Application Server.

Tip: Do not attempt to unzip or unpack the *.pak file.

5. ▶ Windows Use the Windows Services panel to stop all services for WebSphere Application Server processes.

6. Stop all Java processes that use the IBM Software Developer Kit (SDK) that the WebSphere Application Server product provides.

   Before installing or uninstalling interim fixes, fix packs, and refresh packs on a machine, stop all Java processes on the machine that use the IBM SDK, Java Technology Edition that WebSphere Application Server provides.

   Stop all WebSphere Application Server-related Java processes that are running on the system where you are using the Update Installer program. For example, Java processes can include:

   - All Java Virtual Machines (JVMs)
   - WebSphere Application Server processes:

     WebSphere Application Server processes include:

     – Application server processes
     – The nodeagent process on an application server node when the node is federated into a deployment manager cell
     – The dmgr process for the deployment manager server

   - IBM HTTP Server processes
   - Web server processes that use a plug-in that you are updating
   - First steps consoles
   - Installation verification test (IVT) processes
   - The Profile Management tool
   - Other InstallShield for Multiplatforms (ISMP) installation programs
   - InstallShield for Multiplatforms uninstall programs
   - The IBM Rational Application Developer Agent Controller

   Stop all Java processes if necessary. If you install an interim fix while a WebSphere Application Server-related Java process runs, IBM does not guarantee that the product can continue to run successfully, or without error.

   See the following technote for more information, Stop all WebSphere Application Server-related Java processes before using the Update Installer for WebSphere software.

7. Verify that the following prerequisite conditions are met:

   - All of the product hardware and software prerequisites exist.

     The official statement of supported hardware and software is on the Supported hardware and software Web site.

   - The WebSphere software that you are updating is correctly installed and is not corrupt.
   - The WebSphere SDK, Java technology edition is not corrupt.
   - The user is root on a Linux or UNIX system or a member of the administrator group on a Windows system.

8. Change directories to the *updi_root* directory and use the update command to install the maintenance package.

Install the maintenance package on the deployment manager node before installing the maintenance package on each application server node that you intend to update.

Use the following command syntax to install the last maintenance package that you downloaded. The Update Installer wizard runs as a background process and does not display the graphical user interface when running in silent mode: **Windows**

```
update.bat -silent -options responsefile
```

Linux

```
./update.sh -silent -options responsefile
```

Or, issue the update command to start the graphical user interface: **Windows**

```
update.bat
```

Linux

```
./update.sh
```

The following tables show options that are available when using the **update** command.

The commands in the first table each start the Update Installer wizard with a graphical user interface. The command in the second table causes the Update Installer wizard to run in silent mode.

Table 53. Update installer commands for installing with the graphical interface

Command example	Type of installation	Description
update.bat	Graphical interface mode	Initializes the maintenance package field with the name of the maintenance package that has the most recent date stamp and time stamp. Accept all of the default values to install the maintenance package with the most recent time stamp.
update.bat -options "responsefiles/*file_name*"	Graphical interface mode with an options file	Overrides all graphical interface values with values that you specified in the options response file. Always use a response file that is based on the response file under *updi_root*/responsefiles.
update.bat -W maintenance.package="e: \IBM\WebSphere\AppServer \updateinstaller\ maintenance\ PQ20029.pak"	Graphical interface mode	Overrides the name of the maintenance package to apply.
update.bat -W product.location="e: \IBM\WebSphere\AppServer"	Graphical interface mode	Overrides the location of the WebSphere software to update.
update.bat -W product.location="e: \IBM\WebSphere\AppServer" -W maintenance.package="e: \IBM\WebSphere\ AppServer \updateinstaller\maintenance\ PQ20029.pak"	Graphical interface mode	Overrides the location of the WebSphere software to update and the name of the maintenance package to apply.

Specify an appropriate JOBQ parameter value to have the job run in a different subsystem. Verify that the storage pool that the job runs in has as much memory as possible.

The command in the following table starts the Update Installer wizard in silent mode without the graphical user interface:

Table 54. Update Installer command for installing in silent mode

Command example	Type of installation	Description
update.bat -silent -options "responsefiles/*file_name*"	Silent mode with an options file	Overrides all default values with values that you specified in the options response file. Always use a response file that is based on the response file under *updi_root*/responsefiles.

This procedure results in installing maintenance packages to update WebSphere software.

Click **Relaunch** on the last panel of the Update Installer to begin installing a second maintenance package.

After installing all maintenance packages, continue to use your WebSphere software.

install.txt

The Update Installer for WebSphere Software can use an options response file to install maintenance packages from a command line interface.

The install.txt file has one directive that identifies the backup file for installing a service update. Comments in the file describe how to set the string value.

The Update Installer for WebSphere Software wizard reads the options file to determine installation choices. The Update Installer installs the maintenance package in silent mode instead of displaying a graphical user interface.

Location of the response file

The sample options response file is named install.txt. The file is in the *updi_root*//responsefiles directory after you install the Update Installer for WebSphere Software into the installation root directory of the WebSphere software product.

Installing silently

The options file supplies the values to the Update installer wizard when installing silently. The wizard reads the options file to determine responses and does not display the graphical user interface.

The following command uses a copy of the options file named myresponsefile.txt to provide installation option responses during a silent installation:

```
./update.sh -options "responsefiles/myresponsefile.txt" -silent
```

If you do not use the -silent option, the wizard uses the response file to provide initial values for the graphical interface:

```
./update.sh -options "responsefiles/myresponsefile.txt"
```

Response file user entry validation

In a silent installation, response file validation is coded into the installation. If the validation does not pass, the failure is recorded in the log files in the *app_server_root*/logs/update/tmp directory.

Location of the maintenance package to be installed

> **Default directive setting**
>> -W maintenance.package=""

Valid setting

You must set this directive to the location of the maintenance package PAK file. For example, you might specify the following location on a Linux system:

`/opt/IBM/WebSphere/AppServer/updateinstaller/maintenance/PQ20029.pak`

Error identifiers:

- Maintenance package *maintenance_package_name* is already installed on the system.
- Selected product is not supported.
- Configuration failed. The config action that failed was: *configuration_action*.
- Install the following prerequisite APARs before installing the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ install*
- Install the following prerequisite maintenance packages before installing the package you are currently attempting to install: *list_ of_ prerequisite_ maintenance_ packages_ to_ install*
- Uninstall the following APARs before applying the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ uninstall*
- Uninstall the following maintenance packages before applying the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ uninstall*
- Unable to locate the correct version of *the_update_installer*. Looking for version *version_identifier*.
- *Maintenance_package* is not a valid maintenance package.

Product location

Although applying maintenance to another product is possible, always use the Update installer wizard within the directory structure of the product that you are updating if possible. Problems can occur when a mismatch between product SDKs occurs, for example.

Do not use this directive unless absolutely necessary.

Default directive setting

-W product.location=*"SPECIFY_PRODUCT_INSTALL_LOCATION_HERE"*

Valid setting

Set this directive to the installation root directory of the alternate product. For example, you might specify the following location on a Linux system:

`/opt/IBM/WebSphere/AppServer2`

Error identifiers:

- Maintenance package *maintenance_package_name* is already installed on the system.
- Selected product is not supported.
- Configuration failed. The config action that failed was: *configuration_action*.
- Install the following prerequisite APARs before installing the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ install*
- Install the following prerequisite maintenance packages before installing the package you are currently attempting to install: *list_ of_ prerequisite_ maintenance_ packages_ to_ install*
- Uninstall the following APARs before applying the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ uninstall*
- Uninstall the following maintenance packages before applying the current maintenance to the target product: *list_ of_ prerequisite_ maintenance_ packages_ to_ uninstall*
- Unable to locate the correct version of *the_update_installer*. Looking for version *version_identifier*.
- *Maintenance_package* is not a valid maintenance package.

- *Alternate_product_directory* could not be validated as an existing directory.

Usage notes

- The file is not a read-only file.
- Edit this file directly with your flat file editor of choice, such as Kate on SLES or WordPad on a Windows platform.
- The file must exist to perform a silent installation. The Update installer wizard reads this file to determine installation parameters. Provide the fully qualified file path to the backup file.
- Save the copy of the options file in the responsefiles directory for best results.

Example install.txt file

Edit the version of the file that is included in the Update Installer for WebSphere Software ZIP file. The following example is not guaranteed to be an accurate representation of the actual file.

```
##############################################################################
#
# This is the silent install response file for installing maintenance packages
# using the update installer.
#
# A common use of an options file is to run the wizard in silent mode. This lets
# the options file author specify wizard settings without having to run the
# wizard in graphical or console mode. To use this options file for silent mode
# execution, *uncomment* and modify the parameters defined within.
#
# Use the following command line when running the wizard from the update
# installer directory:
#
#    update -options responsefiles/install.txt -silent
#
# Please enclose all values within a single pair of double quotes.
#
##############################################################################


##############################################################################
#
# Used to input the maintenance package full filename specification to be installed.
# Edit as appropriate.
#
# ie. -W maintenance.package="C:\Program Files\IBM\WebSphere\AppServer\updateinstaller\maintenance\PQ20029.pak"
#
# Note: If no package is specified, a default of the last downloaded maintenance
# package will be used (based on timestamp).
#
#-W maintenance.package=


##############################################################################
#
# Used to input the product install location that will be updated.
#
# ie. -W product.location="C:\Program Files\IBM\WebSphere\AppServer"
#
# Note: The product install location should always been specified, and it should
# always be the full path.
#
-W product.location="<SPECIFY_PRODUCT_INSTALL_LOCATION_HERE>"


##############################################################################
#
# Do not edit these values.
#
#
-W update.type="install"
```

Updating the Update Installer for WebSphere Software

The Update Installer for WebSphere Software has a new installation and uninstallation program for Version 6.1, Installation Wizard for the Update Installer. The Update Installer now uses the Common Install Engine for WebSphere Software.

Important: Only one copy of the Update Installer should be installed on your system at any one time for use with all Version 6.x products. Before installing a newer version of the Update Installer, you must first remove the existing Update Installer.

The Update Installer ships on the Version 6.1 supplements disk. The Update Installer undergoes regular maintenance and offers updated versions on the WebSphere software support pages.

See Recommended Updates for WebSphere Application Server. Look under your release of the WebSphere software for a link to the Update Installer download page.

This topic describes how to update the Update Installer after you installed it into a product.
1. Uninstall the Update Installer.

   See "Uninstalling the Update Installer for WebSphere Software" on page 234.
2. Download the updated Update Installer files from the product Support site.

   For example, see Recommended Updates for WebSphere Application Server to locate the Update Installer download page.
3. Unpack the downloaded file to reveal the install program.
4. Install the new Update Installer.

   See "Installing the Update Installer for WebSphere Software" on page 172 for more information.

The Update Installer is installed under the root directory that you specified during installation.

See Chapter 9, "Installing maintenance packages," on page 211 for information about using the Update Installer to install maintenance packages.

Uninstalling maintenance packages

This topic describes how to use the Update Installer for WebSphere Software to uninstall interim fixes, fix packs, and refresh packs. The Update Installer for WebSphere Software is also known as the update installer program, the updateInstaller program, and the Update installation wizard.

Use the proper authorizations to successfully uninstall product updates. Use the update installer program as the root user on a Linux or UNIX platform, or as the administrator on a Windows platform.

The Update Installer wizard is an InstallShield for Multiplatforms wizard that runs with either a graphical user interface or in silent mode with a response file.

Important: See "Known problems and workarounds for the update command" on page 228 for information about known problems and workarounds.

The following descriptions contain reference information about uninstalling interim fixes, fix packs, and refresh packs on WebSphere Application Server products:

Overview of the uninstall procedure

To uninstall a maintenance package:
1. Use the update installer to install the maintenance package, which creates a backup file in the *app_server_root*/properties/version/nif/backup directory. IBM does not support user modifications to backup files.

2. Use the update installer program to remove the maintenance package as described in this topic.

Viewing the fix level of the node

You can use the versionInfo command in the *app_server_root*/bin directory to display the exact fix and version level of the product. However, do not use the versionInfo command while installing or uninstalling a maintenance package.

Do not launch multiple copies of the Update Installer wizard at one time: Concurrent launches of the update installer program are not supported. Performing more than one update at the same time can produce unpredictable results, which might include a failed or faulty installation.

Required information

The graphical interface requires the following information that you must supply:

Table 55. Information required when uninstalling a maintenance package

Field	Valid values	Description
File path of the installation root directory of the WebSphere product and the Update Installer	Identify the installation root directory for one of the following products: • IBM WebSphere Application Server • IBM WebSphere Application Server - Express • Embedded version of the IBM WebSphere Application Server - Express • IBM WebSphere Application Server Network Deployment • IBM WebSphere Extended Deployment • IBM Application Client for WebSphere Application Server • IBM WebSphere Business Integration Server Foundation • Web server plug-ins for WebSphere Application Server	The Update Installer application defaults to the last-visited product location.
File name of the maintenance package to uninstall.	Select a maintenance package to uninstall from the *app_server_root*/properties/version/ update/backup directory.	The default maintenance package is the package with the latest date stamp and time stamp in the *app_server_root* /properties/version/ update/backup directory.

The following procedure describes how to uninstall a maintenance package.

1. Log on to the operating system.

   ► Linux   In addition, verify that the umask setting is 022. To verify the umask setting, issue the following command:

   `umask`

   To set the umask setting to 022, issue the following command:

   `umask 022`

2. Change directories to the *updi_root* directory.

3. ► Windows   Use the Windows Services panel to stop all services for WebSphere Application Server processes.

4. Stop all Java processes that use the IBM Software Developer Kit (SDK) that the WebSphere Application Server product provides.

   Before uninstalling interim fixes, fix packs, and refresh packs on a machine, stop all Java processes on the machine that use the IBM SDK, Java Technology Edition that WebSphere Application Server provides.

   WebSphere Application Server processes include:

   - Application server processes
   - The nodeagent process on an application server node when the node is federated into a deployment manager cell
   - The dmgr process for the deployment manager server

   Stop all Java processes if necessary. If you uninstall a maintenance package while a WebSphere Application Server-related Java process runs, IBM does not guarantee that the product can continue to run successfully, or without error.

5. Use the update installer to uninstall the maintenance package.

   Uninstall the interim fix on each application server node in a cell before uninstalling the maintenance package from the deployment manager node.

   Issue one of the following commands to uninstall with the graphical interface:

Table 56. Update installer commands for uninstalling with the graphical interface

Command example	Type of installation	Description
update.bat -W update.type=″uninstall″	Graphical interface mode	Initializes the maintenance package field with the name of the maintenance package that was most recently installed. Accept all of the default values to uninstall the maintenance package with the most recent date stamp and time stamp.
update.bat -W product.location=″e:\IBM\WebSphere\AppServer″ -W update.type=″uninstall″	Graphical interface mode	Overrides the graphical interface with the location of the WebSphere software to update. The default maintenance package to uninstall is the most recently installed maintenance package for that software.
update.bat -W backup.package=″PQ20029.pak″ -W update.type=″uninstall″	Graphical interface mode	Overrides the maintenance package field with the name of the maintenance package to uninstall.
update.bat -W product.location=″e:\IBM\WebSphere\AppServer″ -W backup.package=″PQ20029.pak″ -W update.type=″uninstall″	Graphical interface mode	Overrides the location of the WebSphere software to update and the name of the maintenance package to uninstall.
update.bat -options ″responsefiles/*file_name*″	Graphical interface mode with an options file	Overrides all default values with values that you specified in the options response file. If you omit either value from the response file, the default maintenance package is the installed package with the most recent date stamp and time stamp. The default software is the software installed in the parent directory.

Issue the following command to use the silent interface:

Table 57. Update installer command for uninstalling in silent mode

Command example	Type of installation	Description
update.bat -silent -options ″responsefiles/*file_name*″	Silent mode with an options file	Overrides all default values with values that you specified in the options response file. Always use a response file that is based on the response file under *updi_root*/responsefiles.

This procedure results in uninstalling maintenance packages to update WebSphere software.

After uninstalling maintenance packages, you can continue to use the WebSphere software.

Rolling back changes to existing profiles: Some maintenance packages for WebSphere Application Server products, such as Refresh Pack 2, update existing profiles. If you roll back a maintenance package that contains a profile update, also use any undo scripts provided with the profile update script to roll back changes to the existing profiles.

The readme file for a maintenance package describes scripts that update and scripts that roll back profile fix levels. For example, Refresh Pack 2 for WebSphere Application Server includes required service for the JDBC resource provider templates in existing profiles. See the readme for the profile update and undo scripts for the JDBC-related update for more information.

Deleting profiles created by a service level that is now rolled back: See Profiles remain at the Version 6.0.2 level after roll back for a description of a limitation that requires profiles to be at the same service level or at a lower service level that the WebSphere Application Server product.

For example, suppose that you install Fix Pack 1 for Version 6.1 (Version 6.1.0.1), create a new profile, and then roll back Fix Pack 1. You must delete the profile that you created at the Version 6.1.0.1 level to avoid possible problems.

uninstall.txt

The Update Installer for WebSphere Software can use an options response file to uninstall maintenance packages from a command line interface.

The uninstall.txt file has one directive that identifies the backup file for uninstalling a service update. Comments in the file describe how to set the string value.

The Update Installer for WebSphere Software wizard reads the options file to determine uninstall choices. The Update Installer uninstalls the maintenance package in silent mode, instead of displaying a graphical user interface.

Location of the response file
The sample options response file is named uninstall.txt. The file is in the *updi_root*/responsefiles directory after you unzip the Update Installer for WebSphere Software into the installation root directory of the WebSphere software product.

Uninstalling silently
The options file supplies the values to the Update installer wizard when uninstalling silently. The wizard reads the options file to determine responses and does not display the graphical user interface.

The following command uses a copy of the options file named myresponsefile.txt to provide uninstall option responses during a silent uninstall:

```
./update.sh -options "responsefiles/myresponsefile.txt" -silent
```

If you do not use the -silent option, the wizard uses the response file to provide initial values for the graphical interface:

```
./update.sh -options "responsefiles/myresponsefile.txt"
```

Response file user entry validation

In a silent uninstall, response file validation has been coded into the uninstall process. If the validation does not pass, the failure is recorded in the log files in the *app_server_root*/logs/update/tmp directory.

Location of the maintenance package to be uninstalled

> **Default directive setting**
> > -W backup.package=*""*
>
> **Valid setting**
> > You must set this directive to the location of the backup file. The backup file reverses the application of the maintenance. For example, you might specify the following location on a Linux system:
> >
> > ```
> > /opt/properties/version/nif/backup/maintenance_package_to_uninstall
> > ```
>
> **Error identifiers:**
> > - The maintenance package cannot be uninstalled. Uninstalling the maintenance would break the following superseding maintenance packages. Uninstall the superseding maintenance packages first: *list_of_superseding_maintenance_packages*
> > - This maintenance package cannot be uninstalled. The following maintenance packages are dependent on the package that you are attempting to uninstall: *list_of_dependent_maintenance_packages*
> > - This maintenance package cannot be uninstalled. The following maintenance packages are dependent on the APARs you are attempting to uninstall: *list_of_dependent_maintenance_packages*
> > - No installation backup packages are available for uninstalling maintenance.

Product location

> Although uninstalling maintenance from another product is possible, always use the Update installer wizard from the directory structure of the product that you are updating if possible. Problems can occur when a mismatch between product SDKs occurs, for example.
>
> Do not use this directive unless absolutely necessary.
>
> **Default directive setting**
> > -W product.location=*"SPECIFY_PRODUCT_INSTALL_LOCATION_HERE"*
>
> **Valid setting**
> > You must set this directive to the installation root directory of the alternate product. For example, you might specify the following location on a Linux system:
> >
> > ```
> > /opt/IBM/WebSphere/AppServer2
> > ```
>
> **Error identifiers:**
> > - The maintenance package cannot be uninstalled. Uninstalling the maintenance would break the following superseding maintenance packages. Uninstall the superseding maintenance packages first: *list_of_superseding_maintenance_packages*
> > - This maintenance package cannot be uninstalled. The following maintenance packages are dependent on the package that you are attempting to uninstall: *list_of_dependent_maintenance_packages*

- This maintenance package cannot be uninstalled. The following maintenance packages are dependent on the APARs you are attempting to uninstall: *list_of_dependent_maintenance_packages*
- No installation backup packages are available for uninstalling maintenance.
-

Usage notes

- The file is not a read-only file.
- Edit this file directly with your flat file editor of choice, such as Kate on SLES or WordPad on a Windows platform.
- The file must exist to perform a silent uninstall. The Update installer wizard reads this file to determine uninstall parameters. Provide the fully qualified file path to the backup file.
- Save the copy of the options file in the responsefiles directory for best results.

Example uninstall.txt file

Edit the version of the file that is included in the Update Installer for WebSphere Software ZIP file. The following example is not guaranteed to be an accurate representation of the actual file.

```
##############################################################################
#
# This is the silent install response file for uninstalling maintenance packages
# using the update installer.
#
# A common use of an options file is to run the wizard in silent mode. This lets
# the options file author specify wizard settings without having to run the
# wizard in graphical or console mode. To use this options file for silent mode
# execution, *uncomment* and modify the parameters defined within.
#
# Use the following command line when running the wizard from the update
# installer directory:
#
#    update -options responsefiles/uninstall.txt -silent
#
# Please enclose all values within a single pair of double quotes.
#
##############################################################################


##############################################################################
#
# Used to input the maintenance backup package filename to be uninstalled.
# This is the same filename as the package that was originally installed.
# A maintenance package can only be uninstalled if a backup package exists.
#
# ie. -W backup.package="PQ20029.pak"
#
# Note: If no package is specified, a default of the last installed maintenance
# package will be used.
#
#-W backup.package=""


##############################################################################
#
# Used to modify the product install location that will be updated.
# This value should be left commented out if the Update Installer is
# being run from the recommended location
#
# ie. -W product.location="C:\Program Files\IBM\WebSphere\AppServer"
#
# Note: The product install location should always been specified, and it should
# always be the full path.
#
-W product.location="<SPECIFY_PRODUCT_INSTALL_LOCATION_HERE>"
```

```
#########################################################################
#
# Do not edit these values.
#
-W update.type="uninstall"
```

---

update command

The **update** command is the Update Installer for WebSphere Software program. The Update installer wizard is also known as the Update installation wizard, the update installer program, and the updateInstaller program.

The update installer program installs and uninstalls interim fixes, fix packs, and refresh packs to update WebSphere software.

Overview

The **update** command calls the update installer program to install and uninstall service to update WebSphere software. This topic describes the update installer command and its command-line parameters.

The following descriptions contain reference information about the command.

See Chapter 9, "Installing maintenance packages," on page 211 and "Uninstalling maintenance packages" on page 219 for information about using the command.

Important: See "Known problems and workarounds for the update command" on page 228 for information about known problems and workarounds.

Command options

The following tables list commands for installing and uninstalling interim fixes.

Commands for installing interim fixes

Issue one of the following commands to use the graphical interface:

Table 58. Update installer commands for installing with the graphical interface

Command example	Type of installation	Description
update.bat	Graphical interface mode	Initializes the interim fix field with the name of the interim fix that has the most recent date stamp and time stamp. Accept all of the default values to install the interim fix with the most recent time stamp.

Table 58. Update installer commands for installing with the graphical interface (continued)

Command example	Type of installation	Description
update.bat -options ″responsefiles/*file_name*″	Graphical interface mode with an options file	Overrides all graphical interface values with values that you specified in the options response file. If you omit either value, the default maintenance package is the one with the most recent date stamp and time stamp. The default software is the software installed in the parent directory.
update.bat -W maintenance.package=″e: \IBM\WebSphere\AppServer \updateinstaller\ maintenance \PQ20029.pak″	Graphical interface mode	Overrides the name of the maintenance package to apply.
update.bat -W product.location=″e: \IBM\WebSphere\AppServer″	Graphical interface mode	Overrides the location of the WebSphere software to update.
update.bat -W product.location=″e: \IBM\WebSphere\AppServer″ -W maintenance.package=″e: \IBM\WebSphere\ AppServer \updateinstaller\maintenance \PQ20029.pak″	Graphical interface mode	Overrides the location of the WebSphere software to update and the name of the maintenance package to apply.

Issue the following command to use the silent interface:

Table 59. Update installer command for installing in silent mode

Command example	Type of installation	Description
update.bat -silent -options ″responsefiles/*file_name*″	Silent mode with an options file	Overrides all default values with values that you specified in the options response file. Always use a response file that is based on the response file under *updi_root*/responsefiles.

Commands for uninstalling interim fixes

Issue one of the following commands to uninstall with the graphical interface:

Table 60. Update installer commands for uninstalling with the graphical interface

Command example	Type of installation	Description
update.bat -W update.type=″uninstall″	Graphical interface mode	Initializes the interim fix field with the name of the interim fix that was most recently installed. Accept all of the default values to uninstall the interim fix with the most recent date stamp and time stamp.
update.bat -W product.location=″e: \IBM\WebSphere\AppServer″ -W update.type=″uninstall″	Graphical interface mode	Overrides the graphical interface with the location of the WebSphere software to update. The default interim fix to uninstall is the most recently installed interim fix for that software.

Table 60. Update installer commands for uninstalling with the graphical interface (continued)

Command example	Type of installation	Description
update.bat -W backup.package=″PQ20029.pak″ -W update.type=″uninstall″	Graphical interface mode	Overrides the interim fix field with the name of the maintenance package to uninstall.
update.bat -W product.location=″e: \IBM\WebSphere\AppServer″ -W backup.package=″PQ20029.pak″ -W update.type=″uninstall″	Graphical interface mode	Overrides the location of the WebSphere software to update and the name of the maintenance package to uninstall.
update.bat -options ″responsefiles/*file_name*″	Graphical interface mode with an options file	Overrides all default values with values that you specified in the options response file. If you omit either value from the response file, the default maintenance package is the installed package with the most recent date stamp and time stamp. The default software is the software installed in the parent directory.

Issue the following command to use the silent interface:

Table 61. Update installer command for installing in silent mode

Command example	Type of installation	Description
update.bat -silent -options ″responsefiles/*file_name*″	Silent mode with an options file	Overrides all default values with values that you specified in the options response file. Always use a response file that is based on the response file under *updi_root*/responsefiles.

Logging

The following sections describe logging that occurs when installing and uninstalling service.

Logs created when installing service

If no installation log file exists, refer to the temporary log file in the *updi_root*/logs/update/tmp directory. If all validations pass, the installation occurs.

Then the update installer program creates the *app_server_root*/logs/update/*maintenance_package*.install directory.

Within the directory are the updatelog.txt file, the compressed updatetrace.log.gz file, and the compressed updateconfig.log.gz file. The updateconfig.log.gz file exists only when the installation of service uses the internal configuration manager utility to run ANT scripts.

Logs created when uninstalling service

If no log file exists after uninstalling an interim fix, refer to the temporary log file in the *updi_root*/logs/update/tmp directory. If all validations pass, the uninstall procedure occurs.

Then the update installer program creates the *app_server_root*/logs/update/*maintenance_package*.uninstall directory.

Within the directory are the updatelog.txt file, the compressed updatetrace.log.gz file, and the compressed updateconfig.log.gz file. The updateconfig.log.gz file exists only when the removal of service uses the internal configuration manager utility to run ANT scripts.

Indicators of success

The log file includes an indicator of success:

INSTCONFSUCCESS

The current operation was successful. You do not need to review the log file any further.

INSTCONFPARTIALSUCCESS

The current operation was partially successful. System should still be in a usable state, however some non-critical actions have failed. Consult the log file to determine what has failed and how to recover from the failure, if possible.

INSTCONFFAILED

The current operation failed. The system is no longer in a usable state. Consult the log file for more information.

Known problems and workarounds for the update command

This topic describes known problems and issues associated with the Update Installer for WebSphere Software program.

The update installer program displays its version information in the title bar of the graphical interface. Version information is stored in the version.txt file in the updateinstaller directory.

A new version might ship to correspond to any new fix. Information in the version.txt file is displayed prominently in the title bar of the wizard and is also recorded in the updatelog.txt file.

Always download and use the latest version of the Update installer wizard when installing an interim fix.

The Update Installer can not automatically detect locks on files by remote processes. So you must ensure that all AppServers processes have been stopped for all your profiles, including any remote profiles.

Chapter 10. Uninstalling the product

Uninstall WebSphere Application Server Network Deployment to remove the core product files.

The "uninstall command" on page 232 calls the uninstaller program that is created during installation. The uninstaller program is customized for each product installation, with specific disk locations and routines for removing installed features.

The uninstaller program removes registry entries, uninstalls the product, and removes all related features. The uninstaller program does not remove log files in the installation root directory.

This procedure uninstalls the WebSphere Application Server Network Deployment product only.

See the following topics to uninstall other components on the product disk:
- Uninstalling IBM HTTP Server

Estimating the time required to uninstall The time required to uninstall is dependent on the processing speed of your machine. As a rough guideline, uninstalling the core product files and one application server profile takes approximately 10 minutes when using the uninstall command.

1. Log on as root on a Linux or UNIX system, or as a user who belongs to the administrator group on a Windows system, or as the user who installed the product.

2. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the Application Server, uninstall the plug-ins to remove the configuration from the Web server.

3. Stop the nodeagent process with the stopNode command.

   Stop the nodeagent process that might be running on the machine. For example, issue the following command from the *profile_root*/bin directory of a federated node on a Linux machine to stop the nodeagent process:

   ```
   ./stopNode.sh
   ```

   If servers are running and security is enabled, use the following command:

   ```
   ./stopNode.sh -user user_ID -password password
   ```

4. Stop the deployment manager dmgr process with the stopManager command.

   Stop all dmgr processes that are running on the machine. For example, issue this command on a Linux machine from the *profile_root*/bin directory of the deployment manager profile:

   ```
   ./stopManager.sh -user user_ID -password password
   ```

5. Stop each running Application Server with the stopServer command.

   Stop all server processes in all profiles on the machine. For example, issue the following command from the *profile_root*/bin directory to stop the server1 process in the application server profile:

   ```
   ./stopServer.sh server1
   ```

   If servers are running and security is enabled, use the following commands:

   ```
   ./stopServer.sh server1 -user user_ID -password password
   ```

6. **Optional:** Back up configuration files and log files to refer to them later if necessary.

   Use the AdminTask command scripting interface to create a configuration archive file of an existing WebSphere Application Server profile, for example.

   The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary, or use the -OPT removeProfilesOnUninstall=″false″ parameter on the uninstall command.

   Back up the config folder and the logs folder of each profile to refer to it later if necessary. You cannot reuse profiles so there is no need to back up an entire profile.

7. Issue the uninstall command.

   Issue the uninstall command:

   - `Linux` *app_server_root*/uninstall/uninstall
   - `Windows` *app_server_root*\uninstall\uninstall.exe

   The uninstaller wizard begins and displays the Welcome panel.

   The next few steps in this procedure describe using the wizard interactively. You can also issue the uninstall command with a silent parameter to use the wizard without the graphical user interface.

   `uninstall -silent`

   Issue the following command to start the Uninstaller wizard in silent mode, without the graphical user interface, and to remove all profiles:

   - `Linux` `app_server_root/uninstall/uninstall -silent` (default behavior)
   - `Linux` `app_server_root/uninstall/uninstall -silent -OPT removeProfilesOnUninstall="true"`
   - `Windows` `app_server_root\uninstall\uninstall -silent` (default behavior)
   - `Windows` `app_server_root\uninstall\uninstall -silent -OPT removeProfilesOnUninstall="true"`

   Issue the following command to start the Uninstaller wizard in silent mode and to leave all profiles intact:

   - `Linux` `app_server_root/uninstall/uninstall -silent -OPT removeProfilesOnUninstall="false"`
   - `Windows` `app_server_root\uninstall\uninstall -silent -OPT removeProfilesOnUninstall="false"`

8. If you are using the wizard, click **Next** to begin uninstalling the product.

   The Uninstaller wizard displays a confirmation panel that lists a summary of the product and features that you are uninstalling.

   a. Click **Next** to continue uninstalling the product.

      When using the wizard, a panel allows you to choose whether or not the uninstaller deletes all profiles before it deletes the core product files. By default, all profiles will be deleted, but this option can be deselected on the panel.

      To change the default behavior, start the wizard with this command:

      - `Linux` `app_server_root/uninstall/uninstall -OPT removeProfilesOnUninstall="false"`
      - `Windows` `app_server_root\uninstall\uninstall -OPT removeProfilesOnUninstall="false"`

      After uninstalling profiles, the uninstaller program deletes the core product files in component order.

   b. Click **Finish** to close the wizard after the wizard removes the product.

9. Remove any configuration entries in the managed node that describe a deleted deployment manager.

   A common topology is to install the core product files on multiple machines. One machine has the deployment manager and other machines have managed nodes created from custom profiles or federated application server profiles. If you delete a Network Deployment installation where you created an application server profile or a custom profile and federated the node into a deployment manager cell in another installation, you must remove the configuration from the deployment manager.

   The official statement of support for a node configuration problem in the managed node is that you use the backupConfig command after the initial installation. Use the command again whenever you make significant changes to the configuration that you must save. With a valid backup of the configuration, you can always use the restoreConfig command to get back to a previously existing state in the configuration.

You can also use the following command to remove the node when the deployment manager is not running. Issue the command from the *app_server_root*/profiles/*managed_node_profile*/bin directory on the machine with the managed node:

- ▶ `Linux` ◀ removeNode.sh -force

- ▶ `Windows` ◀ removeNode.bat -force

If you must manually clean up the configuration on the managed node, you can attempt the following unsupported procedure:

a. Rename the cell_name directory for the node to the original name if the current name is not the original name.

   Go to the *profile_root*/config/cells/ directory. Rename the cell_name directory to the original name.

b. Delete the dmgr_node_name directory if it exists.

   Go to the *profile_root*/config/cells/*original_cell_name*/nodes directory to look for the *dmgr_node_name* directory that you must delete.

c. Edit the setupCmdLine.sh file on a Linux or UNIX operating system, or the setupCmdLine.sh file on a Windows system and change the cell name to the original cell name.

   The file is in the *profile_root*/bin directory. Change the value of the WAS_CELL variable to the original cell name.

10. Remove any configuration entries in the deployment manager that describe a deleted managed node.

   Open the administrative console of the deployment manager and click **System administration > Nodes >** *node_name* **> Remove node**.

   If the administrative console cannot successfully remove the node, run the following command with the deployment manager running:

   - ▶ `Linux` ◀ *app_server_root*/bin/cleanupNode.sh *node_name*

   - ▶ `Windows` ◀ *app_server_root*/bin/cleanupNode.bat *node_name*

   The official statement of support for a node configuration problem in the deployment manager is that you use the backupConfig command after the initial installation. Use the command again whenever you make significant changes to the configuration that you must save. With a valid backup of the configuration, you can always use the restoreConfig command to get back to a previously existing state in the configuration.

   If you must manually clean up the configuration, you can attempt the following unsupported procedure:

   a. Within the nodes directory of the deployment manager, remove the configuration directory for the node that you deleted.

      Go to the *profile_root*/config/cells/*cell_name*/nodes directory to find the *deleted_node_name* file.

   b. Within the buses directory of the deployment manager, remove the configuration directory for the node that you deleted.

      Go to the *profile_root*/config/cells/*cell_name*/buses directory to find the *deleted_node_name* file.

   c. Edit the coregroup.xml file in each subdirectory of the coregroups directory of the deployment manager. Look for elements of type *coreGroupServers*. Remove any coreGroupServers elements that have a reference to the node that you deleted.

      Go to the *profile_root*/config/cells/*cell_name*/coregroups/*deleted_node_name* directory to find the file.

   d. Edit the nodegroup.xml file in each subdirectory of the nodegroups directory of the deployment manager. Look for elements of type *members*. Remove any members elements that have a reference to the node that you deleted.

      Go to the *profile_root*/config/cells/*cell_name* /coregroups/*deleted_node_name* directory to find the file.

11. Review the log file.

Review the *app_server_root*/logs/uninstlog.txt file.

Review the *app_server_root*/logs/uninstall/log.txt file.

The log file records file system or other unusual errors. Look for the INSTCONFSUCCESS indicator of success in the log:

```
(date_time),
Uninstall, com.ibm.ws.install.ni.ismp.actions.
SetExitCodeAction, msg1,
CWUPI0000I: EXITCODE=0
(date_time),
Uninstall, com.ibm.ws.install.ni.ismp.actions.
ISMPLogSuccessMessageAction, msg1,
INSTCONFSUCCESS
```

12. Uninstall manually before reinstalling.

    The uninstaller program leaves some log files, including the *app_server_root*/logs/uninstall/log.txt file.

    Manually uninstall the product to remove all artifacts of the product so that you can reinstall into the same installation root directory. If you do not plan to reinstall, you do not need to manually uninstall.

    See "Uninstalling manually" on page 236 for more information.

This procedure results in uninstalling the WebSphere Application Server Network Deployment product.

After uninstalling WebSphere Application Server Network Deployment and cleaning the system with the manual uninstall procedure, you can reinstall.

See Chapter 4, "Task overview: Installing," on page 33 for an overview of installing the product and creating a functional e-business environment.

uninstall command

The **uninstall** command uninstalls the product. When you uninstall the product, the uninstaller program removes the core product files and all of the profiles. A silent parameter runs the wizard in silent mode without displaying the graphical user interface.

Purpose

This topic describes the command-line syntax for the **uninstall** command. Start the **uninstall** command module from the command line to uninstall the product.

Before you begin uninstalling the product

Manually stop all servers before uninstalling the product.

See Chapter 10, "Uninstalling the product," on page 229 for more information.

The command file is in the *app_server_root*\uninstall directory.

The command file is named:

- ▶ Linux ◀ uninstall

- ▶ Windows ◀ uninstall.exe

All of the installable components in the product package use this command. If the command is not applicable for a component on a particular operating system, the N/A abbreviation is displayed in the following table. A command is not applicable if the component cannot be installed (or uninstalled) on the operating system.

Table 62. Component uninstall commands by operating system

Operating System	WebSphere Application Server	Application Client	IBM HTTP Server	Web Server Plug-ins	Application Server Toolkit	Edge Components	Update Installer (UPDI)
AIX	uninstall	uninstall	uninstall	uninstall	N/A	uninstall	uninstall
HP-UX	uninstall	uninstall	uninstall	uninstall	N/A	uninstall	uninstall
i5/OS	uninstall	uninstall	N/A	uninstall	N/A	N/A	uninstall
Linux	uninstall	uninstall	uninstall	uninstall	uninstall	uninstall	uninstall
Solaris	uninstall	uninstall	uninstall	uninstall	N/A	uninstall	uninstall
Windows	uninstall	uninstall	uninstall	uninstall	uninstall	uninstall	uninstall

Parameters and syntax

This section describes the command syntax and the optional parameters for starting the Uninstaller wizard.
- Issue the following command to start the Uninstaller wizard and the graphical user interface:
    - ▶ Linux   *app_server_root*/uninstall/uninstall
    - ▶ Windows   *app_server_root*\uninstall\uninstall
- Issue the following command to start the Uninstaller wizard in silent mode, without the graphical user interface, and to remove all profiles:
    - ▶ Linux   *app_server_root*/uninstall/uninstall -silent (default behavior)
    - ▶ Linux   *app_server_root*/uninstall/uninstall -silent -OPT removeProfilesOnUninstall="true"
    - ▶ Windows   *app_server_root*\uninstall\uninstall -silent (default behavior)
    - ▶ Windows   *app_server_root*\uninstall\uninstall -silent -OPT removeProfilesOnUninstall="true"
- Issue the following command to start the Uninstaller wizard in silent mode and to leave all profiles intact:
    - ▶ Linux   *app_server_root*/uninstall/uninstall -silent -OPT removeProfilesOnUninstall="false"
    - ▶ Windows   *app_server_root*\uninstall\uninstall -silent -OPT removeProfilesOnUninstall="false"

Uninstalling WebSphere Application Server Network Deployment removes all the product libraries and directories. If you do not specify the option to keep all the profiles when you invoke the uninstall script, the profiles are removed. If you later decide that you do not need the profiles, you can manually remove them.

Logging

Examine the *app_server_root*/logs/uninstall/log.txt file.

The log file records file system or other unusual errors. Look for the INSTCONFSUCCESS indicator of success in the log:

```
(date_time),
Uninstall, com.ibm.ws.install.ni.ismp.actions.
SetExitCodeAction, msg1,
CWUPI0000I: EXITCODE=0
(date_time),
Uninstall, com.ibm.ws.install.ni.ismp.actions.
ISMPLogSuccessMessageAction, msg1,
INSTCONFSUCCESS
```

Verify that there were no file system or other unusual errors while uninstalling. If there are problems, correct them, and uninstall manually before reinstalling the product. See "Uninstalling manually" on page 236.

After uninstalling WebSphere Application Server Network Deployment, delete the installation root directory before reinstalling into the same directory. Deleting the old directory avoids XML configurations that are not valid that result from retaining old files.

Uninstalling the Update Installer for WebSphere Software

The Update Installer for WebSphere Software has a new installation and uninstallation program for Version 6.1, Installation Wizard for the Update Installer.

Important: Only one copy of the Update Installer should be installed on your system at any one time for use with all Version 6.x products. Before installing a newer version of the Update Installer, you must first remove the existing Update Installer.

The Update Installer uses the Common Install Engine for WebSphere Software. Part of the Common Installer is the uninstaller program that is generated when ISMP installs the Update Installer. This procedure explains how to use the uninstaller program for the Update Installer.

1. Change directories to the Update Installer root directory that you specified during installation.
2. Issue the `uninstall` or `uninstall -silent` command.

   ▶ Windows

   ```
   uninstall.bat
   ```

   ▶ Linux

   ```
   ./uninstall.sh
   ```
   See the description of the "uninstall command" on page 232 for more information.

The Update Installer is removed from the product.

Go to "Updating the Update Installer for WebSphere Software" on page 219 for information on downloading and installing the most current version of the Update Installer.

vpd.properties file

The installer program for WebSphere Application Server Network Deployment uses the Install Shield for Multiplatforms (ISMP) program to install code. The vpd.properties file lists program components that are currently installed. The file helps ISMP and the installer programs of WebSphere Application Server products to recognize previous installations of WebSphere Application Server products and to control options for new installations.

▶ HP-UX　　▶ Solaris　　**Operating system exceptions for using the vpd.properties file**

- ISMP uses the vpd.properties file to track WebSphere products that it installs on all platforms but Solaris and HP-UX.
- ISMP uses native operating system registration on these platforms when installing as root, and does not create a vpd.properties file.

  When installing as a non-root installer, the installer programs create a vpd.properties file on all platforms, including Solaris and HP-UX.

Situations that require you to edit the vpd.properties file

Certain situations require you to edit the vpd.properties file before reinstalling a WebSphere Application Server product. The uninstaller programs for WebSphere Application Server products edit the vpd.properties while uninstalling a product, to remove entries for the product and any of its features that might have entries in the file.

It is necessary to remove product entries in the vpd.properties file before you can reinstall the product. Some situations that occur require manually removing entries from the vpd.properties file before you can reinstall a product. These situations include:

- Bypassing the uninstaller program to uninstall a product manually
- Uninstalling a product manually when the uninstaller program is not present or is not working

If the vpd.properties file has entries for a product that you uninstalled, you must edit the file and remove the entries. If you do not edit the vpd.properties file to remove entries for a product or features of a product, you cannot reinstall the product into the same directory structure. If product entries in the vpd.properties file are present, the installer program reads the vpd.properties file, determines that the product is already installed, and displays the panel that prompts you to install additional features into the existing product or to install the binaries a second time. Unfortunately, the existing binaries might not be valid at that point. The installer program does not verify the products that it finds listed in the vpd.properties file.

Location of the vpd.properties file

The location of the vpd.properties file varies per operating platform:

- AIX platforms: The root directory or the usr/lib/objrepos directory
- Linux platforms: The root directory
- Windows platforms: installation directory of the operating system, such as the C:\WINNT directory or the C:\windows directory.

Example of the vpd.properties file

The following example shows all of the entries for the vpd.properties file for Version 6.1.0. of the Network Deployment product on a Windows platform. The example shows entire lines but breaks each line for formatting purposes. The identifier for the first component is highlighted. The installation location of the first component is also highlighted.

```
WSBAA61|6|1|0|0|6.1.0.0|1=IBM WebSphere Application Server|
    IBM WebSphere Application Server|IBM WebSphere Application Server V6.1|IBM|http://www.ibm.com|6.1.0.0|
    /opt/IBM/WebSphere/AppServer|0|0|1|
    WSBAA61|6|1|0|0|6.1.0.0|1|0|false|
    "_uninst" "uninstall.jar" "uninstall.dat" ""|true|3|
    WSBAA61|6|1|0|0|6.1.0.0|1
WSBAA61LicensingComponent|6|1|0|0|6.1.0.0|1=LAP Component|
    LAP Component|LAP| | | |
    /opt/IBM/WebSphere/AppServer|0|0|1|
    WSBAA61|6|1|0|0|6.1.0.0|1|0|false| |true|3|
    WSBAA61LicensingComponent|6|1|0|0|6.1.0.0|1
```

Identifying entries in the vpd.properties file

Use the following table to help identify product entries.

Table 63. Identifers in the vpd.properties file for WebSphere products

Identifier	Product
WSB...61	All Version 6.1 products use this identifier to identify the core product files: • WebSphere Application Server - Express, Version 6.1 • WebSphere Application Server, Version 6.1 • WebSphere Application Server Network Deployment, Version 6.1
WSP...61	Web server plug-ins for WebSphere Application Server, Version 6.1
WSC...	WebSphere Application Server Clients, Version 6.1

Web server plug-ins for WebSphere Application Server installs the following packages:

Operating system	Registry keys
AIX, Linux, and Windows	• WSPAA61 • WSPAA61DefineglobalconstantsComponent • WSPAA61DefinelocalvariablesComponent • WSPAA61LicensingComponent • WSPAA61Webserverplugins • WSPAA61WebserverpluginsComponent • WSPAA61AddBytes • WSPAA61gskit • WSPAA61gskitComponent

Uninstalling manually

The uninstaller program leaves some files that can prevent you from reinstalling into the original directory. Delete files and registry entries to *clean* the machine so that you can reinstall into any directory. If you are not planning to reinstall, do not uninstall manually.

You can reinstall without a clean machine. Such an installation creates a coexistence scenario that can prevent you from installing into the original directory.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary.

Cleaning the machine means deleting everything from the previous installation, including log files that are left behind by the uninstall command. Before you start the procedure, back up log files, if necessary. See Chapter 12, "Troubleshooting installation," on page 321 for the location of log files.

This procedure uninstalls your WebSphere Application Server product. See the following topics to uninstall other components on the product disc:
• Uninstalling IBM HTTP Server

Run one of the following procedures to produce a clean machine on your operating system.
• Uninstall manually on an AIX system.
• Uninstall manually on an HP-UX system.
• Uninstall manually on a Linux system.
• Uninstall manually on a Solaris system.
• Uninstall manually on a Windows system.

Manually uninstalling produces a clean system. A clean system has no evidence of a previously deleted installation.

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Manually uninstalling on an AIX system

Uninstall a WebSphere Application Server product from an AIX system by running the uninstaller program and performing some manual steps to remove log files and registry entries. Such registry entries can prevent you from reinstalling the product into the original directory. If you are not planning to reinstall, you do not have to uninstall manually.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile if necessary. The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary, or use the -OPT removeProfilesOnUninstall="false" parameter on the uninstall command. The uninstaller program leaves all profiles, including all of the configuration data, applications, and other user data in each profile. Use the -OPT removeProfilesOnUninstall="true" parameter on the uninstall command to delete all of the data, or delete it manually at a later time, if you decide the data is unnecessary.

Determine the installation root directory for the product so that you remove the correct product and produce a clean system.

Reinstalling the product into a new directory when files remain from a previous installation can create a coexistence scenario. However, you can delete all files and registry entries to completely remove a WebSphere Application Server product. A clean system lets you reinstall the product into the original directory without coexistence.

Default directories are shown in the following planning table:

Identifier	Directory	Actual location
app_server_root	/usr/IBM/WebSphere/AppServer	
profile_root	/usr/IBM/WebSphere/AppServer/profiles	
plugins_root	/usr/IBM/WebSphere/Plugins	

The Installation wizard and the Profile Management tool provide an override for your own locations for root directories.Uninstalling the product leaves the *profile_root* directory with the pctLog.txt file.

Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products.

Perform the following procedure to produce a clean system.
1. Log on as the same user ID who installed the product.
2. Use the kill command to kill all Java processes that are running.

   If running Java processes are not related to WebSphere Application Server products and it is not possible to stop them, stop all WebSphere Application Server product-related processes. Use the following command to determine all processes that are running:

   ```
   ps -ef | grep java
   ```

   Stop all WebSphere Application Server-related processes with the `kill -9` *java_pid_1 java_pid_2...java_pid_n* command.
3. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the application server, uninstall the plug-ins to remove the configuration from the Web server.
4. Issue the uninstall command.

   If you have already run the uninstaller program or if you cannot run the uninstaller program, skip this step.

   app_server_root/uninstall/uninstall

   See the description of the "uninstall command" on page 232 for more information.

   The Uninstaller wizard begins and displays the Welcome panel.

5. List WebSphere Application Server components that are installed.

    Type the following command to search for related packages:

    ```
    lslpp -l| grep -i WS
    ```

    Do not remove packages for WebSphere Application Server products that you are not uninstalling. Version 6.1 package names have a prefix of WSB or WSP and a suffix of 61. WSC package names do not have a suffix of 61.

6. Change directories to the /usr/IBM directory, or the equivalent top directory of your install.

7. Type `rm -rf WebSphere` to delete this WebSphere Application Server-related directory, but only if the AppServer directory is the only directory within the WebSphere directory. Delete the directory if the only products contained in the directory are products that you intend to delete.

8. Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products and remove the desired products from the install registry.

9. Edit the "vpd.properties file" on page 234.

    The file is located in the root directory or in the /usr/lib/objrepos directory.

    Do not delete or rename the vpd.properties file because the InstallShield for MultiPlatforms (ISMP) program uses it for other products that it installs. If the WebSphere Application Server product that you are uninstalling is the only product with entries in the vpd.properties file, you can delete this file.

    At this point, it should be possible to reinstall WebSphere Application Server. If not, run the odmclean.sh and aixclean.sh scripts as described in the next step.

10. Run the odmclean.sh and aixclean.sh scripts.

    Do not run the aixclean.sh script if the WebSphere MQ product is installed.

    a. Obtain the scripts from the technote document titled, Manual uninstall On AIX requires odmclean.sh and aixclean.sh on the WebSphere Application Server Support site.

    b. Edit the odmclean.sh script and replace every instance of the string /usr/WebSphere/AppServer with the actual installation root directory.

    c. Run the aixclean.sh script from the command line:

        ```
        ./aixclean.sh
        ```

    d. Run the odmclean.sh script from the command line:

        ```
        ./odmclean.sh
        ```

This procedure results in having a clean system. You can reinstall into the same directories now. A clean system has no trace of a previously deleted installation.

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Manually uninstalling on an HP-UX system

This procedure uninstalls a WebSphere Application Server product from an HP-UX system. After running the uninstaller program, manual steps remove log files and registry entries that can prevent you from reinstalling the product into the original directory. If you are not planning to reinstall, do not uninstall manually.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile if necessary. The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary, or use the -OPT removeProfilesOnUninstall="false" parameter on the uninstall command. The uninstaller program leaves all profiles, including all of the configuration data, applications, and other user data in each profile. Use the -OPT removeProfilesOnUninstall="true" parameter on the uninstall command to delete all of the data, or delete it manually at a later time, if you decide the data is unnecessary.

Determine the installation root directory for the product so that you remove the correct product and produce a clean system.

Reinstalling the product into a new directory when files remain from a previous installation can create a coexistence scenario. However, you can delete all files and registry entries to completely remove a WebSphere Application Server product. A clean system lets you reinstall the product into the original directory without coexistence.

Default directories are shown in the following planning table:

Identifier	Directory	Actual location
app_server_root	/opt/IBM/WebSphere/AppServer	
profile_root	/opt/IBM/WebSphere/AppServer/profiles	
plugins_root	/opt/IBM/WebSphere/Plugins	

The Installation wizard and the Profile Management tool provide an override for your own locations for root directories.Uninstalling the product leaves the *profile_root* directory with the pctLog.txt file.

Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products.

Perform the following procedure to produce a clean system.

1. Log on as the same user ID who installed the product.
2. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the application server, uninstall the plug-ins to remove the configuration from the Web server.
3. Use the kill command to kill all Java processes that are running.

   If running Java processes are not related to WebSphere Application Server products and it is not possible to stop them, stop all WebSphere Application Server product-related processes. Use the following command to determine all processes that are running:

   ```
   ps -ef | grep java
   ```

   Stop all WebSphere Application Server-related processes with the `kill -9 java_pid_1 java_pid_2...java_pid_n` command.
4. Issue the uninstall command.

   If you have already run the uninstaller program or if you cannot run the uninstaller program, skip this step.

   `app_server_root/uninstall/uninstall`

   See the description of the "uninstall command" on page 232 for more information.

   The Uninstaller wizard begins and displays the Welcome panel.
5. Use HP-UX System Administration Manager (SAM) to remove packages.
   a. Start the SAM utility with the /usr/sbin/sam command.
   b. Verify that your DISPLAY and TERM environment variables are set properly.
   c. Click **Software management**.
   d. Click **View installed software**.
   e. Look for WebSphere Application Server entries or IBM HTTP Server entries in the SD list.
   f. Close the SD list.
   g. Click **Remove local host software**.
   h. Click any of the following instances that display in the SD Remove List:

- **IBM HTTP Server**
- **WSBAA61**
- **WSPAA61**
- **WSCAA**
- **gsk7bas**

   i.   Click **Actions > Mark for remove**.

   j.   Click **Actions > Remove**.

   k.   Click **OK** in the Remove analysis dialog box.

   l.   Click **Logs** to display real-time removal of selected packages.

   m.   Click **Done** when all packages are removed.

   n.   Exit SAM.

6. Search for the packages to verify their removal.

   Type **swlist | grep WS** to show packages for WebSphere Application Server.

   Package names for Web server plug-ins for WebSphere Application Server are:

   ```
   WSPAA61
   WSPAA61DGCC
   WSPAA61DLVC
   WSPAA61LC
   WSPAA61WSPC
   WSPAA61AddBytesHS
   WSPAA61gskitHP
   WSPAA61gskitHPC
   WSPAA61jdkHP
   ```

7. Type `rm -rf app_server_root` to remove WebSphere Application Server directories in the *app_server_root* directory. Do not remove installation root directories for products that you intend to keep. Remove all of the profile directories as well.

8. Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products and remove the desired products from the install registry.

This procedure results in having a clean system. You can reinstall into the same directories now. A clean system has no trace of a previously deleted installation.

Example of displaying package names for WebSphere Application Server products

Issue the following command:

```
swlist | grep WSBAA61
```

The following package name is returned:

```
WSBAA60        6.1.0      IBM WebSphere Application Server
```

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Manually uninstalling on a Linux system

This procedure uninstalls a WebSphere Application Server product from a Linux system. After running the uninstaller program, manual steps remove log files and registry entries that can prevent you from reinstalling the product into the original directory. If you are not planning to reinstall, do not uninstall manually.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile if necessary. The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each

profile, if necessary, or use the -OPT removeProfilesOnUninstall="false" parameter on the uninstall command. The uninstaller program leaves all profiles, including all of the configuration data, applications, and other user data in each profile. Use the -OPT removeProfilesOnUninstall="true" parameter on the uninstall command to delete all of the data, or delete it manually at a later time, if you decide the data is unnecessary.

Determine the installation root directory for the product so that you remove the correct product and produce a clean system.

Reinstalling the product into a new directory when files remain from a previous installation can create a coexistence scenario. However, you can delete all files and registry entries to completely remove a WebSphere Application Server product. A clean system lets you reinstall the product into the original directory without coexistence.

Default directories are shown in the following planning table:

Identifier	Directory	Actual location
app_server_root	/opt/IBM/WebSphere/AppServer	
profile_root	/opt/IBM/WebSphere/AppServer/profiles	
plugins_root	/opt/IBM/WebSphere/Plugins	

The Installation wizard and the Profile Management tool provide an override for your own locations for root directories.Uninstalling the product leaves the *profile_root* directory with the pctLog.txt file.

Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products.

Perform the following procedure to produce a clean system.
1. Log on as the same user ID who installed the product.
2. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the application server, uninstall the plug-ins to remove the configuration from the Web server.
3. Use the kill command to kill all Java processes that are running.

   If running Java processes are not related to WebSphere Application Server products and it is not possible to stop them, stop all WebSphere Application Server product-related processes. Use the following command to determine all processes that are running:

   `ps -ef | grep java`

   Stop all WebSphere Application Server-related processes with the `kill -9 `*`java_pid_1`*
   `java_pid_2``...`*`java_pid_n`* command.
4. Issue the uninstall command.

   If you have already run the uninstaller program or if you cannot run the uninstaller program, skip this step.

   `app_server_root``/uninstall/uninstall`

   See the description of the "uninstall command" on page 232 for more information.

   The Uninstaller wizard begins and displays the Welcome panel.
5. Search for related packages.

   See "Operating system registry keys" on page 173 for more information.

   Do not remove packages for WebSphere Application Server products that you are not uninstalling. Version 6.1 package names have a prefix of WSB or WSP and a suffix of 61. WSC package names do not have a suffix of 61.

6. If there are packages to delete, type `rpm -e` *packagename* to remove any packages for the product that you are uninstalling.

   Alternatively, you can search for packages to verify that everything in the list is something to delete:

   `rpm -qa | grep WS`

   If there is a problem with package dependencies, you can use the following command to remove the packages:

   `rpm -e` *packagename* `--nodeps --justdb`

   The nodeps option skips the dependency check. The justdb option updates only the package database, and not the file system. Using only the nodeps option can cause a failure in package removal if there is any mismatch in the dependent file system (files and directories).

7. Type `rm -rf` *app_server_root* to remove WebSphere Application Server directories in the *app_server_root* directory. Do not remove installation root directories for products that you intend to keep. Remove all of the profile directories as well.

8. Edit the "vpd.properties file" on page 234.

   Do not delete or rename the vpd.properties file because the InstallShield for MultiPlatforms (ISMP) program uses it for other products that it installs. If the WebSphere Application Server product that you are uninstalling is the only product with entries in the vpd.properties file, you can delete this file.

9. Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products and remove the desired products from the install registry.

This procedure results in having a clean system. You can reinstall into the same directories now. A clean system has no trace of a previously deleted installation.

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Manually uninstalling on a Solaris system

This procedure uninstalls the WebSphere Application Server product from a Solaris system. After running the uninstaller program, manual steps remove log files and registry entries that can prevent you from reinstalling the product into the original directory. If you are not planning to reinstall, do not uninstall manually.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile if necessary. The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary, or use the -OPT removeProfilesOnUninstall=″false″ parameter on the uninstall command. The uninstaller program leaves all profiles, including all of the configuration data, applications, and other user data in each profile. Use the -OPT removeProfilesOnUninstall=″true″ parameter on the uninstall command to delete all of the data, or delete it manually at a later time, if you decide the data is unnecessary.

Determine the installation root directory for the product so that you remove the correct product and produce a clean system.

Reinstalling the product into a new directory when files remain from a previous installation can create a coexistence scenario. However, you can delete all files and registry entries to completely remove a WebSphere Application Server product. A clean system lets you reinstall the product into the original directory without coexistence.

Default directories are shown in the following planning table:

Identifier	Directory	Actual location
app_server_root	/opt/IBM/WebSphere/AppServer	
profile_root	/opt/IBM/WebSphere/AppServer/profiles	
plugins_root	/opt/IBM/WebSphere/Plugins	

The Installation wizard and the Profile Management tool provide an override for your own locations for root directories.Uninstalling the product leaves the *profile_root* directory with the pctLog.txt file.

Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products.

Perform the following procedure to produce a clean system.

1. Log on as the same user ID who installed the product.
2. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the application server, uninstall the plug-ins to remove the configuration from the Web server.
3. Use the kill command to kill all Java processes that are running.

   If running Java processes are not related to WebSphere Application Server products and it is not possible to stop them, stop all WebSphere Application Server product-related processes. Use the following command to determine all processes that are running:

   ```
   ps -ef | grep java
   ```

   Stop all WebSphere Application Server-related processes with the `kill -9 java_pid_1 java_pid_2...java_pid_n` command.
4. Issue the uninstall command.

   If you have already run the uninstaller program or if you cannot run the uninstaller program, skip this step.

   ```
   app_server_root/uninstall/uninstall
   ```

   See the description of the "uninstall command" on page 232 for more information.

   The Uninstaller wizard begins and displays the Welcome panel.
5. Search for related packages. Type the following command to search for packages for WebSphere Application Server products:

   ```
   pkginfo | grep WS
   ```

   If no packages appear when using these commands, skip the next step. The resulting list of packages has the following format:

   ```
   application WSBAA61      WebSphere Application Server
   ```
6. Change directories to the directory where package information is registered.

   ```
   cd /var/sadm/pkg
   ```
7. Issue the following command to remove any WebSphere Application Server-related packages.

   ```
   pkgrm packagename1 packagename2 packagename3 ...
   ```

   Do not remove packages for WebSphere Application Server products that you are not uninstalling. Version 6.1 package names have a prefix of WSB or WSP and a suffix of 61. WSC package names do not have a suffix of 61.

   Issue the following commands from the /var/sadm/pkg directory to search for and remove any WebSphere Application Server product-related packages that are registered in the /var/sadm/pkg directory:
   a. Change directories to the correct directory: cd /var/sadm/pkg
   b. ls |grep WSB|xargs -i pkgrm -n {} for WebSphere Application Server products
   c. ls |grep WSC|xargs -i pkgrm -n {} for Application Client

d. ls |grep WSP|xargs -i pkgrm -n {} for Web server plug-ins for WebSphere Application Server

Package names for Web server plug-ins for WebSphere Application Server are:

```
WSPAA61
WSPAA61AC
WSPAA61BC
WSPAA61CC
WSPAA61DC
WSPAA61FC
WSPAA61FB
WSPAA61GC
WSPAA61HC
```

If there is a problem removing the packages, remove the related package directories in the /var/sadm/pkg directory, including the preremove files.

For example, remove the following file before issuing the pkgrm -n WSBAA61 command:

`/var/sadm/pkg/WSBAA61/install/preremove`

8. Type `rm -rf app_server_root` to remove WebSphere Application Server directories in the *app_server_root* directory. Do not remove installation root directories for products that you intend to keep. Remove all of the profile directories as well.

9. Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products and remove the desired products from the install registry.

This procedure results in having a clean system. You can reinstall into the same directories now. A clean system has no trace of a previously deleted installation.

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Manually uninstalling on a Windows system

Uninstall a WebSphere Application Server product from a Windows system by running the uninstaller program and performing some manual steps to remove log files and registry entries. Such registry entries can prevent you from reinstalling the product into the original directory. If you are not planning to reinstall, you do not have to uninstall manually.

The uninstaller program removes all profiles, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile if necessary. The uninstaller program removes all profiles by default, including all of the configuration data and applications in each profile. Before you start the uninstall procedure, back up the config folder, the installableApps folder, and the installedApps folder of each profile, if necessary, or use the -OPT removeProfilesOnUninstall=″false″ parameter on the uninstall command. The uninstaller program leaves all profiles, including all of the configuration data, applications, and other user data in each profile. Use the -OPT removeProfilesOnUninstall=″true″ parameter on the uninstall command to delete all of the data, or delete it manually at a later time, if you decide the data is unnecessary.

Determine the installation root directory for the product so that you remove the correct product and produce a clean system.

Reinstalling the product into a new directory when files remain from a previous installation can create a coexistence scenario. However, you can delete all files and registry entries to completely remove a WebSphere Application Server product. A clean system lets you reinstall the product into the original directory without coexistence.

Default directories are shown in the following planning table:

Identifier	Directory	Actual location
app_server_root	C:\Program Files\IBM\WebSphere\ AppServer	
profile_root	C:\Program Files\IBM\WebSphere\ AppServer\profiles	
plugins_root	C:\Program Files\IBM\WebSphere\ Plugins	

▶ Windows ◀ If you move either installation root directory, move them to a shorter path name. Some Windows systems have a length restriction of 258 characters for a command. A problem can occur that prevents the successful creation of a profile when either path is too long. The maximum length for the installation root directory is 60 characters. The maximum length for the profiles installation root directory is 80 characters.

The Installation wizard and the Profile Management tool let you specify your own locations for installation root directories.

Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products.

Perform the following procedure to produce a clean system.

1. Log on with the same user ID that you used to install the product.
2. Run the uninstaller program for the Web server plug-ins for WebSphere Application Server.

   If a Web server is configured to run with the application server, uninstall the plug-ins to remove the configuration from the Web server.
3. Stop any browsers and any Java processes related to WebSphere Application Server products, as described in Chapter 10, "Uninstalling the product," on page 229.
4. Issue the uninstall command.

   If you have already run the uninstaller program or if you cannot run the uninstaller program, skip this step.

   `app_server_root\uninstall\uninstall`

   See the description of the "uninstall command" on page 232 for more information.

   The Uninstaller wizard begins and displays the Welcome panel.
5. Verify that you have an Emergency Recovery Disk. Instructions for creating this disk are in the Windows help documentation.

   This step is a safeguard. This procedure does not require the recovery disk.
6. Use the regback.exe program from the Windows Resource Kit to back up the registry.

   This step is a safeguard. This procedure does not require the backup copy of the registry.
7. Delete product registry entries for the WebSphere Application Server product that you are uninstalling.

   Edit the Windows system registry by invoking theregedit.exe command from a command prompt.

   Handle the Registry with care

   Note: You can easily make a mistake while using the registry editor to view and edit registry contents. The editor does not warn you of editing errors, which can be extremely dangerous. A corrupt registry can disrupt your system to the point where your only option is to reinstall the Windows operating system.

   a. Press **Ctrl-F** to search for all instances of **WebSphere** to determine whether you should delete each entry. You might not be able to remove all of the entries related to WebSphere Application Server, which is not a problem.

   b. Expand and select keys related to **WebSphere Application Server** products.

See "Operating system registry keys" on page 173 for a list of Windows registry keys to search for and delete.

   c. Click **Edit > Delete** from the menu bar for each related key.

   d. Click **Yes** when asked to confirm deletion of the key.

   e. Click **Registry > Exit** from the menu bar when you are finished.

8. Delete the installation root directory for the product that you are uninstalling.

9. Determine all of the profile directories and remove the directories.

10. Open a Windows Explorer window and browse to the C:\Documents and Settings\All Users\Start Menu\Programs\IBM WebSphere directory.

   If you have one installation of a WebSphere Application Server product, delete the following folder:

   `Application Server Network Deployment v6.x`

11. Delete the %WINDIR%\IsUninst.exe file.

12. Edit the "vpd.properties file" on page 234.

   The file is located in the installation directory of the operating system, such as the C:\WINNT directory or the C:\windows directory.

   Do not delete or rename the vpd.properties file because the InstallShield for MultiPlatforms (ISMP) program uses it for other products that it installs. If the WebSphere Application Server product that you are uninstalling is the only product with entries in the vpd.properties file, you can delete this file.

13. Use the installRegistryUtils utility to examine the installation locations for all installed WebSphere Application Server products and remove the desired products from the install registry.

14. Restart your machine if a prompt displays that directs you to restart.

This procedure results in having a clean system. You can reinstall into the same directories now. A clean system has no trace of a previously deleted installation.

Go to Chapter 4, "Task overview: Installing," on page 33 to begin planning a new installation.

Chapter 11. Developing and installing customized installation packages

A customized installation package (CIP) is a customized WebSphere Application Server installation image that can include one or more maintenance packages, a configuration archive from a stand-alone application server profile, one or more enterprise archive files, and scripts and other files that help customize the resulting installation. The IBM Installation Factory for WebSphere Application Server creates CIPs.

Read through this topic and its related topics to prepare for creating and installing customized installation packages (CIPs). Become familiar with CIP installation options before you start to use the installation tools. Review the hardware and software requirements on the Supported hardware and software Web site to get started.

If you encounter a problem such as needing more disk space or more temporary space, or missing prerequisite packages on your Linux or UNIX system, cancel the installation, make the required changes, and restart the installation.

This topic introduces the IBM Installation Factory for WebSphere Application Server, which you can use to create a CIP. Get started by creating a build definition for the CIP using the Installation Factory console. Use the **ifgui** command to start the Installation Factory console.

After defining the build parameters, create the CIP, which has a version of the WebSphere Application Server Installation wizard. See "Getting started with the Installation Factory" on page 249 for more information about defining CIP parameters and creating the CIP.

The following procedure describes how to get started creating and installing a customized installation package for your WebSphere Application Server product.

1. Download and use the Installation Factory to create a customized installation package.

   See "Getting started with the Installation Factory" on page 249 for more information.

2. Prepare your operating platform for installation.

   See Chapter 6, "Preparing the operating system for product installation," on page 107.

3. Install the Network Deployment product using the CIP.

   The CIP Installation wizard performs the following actions:

   - Automatically checks prerequisites.
   - Looks for a previous WebSphere Application Server Version 6.x installation to determine installation options to display.

     Options include adding features and maintenance to the product binaries, and installing a new set of product binaries at the updated maintenance level that is included in the CIP.

   - Prompts you to create a cell profile, a deployment manager profile, an application server profile, or a custom profile.

     The *cell* profile is new for Version 6.1. A cell profile contains a deployment manager profile and a federated application server profile on the same machine or partition.

   Choose one of the following installation scenarios to continue the installation:

   - Perform a custom installation with the CIP Installation wizard.

     See "Installing a CIP for Network Deployment" on page 292.

     The custom installation lets you select features to install.

   - Install maintenance packages and additional features with the CIP Installation wizard to increment an existing installation.

     See "Installing CIP features on an existing Network Deployment product" on page 297.

The CIP Installation wizard can install maintenance to an existing product without installing features.

- Perform a silent installation with the CIP Installation wizard .

    See "Installing a CIP silently" on page 301.

    A silent installation requires you to edit the response file that contains all of your installation choices. After creating a valid response file, you issue the **install** command with the silent parameter from a command window.

    The installer program does not support the ISMP-console installation method at this time.

You can use a CIP to install IBM WebSphere Application Server Network Deployment by following this procedure.
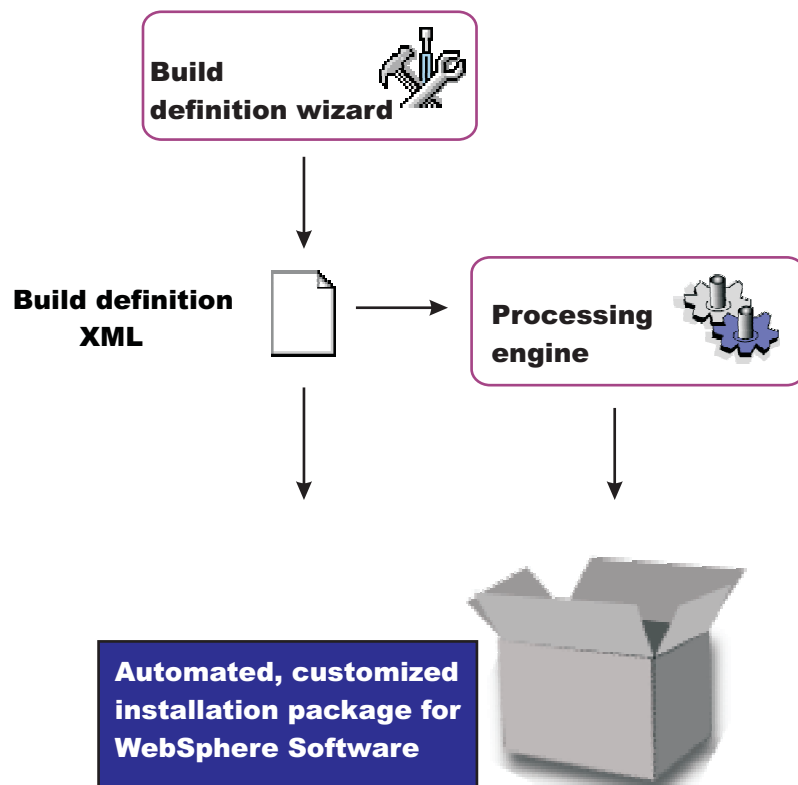
Installation Factory overview

The Installation Factory combines the installation image for a version or release of a WebSphere software product with applicable maintenance packages, a configuration archive, one or more enterprise archive files, customization scripts, and other files, to create a customized installation package.

Installing and configuring a WebSphere software product is usually a multiple step process:

1. Install the shipped version of the product.
2. Install the current refresh pack.
3. Install the current fix pack.
4. Install a Java 2 Software Development Kit (SDK) fix pack.
5. Install one or more interim fixes as needed.
6. Create and configure application servers and other artifacts.
7. Deploy applications.

The Installation Factory simplifies the process by creating a single installation image, the customized installation package (CIP).

After creating the customized installation package, installing and configuring a WebSphere software product is a one-step process: install the customized installation package.

Getting started with the Installation Factory

Before creating a customized installation package (CIP), set up the Installation Factory on your system.

Setting up the Installation Factory

To set up the Installation Factory, you can either use the Installation Factory code copied from the product Supplements disc or use the code downloaded from the Installation Factory Web site.

- To set up the Installation Factory on your system using the code from the product media, copy the Installation Factory code from the Supplements disc to your operating system.

   The setupif tool will help you to do this.

   - ▶ Windows Run the **setupif.bat** command.

      This command copies the Installation Factory to C:\ by default; but you can specify the target location when you run it. For example:

      `setupif.bat target_location`

   - ▶ Linux Run the **setupif.sh** command.

      This command copies the Installation Factory to *user_home*/InstallationFactory by default; but you can specify the target location when you run it. For example:

      `setupif.sh target_location`

- To set up the Installation Factory on your system using the code from the Web site, perform the followings tasks:

   1. Download the packed code from the download page for the IBM Installation Factory for WebSphere Application Server.

2. Unpack the code.

Creating a build definition

Before creating a CIP, you must first create a *build definition* for the CIP. The build definition is an XML document that defines how the Installation Factory is to customize the WebSphere Application Server product. The Installation Factory graphical user interface (GUI) is the easiest way to create a build definition. Launch the GUI with the **ifgui** command from the `bin` directory. You can save a build definition and use it to generate the CIP directly from the GUI. Alternately, you can pass the build definition to the command-line interface through an option on the **ifcli** command. The alternate approach is useful when you want to create the build definition interactively on one machine using the GUI, but then generate the CIP in batch mode, perhaps on a different machine, and perhaps as part of some larger automated process.

Creating and using a CIP

The overall procedure for creating and using a CIP is:

1. Gather all of the components that you intend to include in the CIP.

   Optional assets can include any of the following components:
   - Maintenance packages
   - Scripts or Java classes
   - Enterprise archive (EAR) files for applications that you intend to deploy with default deployment options on stand-alone application server profiles
   - A configuration archive (CAR) file for cloning a stand-alone application server profile in the CIP from a previously installed and customized stand-alone application server
   - Additional files (that might include EAR files that you intend to deploy with customized options included in a script, for example)

   The only required asset is the installation image, which is either the product disc or a downloaded image from the Passport Advantage site.

   Make all of the assets available on the machine where you intend to create your CIP (which might be a different machine from the one where you create the build definition.

2. Use the Installation Factory console (bin/ifgui) to create the build definition file. See the "ifgui command" on page 251 for more information.

   Clicking the New build definition icon starts the Build Definition wizard. See the "Build Definition wizard panels" on page 260 for more information.

3. Use the option in the GUI to create the CIP if all of the components for the CIP are available for the GUI operating system platform.

4. Or, copy the build definition file to a machine running the target operating system and use the command-line invocation tool (`bin/ifcli`) to launch the processing engine that creates the CIP on the target operating system.

   The **ifcli** command creates CIPs for all supported operating systems. The **ifcli** command runs on a subset of the operating system platforms that the ifcli tool supports. Therefore, you might have to copy the build definition to the processing engine machine.

   See the "ifcli command" on page 275 for more information.

5. Install the CIP using the InstallShield for Multiplatforms (ISMP) Installation wizard. Panels in the CIP Installation wizard vary according to the product that you are installing. For example, the Installation wizard for a CIP for a WebSphere Application Server product is based on the Installation wizard for WebSphere Application Server Version 6.x.

   See "install command" on page 55 for more information.

ifgui command

The **ifgui** command launches the Installation Factory console and creates a build definition XML file that identifies the product to install, the features of the product, and the maintenance packages and other customizations to include in the customized installation package (CIP). The ifgui tool can also create the CIP in connected mode.

The ifgui tool is also referred to as the Build definition wizard for the Installation Factory.

Although the ifcli command-line version of the Installation Factory is supported for all Version 6.1 platforms with the exception of z/OS, the Installation Factory console (ifgui) is supported for the following operating systems:
- AIX
- Windows 2000
- Windows 2003
- Solaris
- Linux RHEL
- Linux SLES
- HP-UX

Location of the command file

The command file is located in the `/bin` directory of the directory where you unpack the Installation Factory. The command file is a script named:

- **Linux**   `ifgui.sh`
- **Windows**   `ifgui.bat`

Logging

The **ifgui** command creates a log file that shows whether the build definition file is produced successfully. In connected mode, the log also contains information about the CIP creation. When the build definition file is not successfully built, examine the trace file to determine what is wrong.

The following files record build file definition data:
- *IF_working_directory*/`logs/trace.xml` is a detailed trace log in XML format
- *IF_working_directory*/`logs/log.txt` is the log file

The tracing and logging output and level are configurable as described in the loglevel and tracelevel parameters.

The success indicator is INSTCONFSUCCESS.

Common problems that can cause failure include mismatched refresh packs, fix packs, and interim fixes, or because of insufficient disk space.

Syntax for the ifgui.sh command

Displaying help for the command:

```
./ifgui.sh -help
```

Creating a build definition:

```
./ifgui.sh
   -loglevel log_level
   -logfile log_file_path_name
   -tracelevel trace_level
   -tracefile trace_file_path_name
```

Syntax for the ifgui.bat command

Displaying help for the command:

```
ifgui.bat -help
```

```
ifgui.bat ?
```

Creating a build definition:

```
ifgui.bat
   -loglevel log_level
   -logfile log_file_path_name
   -tracelevel trace level
   -tracefile trace_file_path_name
```

Parameters

Supported arguments include:

▶ Windows -?
> Shows usage information.

-help
> Shows usage information.

-logfile *log_file_path_name*
> Identifies the log file. The default value is *current_working_directory*/`logs/log.txt`.

-loglevel *log_level*
> Sets the level of logging. The default value is INFO. Valid values are:
> - ALL
> - CONFIG
> - INFO
> - WARNING
> - SEVERE
> - OFF (Turns off logging)

-tracefile *trace_file_path_name*
> Identifies the trace file. The default value is *current_working_directory*/`logs/trace.xml`.

-tracelevel *trace level*
> Sets the level of tracing. The default value is OFF. Valid values are:
> - ALL
> - FINE
> - FINER
> - FINEST
> - OFF (Turns off logging)

Using the build definition file to create a customized installation package (CIP)

Use the build definition file in connected mode to create a CIP from within the wizard. Use the build definition in disconnected mode as input to the Installation Factory processing engine to create a customized installation package. See the description of the "ifcli command" on page 275 for more information.

Build definition file

A build definition file is an XML file that identifies components and characteristics for a customized installation package (CIP).

In some cases, you might be unable to use the Installation Factory console ("ifgui command" on page 251) on the target operating system platform. You have two options in such a case:

- Use the console in disconnected mode on a supported machine to create a build definition file for the target operating system on another machine.

  Then copy the file to the target operating system and use the command line interface to start the processing engine and create the customized installation package.

  See "Creating a build definition for another machine" on page 279 for a description of such a procedure.

- Create the build definition XML document using a validating XML editor.

  Copy one of the sample build definition documents from the *IF_install_root*/samples/was directory to get started.

  After making your changes, validate the build definition document with its XML schema (the Common.xsd, BaseBuildDefinition.xsd, and BuildDefinition.xsd files) using a validating XML parser or editor. Then use the command-line interface to start the processing engine and create the customized installation package.

  > **Windows**   > **Linux**   The XML schema files are in the following system-specific directories:

  –   > **Windows**   *IF_install_root*\eclipse\plugins\com.ibm.ws.install.factory.was_6.1.0\xsd

  –   > **Linux**   *IF_install_root*/eclipse/plugins/com.ibm.ws.install.factory.was_6.1.0/xsd

Example build definition

The following example shows some elements from one version of the build definition file. See the *IF_install_root*/samples/was/SampleBuildDefinition.xml file for a current example.

Always consult the latest build definition XML schema for definitive answers to XML coding questions.

```
<?xml version="1.0" encoding="UTF-8"?>

<!--
/**
 * THIS PRODUCT CONTAINS RESTRICTED MATERIALS OF IBM
 * 5724-I63, 5724-H88, 5655-N02, 5733-W70 (C) COPYRIGHT International Business Machines Corp. 2005
 * All Rights Reserved * Licensed Materials - Property of IBM
 * US Government Users Restricted Rights - Use, duplication or disclosure
 * restricted by GSA ADP Schedule Contract with IBM Corp.
 */
-->

<basebuilddef:buildDefinition xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:basebuilddef="http://www.ibm.com/xmlns/prod/websphere/if/basebuilddef"
xmlns:builddef="http://www.ibm.com/xmlns/prod/websphere/if/builddef"
xmlns:common="http://www.ibm.com/xmlns/prod/websphere/if/common" xsi:type="builddef:BuildDefinition">
    <installFactoryVersion>
        <version>6</version>
        <release>1</release>
        <refreshPack>0</refreshPack>
        <fixPack>0</fixPack>
        <buildID></buildID>
    </installFactoryVersion>
```

```
<description lang="en">Sample Build Definition</description>

<qualifiedVersionedPackageId>
    <offeringId isRegEx="false">WAS</offeringId>
    <editionId isRegEx="false">ND</editionId>
    <installPackageId isRegEx="false">APPSERVER</installPackageId>

    <version>
        <version>6</version>
        <release>1</release>
        <refreshPack>0</refreshPack>
        <fixPack>0</fixPack>
    </version>
</qualifiedVersionedPackageId>

<platformInfo>
    <common:osVendor>MICROSOFT</common:osVendor>
    <common:osName>WINDOWS</common:osName>
    <common:osVersion>NA</common:osVersion>
    <common:osPatchLevel>NA</common:osPatchLevel>
    <common:osArch>x86</common:osArch>
</platformInfo>

<buildOptions>
    <targetLocation>C:\if_Created_Images</targetLocation>
    <overwriteWithoutWarning>false</overwriteWithoutWarning>
</buildOptions>

<authorInfo lang="en">
    <organization>My Company</organization>
</authorInfo>

<modeSelection>Connected</modeSelection>

<packageIdentifier>
    <fullPackageIdentifier>company.division.dept_1.0.0.0</fullPackageIdentifier>
    <identifier>company.division.dept</identifier>
    <version>1.0.0.0</version>
</packageIdentifier>

<packageMergeInfo>
    <sourceFullInstallPackageLocation>C:\WASImage\ND</sourceFullInstallPackageLocation>

    <!-- Maintenance packages Refresh Pack -->
    <sourceMaintenanceInstallPackages installOrder="1" maintenanceType="refreshPack">
        <rootFolder>
            <whichFolderToUse>literalRootProvided</whichFolderToUse>
            <rootFolder>C:\WASImage\Maintenance\Windows\MaintPacks</rootFolder>
        </rootFolder>
        <relativeFolder>.</relativeFolder>
        <fileNamePattern isRegEx="false">6.1-WS-WAS-WinX32-RP0000001.pak</fileNamePattern>
    </sourceMaintenanceInstallPackages>

    <!-- Maintenance packages Fix Pack -->
    <sourceMaintenanceInstallPackages installOrder="2" maintenanceType="fixPack">
        <rootFolder>
            <whichFolderToUse>literalRootProvided</whichFolderToUse>
            <rootFolder>C:\WASImage\Maintenance\Windows\MaintPacks</rootFolder>
        </rootFolder>
        <relativeFolder>.</relativeFolder>
        <fileNamePattern isRegEx="false">6.1.1-WS-WAS-WinX32-FP0000001.pak</fileNamePattern>
    </sourceMaintenanceInstallPackages>

    <sourceMaintenanceInstallPackages installOrder="3" maintenanceType="fixPack">
        <rootFolder>
            <whichFolderToUse>literalRootProvided</whichFolderToUse>
            <rootFolder>C:\WASImage\Maintenance\Windows\MaintPacks</rootFolder>
        </rootFolder>
        <relativeFolder>.</relativeFolder>
        <fileNamePattern isRegEx="false">6.1.1-WS-WASSDK-WinX32-FP0000001.pak</fileNamePattern>
    </sourceMaintenanceInstallPackages>
```

```
    <!-- Interim Fixes -->
        <interimFixes maintenanceType="interimFix">
            <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WASImage\Maintenance\Fixes</rootFolder>
            </rootFolder>
            <relativeFolder>.</relativeFolder>
            <fileNamePattern>PQ20029.pak</fileNamePattern>
        </interimFixes>
</packageMergeInfo>

<!-- User Files (optional) -->
<userFiles>
    <files>
        <fileSet>
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
            </rootFolder>
            <relativeFolder includeSubfolders="true">install</relativeFolder>
            <fileNamePattern isRegEx="true">.*</fileNamePattern>
        </fileSet>
        <relativeTargetFolder>scripts/install</relativeTargetFolder>
        <preserveFolderStructure>true</preserveFolderStructure>
    </files>

    <files>
        <fileSet>
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\Scripts</rootFolder>
            </rootFolder>
            <relativeFolder includeSubfolders="true">uninstall</relativeFolder>
            <fileNamePattern isRegEx="true">.*</fileNamePattern>
        </fileSet>
        <relativeTargetFolder>scripts/uninstall</relativeTargetFolder>
        <preserveFolderStructure>true</preserveFolderStructure>
    </files>
</userFiles>

<!-- Custom configuration (optional) -->
<configurationInfo>
    <!--
        Install / Uninstall time custom configuration
    -->
    <installUninstallActions>
        <installActions>
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
                <relativeFolder>.</relativeFolder>
                <fileNamePattern isRegEx="false">setupEnv1.ant</fileNamePattern>
            </scripts>

            <scripts executionOrder="2">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
                <relativeFolder>.</relativeFolder>
                <fileNamePattern isRegEx="false">setupEnv2.ant</fileNamePattern>
            </scripts>
        </installActions>

        <uninstallActions>
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
```

```
                <relativeFolder>.</relativeFolder>
                <fileNamePattern isRegEx="false">cleanupEnv.ant</fileNamePattern>
            </scripts>
        </uninstallActions>
</installUninstallActions>

<!--
    Profile creation / deletion custom configuration
-->
<profileActions>
    <!--
        Profile Type - default
    -->
    <profileType>
        <profileType>default</profileType>
        <common:displayName>
            <messageKey>COMD.ProfileType.default</messageKey>
            <alternateText />
        </common:displayName>
    </profileType>

    <profileCreationActions>
        <!--
            Configuration Archive
        -->
        <configurationArchive executionOrder="1" fatalErrorWhenExecutionFailed="true">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\CAs</rootFolder>
            </rootFolder>
            <relativeFolder>.</relativeFolder>
            <fileNamePattern isRegEx="false">AppSrv01.car</fileNamePattern>
        </configurationArchive>

        <!--
            DeployEAR(s)
        -->
        <deployEARs executionOrder="2" fatalErrorWhenExecutionFailed="true" applicationName="SAMPLE GALLERY">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\EARs</rootFolder>
            </rootFolder>
            <relativeFolder>.</relativeFolder>
            <fileNamePattern isRegEx="false">SamplesGallery.ear</fileNamePattern>
        </deployEARs>

        <deployEARs executionOrder="3" fatalErrorWhenExecutionFailed="true" applicationName="Cache Monitor">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\EARs</rootFolder>
            </rootFolder>
            <relativeFolder>.</relativeFolder>
            <fileNamePattern isRegEx="false">CacheMonitor.ear</fileNamePattern>
        </deployEARs>

        <!--
            Script(s)
        -->
        <scripts executionOrder="4" fatalErrorWhenExecutionFailed="false">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
            </rootFolder>
            <relativeFolder>create</relativeFolder>
            <fileNamePattern isRegEx="false">create_SC1.jacl</fileNamePattern>
        </scripts>
    </profileCreationActions>

    <profileDeletionActions>
        <!--
            Script(s)
        -->
```

```
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
                <relativeFolder></relativeFolder>
                <fileNamePattern isRegEx="false">delete_SC1.ant</fileNamePattern>
            </scripts>
        </profileDeletionActions>
    </profileActions>

    <!--
        Custom Configuration for dmgr
    -->
    <profileActions>
        <!--
            Profile Type - dmgr
        -->
        <profileType>
            <profileType>dmgr</profileType>
            <common:displayName>
                <messageKey>COMD.ProfileType.dmgr</messageKey>
                <alternateText />
            </common:displayName>
        </profileType>

        <profileCreationActions>
            <!--
                Script(s)
            -->
            <scripts executionOrder="2" fatalErrorWhenExecutionFailed="false">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
                <relativeFolder>create</relativeFolder>
                <fileNamePattern isRegEx="false">create_SC1.jacl</fileNamePattern>
            </scripts>
        </profileCreationActions>

        <profileDeletionActions>
            <!--
                Script(s)
            -->
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
                </rootFolder>
                <relativeFolder></relativeFolder>
                <fileNamePattern isRegEx="false">delete_SC1.ant</fileNamePattern>
            </scripts>
        </profileDeletionActions>
    </profileActions>

    <!--
        Custom Configuration for managed
    -->
    <profileActions>
        <!--
            Profile Type - managed
        -->
        <profileType>
            <profileType>managed</profileType>
            <common:displayName>
                <messageKey>COMD.ProfileType.managed</messageKey>
                <alternateText />
            </common:displayName>
        </profileType>

        <profileCreationActions>
            <!--
```

```
            Script(s)
        -->
        <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
            </rootFolder>
            <relativeFolder>create</relativeFolder>
            <fileNamePattern isRegEx="false">create_SC1.jacl</fileNamePattern>
        </scripts>
    </profileCreationActions>

    <profileDeletionActions>
        <!--
            Script(s)
        -->
        <scripts executionOrder="1" fatalErrorWhenExecutionFailed="false">
            <rootFolder>
                <whichFolderToUse>literalRootProvided</whichFolderToUse>
                <rootFolder>C:\WAS Customizations\Scripts\</rootFolder>
            </rootFolder>
            <relativeFolder></relativeFolder>
            <fileNamePattern isRegEx="false">delete_SC1.ant</fileNamePattern>
        </scripts>
    </profileDeletionActions>
</profileActions>

<profileSetActions>
    <!--
        Custom Configuration for profile set - cell
    -->
    <profileSetName>
        <profileSet>cell</profileSet>
        <common:displayName>
            <messageKey>COMD.profileType.cell</messageKey>
        </common:displayName>
    </profileSetName>

    <profiles>
        <!--
            Custom Configuration for dmgr
        -->
        <profileType>
            <profileType>dmgr</profileType>
            <common:displayName>
                <messageKey>COMD.profileType.dmgr</messageKey>
            </common:displayName>
        </profileType>

        <profileCreationActions>
            <!--
                Script(s)
            -->
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="true">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>D:\Test\WAS Customizations\Scripts\create\</rootFolder>
                </rootFolder>
                <relativeFolder includeSubfolders="false">.</relativeFolder>
                <fileNamePattern isRegEx="false" permissions="755">create_SC3.bat</fileNamePattern>
            </scripts>
        </profileCreationActions>

        <profileDeletionActions>
            <scripts executionOrder="1" fatalErrorWhenExecutionFailed="true">
                <rootFolder>
                    <whichFolderToUse>literalRootProvided</whichFolderToUse>
                    <rootFolder>D:\Test\WAS Customizations\Scripts\delete\</rootFolder>
                </rootFolder>
                <relativeFolder includeSubfolders="false">.</relativeFolder>
                <fileNamePattern isRegEx="false" permissions="755">delete_SC3.bat</fileNamePattern>
            </scripts>
```

```
                </profileDeletionActions>
            </profiles>

            <profiles>
                <!--
                    Custom Configuration for federated application server
                -->
                <profileType>
                    <profileType>default</profileType>
                    <common:displayName>
                        <messageKey>COMD.profileType.default</messageKey>
                    </common:displayName>
                </profileType>

                <profileCreationActions>
                    <!--
                        Script(s)
                    -->
                    <scripts executionOrder="1" fatalErrorWhenExecutionFailed="true">
                        <rootFolder>
                            <whichFolderToUse>literalRootProvided</whichFolderToUse>
                            <rootFolder>D:\Test\WAS Customizations\Scripts\create\</rootFolder>
                        </rootFolder>
                        <relativeFolder includeSubfolders="false">.</relativeFolder>
                        <fileNamePattern isRegEx="false" permissions="755">create_SC3.bat</fileNamePattern>
                    </scripts>

                    <scripts executionOrder="2" fatalErrorWhenExecutionFailed="true">
                        <rootFolder>
                            <whichFolderToUse>literalRootProvided</whichFolderToUse>
                            <rootFolder>D:\Test\WAS Customizations\Scripts\create\</rootFolder>
                        </rootFolder>
                        <relativeFolder includeSubfolders="false">.</relativeFolder>
                        <fileNamePattern isRegEx="false" permissions="755">create_SC1.jacl</fileNamePattern>
                    </scripts>
                </profileCreationActions>

                <profileDeletionActions>
                    <scripts executionOrder="1" fatalErrorWhenExecutionFailed="true">
                        <rootFolder>
                            <whichFolderToUse>literalRootProvided</whichFolderToUse>
                            <rootFolder>D:\Test\WAS Customizations\Scripts\delete\</rootFolder>
                        </rootFolder>
                        <relativeFolder includeSubfolders="false">.</relativeFolder>
                        <fileNamePattern isRegEx="false" permissions="755">delete_SC3.bat</fileNamePattern>
                    </scripts>
                </profileDeletionActions>
            </profiles>
        </profileSetActions>

    </configurationInfo>

    <common:features>
        <feature>
            <featureId>
                <featureId isRegEx="false">server.samples</featureId>
            </featureId>
            <selectedByDefault>false</selectedByDefault>
            <userModifiable>true</userModifiable>
            <hidden>false</hidden>
        </feature>
    </common:features>
</basebuilddef:buildDefinition>
```

Build Definition wizard

To create a customized installation package (CIP), first create a build definition file, which the Installation Factory uses to generate the CIP. The build definition file describes exactly what the Installation Factory includes in the CIP so that you can achieve the installation customizations that you require.

The Build Definition wizard within the Installation Factory GUI steps you through the process of creating a build definition file. You can create as many different build definition files as needed to define the CIPs you require. You can also use the Build Definition wizard to modify an existing build definition file. A build definition file saves as an XML document in a location that you choose.

See sample build definition files in the `samples/was` directory.

Each panel in the Build Definition wizard prompts you for information about the CIP. For example, prompts exist for the locations of maintenance packages, EAR files, scripts, and other components that you can include. Another prompt requests the location for generating the CIP. All of this information is saved in the new build definition file, or modified and saved in a build definition file that you are changing.

The last wizard panel provides an option for generating a CIP that is based on the content of the build definition file that you just defined. Alternately, you can only save the build definition file, for later use with the **ifcli** command. The **ifcli** command generates the CIP outside of the GUI, perhaps even on a different machine or operating system.

When you create a new build definition file, an initial wizard helps you choose the specific product and installation package to customize, such as an installation package for the WebSphere Application Server product. This wizard is the Product Selection wizard.

Once you have selected the installation package to customize, the Build Definition wizard helps you create the build definition file, as previously described.

Build Definition wizard panels

Build Definition wizard panels identify each component and characteristic of the customized installation package (CIP).

Use the following panels to identify components to include in the CIP:
1. "Product selection"
2. "Mode selection" on page 261
3. "Package identification" on page 263
4. "Build information" on page 263
5. "Product installation image" on page 265
6. "Feature selection" on page 266
7. "Maintenance packages" on page 266
8. "Install and uninstall scripts" on page 268
9. "Profile customization" on page 270
10. "Additional files" on page 272
11. "Authorship" on page 273
12. "Customized installation package preview" on page 274

Product selection

The Installation Factory console starts the Product Selection wizard when you create a new build definition file. The Product Selection wizard provides several panels for selecting one of the WebSphere products that the Installation Factory supports.

Identify the WebSphere software product that you intend to install. For example, you might create a customized installation package (CIP) for the WebSphere Application Server product.

The wizard provides the following levels of product identifiers:

- Product, such as IBM WebSphere Application Server
- Edition, such as Network Deployment
- Package, such as WebSphere Application Server

For example, choose **IBM WebSphere Application Server 6.1** from the list in the Products field.

In the Edition selection panel, select one of the following editions:

Express
> WebSphere Application Server - Express

Base   WebSphere Application Server

Network Deployment
> WebSphere Application Server Network Deployment

The installation image for any of the WebSphere Application Server product offerings has four installable components for most operating systems:

- **WebSphere Application Server**
- Application Client
- IBM HTTP Server
- Web server plug-ins for WebSphere Application Server

At this time, the only package of the four that the Installation Factory supports is the WebSphere Application Server package. Select the package in the Package selection panel. Click **Finish** to complete the Product Selection wizard.

Mode selection

When the Build Definition wizard has access to the product installation image, maintenance packages, and other components required to create the customized installation package (CIP), then you can use it in what is called ″connected mode.″ In this mode, the Build Definition wizard can validate the files that are provided as input and optionally generate the CIP in addition to creating the build definition file. If the product installation image, maintenance packages, and other components are not accessible because they are on a separate machine, the Build Definition wizard can only be used in disconnected mode. In disconnected mode, the Build Definition wizard can be used to create a build definition file for a target platform but it is not able to validate any of the input nor actually generate a CIP. The build definition file can then be copied to the target machine and used as input to the ifcli command to actually generate the CIP, at which time all of the input that was provided in the Build Definition wizard is validated.

Choose connected mode when the Build Definition wizard and the processing engine run on the same machine. Choose disconnected mode when the Build Definition wizard is creating a build definition file for use on another machine.

The mode affects component location specifications

In connected mode, specify local file paths for all components. The processing engine that builds the CIP is also on this machine. Therefore, the processing engine can access the local components.

In disconnected mode, specify component locations in terms of the target machine, where the processing engine will run to build the CIP.

For example, suppose that the product installation image is on the target machine in the /tmp/IBM/WASimage directory. Specify the location in terms of the target machine where the processing engine must find the product image to include in the CIP.

The mode affects component validation

The Build Definition wizard can validate connected installation images, maintenance packages, and other components while creating the build definition file because everything is on the same machine.

When running in disconnected mode, the Build Definition wizard does not attempt to access components and cannot verify the components. In such a case, the Installation Factory relies on the processing engine to verify all components. The processing engine verifies each component as it includes the component in the customized installation package.

The mode affects the target operating system

Disconnected mode provides a selection field to identify the target operating system and hardware platform. Choose the operating system and hardware platform where the processing engine runs to create the CIP.

The command-line invocation tool (ifcli) runs on 32-bit kernels and 64-bit kernels.

Supported architectures

Supported architectures for running the ifcli tool and for installing the CIP include:

HP PA-RISC

   The Installation Factory ifcli tool runs on 32-bit HP-UX 11iv1 kernels on PA-RISC platforms.

   The CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit HP-UX 11iv1 kernels on PA-RISC hardware platforms.

IBM PowerPC32

   The Installation Factory ifcli tool runs on 32-bit AIX 5L 5.1 systems, AIX 5L 5.2 systems, AIX 5L 5.3 systems, and Linux systems.

   CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit AIX or Linux kernels running on 64-bit pSeries hardware platforms.

Intel IA32

   The Installation Factory ifcli tool runs on 32-bit Intel and AMD hardware platforms running 32-bit Linux kernels or 32-bit Windows kernels.

   The CIP for 32-bit WebSphere Application Server products supports Windows 2000 Advanced Server SP4, Windows 2000 Server SP4, Windows 2000 Professional SP4 (development only), Windows Server 2003 Datacenter, Windows Server 2003 Enterprise, Windows Server 2003 Standard, and Windows XP Professional SP1a (development only) on 32-bit Intel and AMD platforms.

IBM S/390

   The Installation Factory ifcli tool runs on 31-bit mainframe hardware platforms running 31-bit Linux kernels.

   WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit Linux kernels on zSeries platforms.

Sun Sparc

   The Installation Factory ifcli tool runs on 32-bit Solaris 8 , Solaris 9, and Solaris 10 operating system kernels on SPARC and UltraSPARC 60 platforms.

   The CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit Solaris 8, Solaris 9, and Solaris 10 kernels.

Package identification

Specify an identifier and version for the customized installation package (CIP).

Package identification fields include:

- Identifier: Type a descriptor. For example, if you work in the Functional Verification Test department on the installation development team for WebSphere Application Server, you might use com.ibm.toronto.fvt.was to identify test CIPs that you create. Suppose that you work in IT for the Sports Information department at the University of North Carolina. You might use edu.unc.tarheels.sid.was as an identifer for CIPs that you create to install WebSphere Application Server updates on machines used by the Press.

  The package identifier is designed to be universally unique. Multiple CIPs can install on a single installation. Each CIP installs customization assets in the installation under a unique directory. The unique directory name is modelled after the unique identifier provided. For this reason, the identifier must be unique. That is why IBM suggests a unique reverse domain notation with a version number.

- Version: Type a version number to help identify CIPs that you create. For example, the GUI field is pre-filled with 1.0.0.0, so you may want to start with that and increment from there.

  The version number of the CIP does not have to reflect the version number of the product.

- Full package identifier: Informational only. This field shows the concatenation of the previous two fields. The Installation Factory uses this unique identifier as the name of a directory that holds the customized installation package. For example, the full package identifier might be edu.unc.tarheels.sid.was_1.0.0.0.

  The full package identifier must:

  - Contain 35 or fewer characters on Windows platforms
  - Start and end with alphabetic characters (A-Z, a-z) or numbers (0-9) only
  - Contain alphabetic characters (A-Z, a-z), numbers (0-9), periods (.) and underscores (_) only
  - Not contain spaces or these characters: ~ ` ! @ # $ % ^ & ( ) { } [ ] | \ / : ; , ? ' " < = > + *

Build information

The Build Definition wizard creates the XML build definition file, which specifies the location for outputting the customized installation package (CIP). The name and location of both files are under your control. The build definition file is always saved to a directory path on the Build Definition wizard machine.
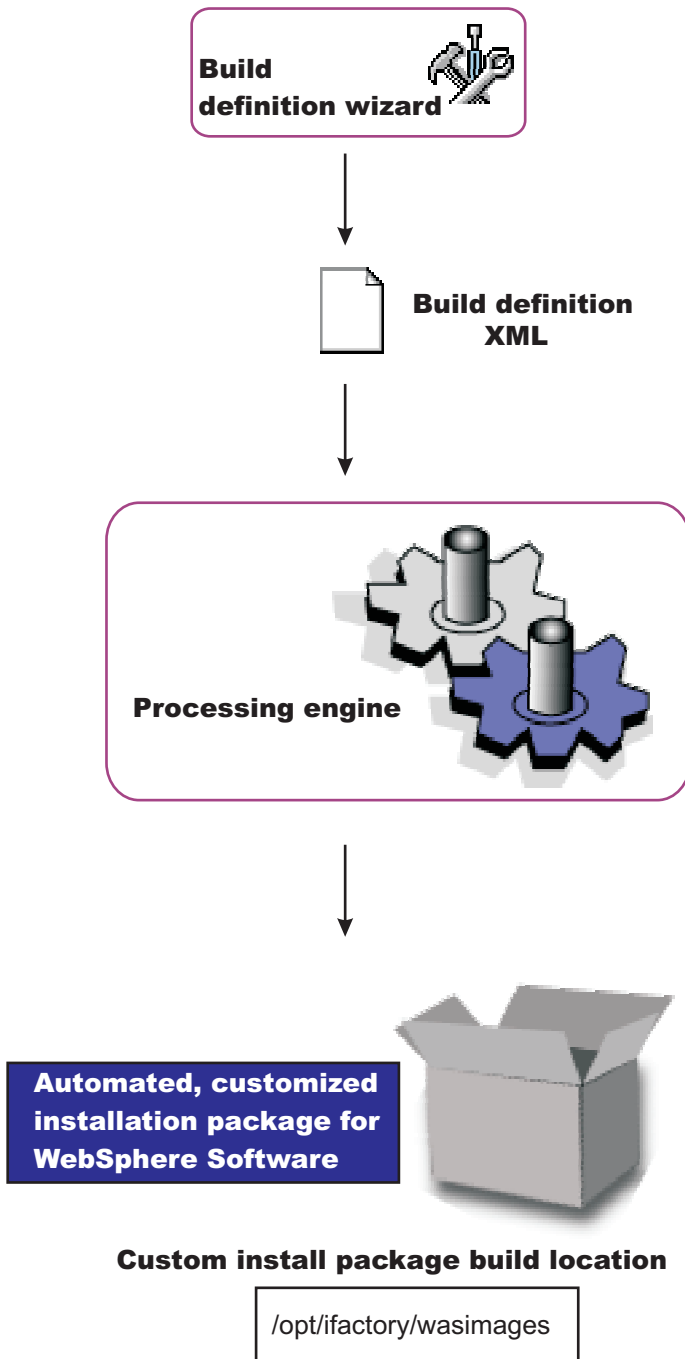
Name the build definition file in the Build Definition field.

You can think of the build definition file as a response file for the processing engine. The XML file provides the information that the processing engine needs to locate all of the components for the CIP.

Name the directory where you want to create the CIP in the Customized Installation Package field. The Installation Factory creates a compressed file containing the CIP and stores the file in the directory name that you specify.

Note: ▶ Windows ◀ The number of characters in the CIP build directory must be no more than 30 characters.

The processing engine reads the CIP location from the build definition file to determine where to store the CIP.

Build definition wizard

Build definition XML

Processing engine

Automated, customized installation package for WebSphere Software

Custom install package build location

/opt/ifactory/wasimages

Browse button

You can type directly into each field to identify the file and directory locations, which do not yet have to exist. Or, click **Browse** in connected mode to search for and select either an existing file (build definition) or an existing directory (CIP).

Validation

Validation will be performed when you click **Next**.

The build definition file will be created automatically. If the specified file already exists, a warning dialog will pop up when you click **Finish** verifying you want to overwrite the file.

The directory for the CIP will be created automatically. If the specified directory already exists, a warning dialog will pop up when you click **Finish** verifying you want to overwrite the current contents.

Product installation image

The build definition file must provide the processing engine with the location of the directory that contains the installation image for the WebSphere software product.

Specify the location of the directory for the product installation image in the product installation image directory path field.

For WebSphere Application Server products, for example, the directory is the WAS directory on the product disc or downloaded installation image:

V6.x Full installation image

D:\WAS

Build definition wizard
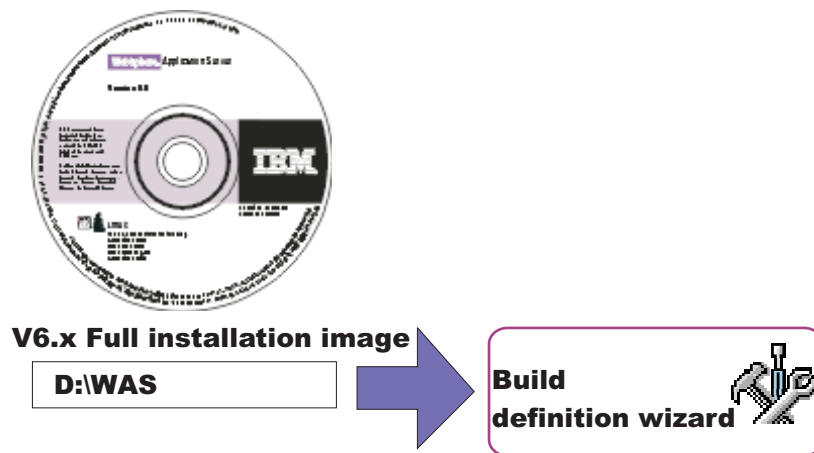
You can also specify the parent directory, such as /tmp if the image is in the /tmp/WAS directory, for example.

Browse button

You can type directly into the field to identify the directory location. Or, click **Browse** in connected mode to search for and select the existing directory.

Validation

The processing engine requires the directory to exist and to have a valid installation image that matched the product that you selected with the Product Selection wizard. In connected mode, validation occurs when you click **Next**. In disconnected mode, the processing engine performs validation while building the customized installation package.

Disconnected mode affects file path specifications

The directory for the installation image must exist in connected mode. In disconnected mode, remember to specify the file path in terms of the machine on which the processing engine machine runs. Specify the mount point for the CD drive on the target machine, for example. The processing engine must be able to locate the image at build time.

Feature selection

The build definition file must identify product features to include in the customized installation package (CIP). Select the features to include. Features that you include in the CIP are displayed when an installer uses the CIP to install the product.

Features

Required features are listed with the word ″Required″ appended to the feature name, but are not selectable. Some products contain features that you must include in the CIP to have a viable product to install.

Optional features that you do not include in the CIP are not available when an installer uses the CIP to install the product.

Selecting optional features

Click **Select All** to select all optional features in the list.

Click **Clear All** to clear all previously selected optional features.

Use **Ctrl+left-mouse-button** to select one feature at a time. Click one feature then use **shift+left-mouse-button** to click the opposite end of a span of sequential features and select them all.

Maintenance packages

Optionally select maintenance packages (*.pak files) to include in the customized installation package (CIP).

Selecting maintenance packages is optional. The types of packages to include are your choice. For example, you can skip refresh packs and fix packs and install an interim fix. Or you can install one refresh pack, one fix pack, and five interim fixes.

Refresh pack compressed files and fix pack compressed files are bundled with the Update Installer for WebSphere Software. Decompress the file to expose the maintenance package (*.pak) file in the /updateinstaller/maintenance directory.

Always select a PAK file when selecting a maintenance package, such as the `app_server_root\`
`updateinstaller\maintenance\6.1-WS-WAS-WinX32-RP0000001.pak` file.

You can select only one refresh pack, fix pack, and SDK fix pack. Refresh packs and fix packs are cumulative. Always select the latest package available when possible.

Browse button

You can type directly into each field to identify the file path and file name of the *.pak file. Or, click **Browse** in connected mode to search for and select the existing file.

Validation

The processing engine requires selected maintenance packages to have a valid file path and valid format. In connected mode, validation of the file path occurs when you click **Next**. Validation of whether a maintenance package is valid occurs only when you click **Verify Maintenance Package**.

In disconnected mode, the processing engine performs validation while building the customized installation package.

Disconnected mode affects file path specifications

The directory and valid maintenance package must exist in connected mode. In disconnected mode, remember to specify the file path and the name of the *.pak file in terms of the machine on which the processing engine machine runs. The processing engine must be able to locate the maintenance package at build time.

What are maintenance packages?

Maintenance packages include refresh packs, fix packs, and interim fixes.

Refresh pack: A refresh pack includes fixes and minor new features, such as V6.1.1.

Refresh packs are cumulative, so V6.1.2 includes features and fixes that are contained in V6.1.2, as well as fix packs and interim fixes that are published for V6.1.1.

Check the list of delivered fixes in the refresh pack to determine which interim fixes must be reinstalled. If an interim fix is deleted, but the fix is not in the refresh pack, reinstall the interim fix.

Fix pack: A fix pack is a cumulative package of fixes, such as V6.1.2.1.

Fix packs install on top of a specific refresh pack, such as applying V6.1.2.2 to V6.1.2. Fix packs also install on top of a previous fix pack, such as applying V6.1.2.2 to V6.1.2.1. Fix packs are cumulative, so V6.1.2.2 includes all fixes in V6.1.2.1.

Check the list of delivered fixes in the fix pack to determine which interim fixes must be reinstalled. If an interim fix is deleted, but the fix is not in the fix pack, reinstall the interim fix.

Fix packs for the Java 2 Software Developer Kit (SDK): Fix packs for the Java 2 SDK include cumulative maintenance for the SDK.

Interim fix: An interim fix is a single published emergency fix that resolves one or more product defects, such as PQ79582.

An interim fix can be applied to a release, refresh pack, or fix pack where applicable. Interim fixes are validated by at least one customer prior to publish.
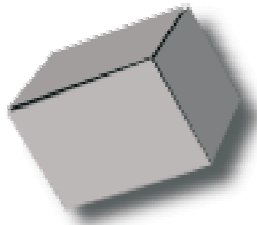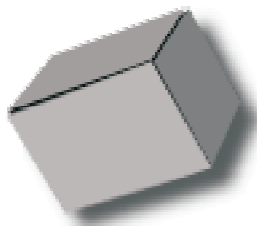
Refresh packs
Rp1

C:\WAS_downloads\name_of_refresh_pack_1_ZIP_file.pak
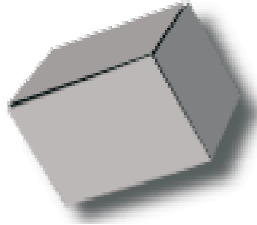
Fix packs
FP3

C:\WAS_downloads\name_of_fix_pack_3_ZIP_file.pak

SDK, Java technology edition fix pack
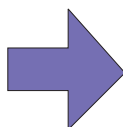SDK

C:\WAS_downloads\name_of_SDK_fix_pack_ZIP_file.pak

Interim fixes
iFix "A" and iFix "B"

C:\WAS_downloads\name_of_ifix_A_file.pak
C:\WAS_downloads\name_of_ifix_B_file.pak

Build definition wizard

Install and uninstall scripts

The Build definition wizard provides a way to include configuration scripts that run after successfully installing the customized installation package (CIP) or before uninstalling the CIP. Such scripts run when the installation is a new installation. If you are updating an existing installation by installing a CIP that includes maintenance, these scripts do not run.

Install tab

Identify scripts that run after successfully installing the CIP.

Uninstall tab

Identify scripts that run before uninstalling the CIP during a full uninstall.

File name

Identify the script file.

Directory path

Identify the directory where the script file resides.

Failure Action

Identify what action to take if a script fails. Valid choices include:
- Fatal error
- Continue

Add Scripts...

Opens a file browsing dialog window where you can search for and select scripts to include in the CIP. Scripts can be any of the following supported script types:
- ANT scripts (*.ant)
- Windows batch files (*.bat)
- Linux and UNIX shell scripts (*.sh)
- JACL scripts
- Jython scripts
- Jar files

The .jar files should have the main class defined in the META-INF/MANIFEST.MF file inside each .jar file.

Scripts are in the *cip_uid_root*/config/install directory when the CIP is installed. These scripts run as configuration actions after all of the configuration actions run that are in the normal installation procedure.

Modify...

Select an entry and click **Modify** to change the file name or the directory path.

Remove

Removes selected scripts from the CIP.

Move Up

Move a script up in the list to make it run earlier than scripts below it.

Move Down

Move a script down in the list to make it run after scripts above it.

Profile customization

The Build definition wizard provides a way to include profile customizations that include scripts to run at profile creation or deletion, deploying one or more enterprise archive (EAR) files, and restoring one configuration archive (CAR) file.

Restore a configuration archive to help configure a new stand-alone application server profile. You can also deploy EAR files on stand-alone application server profiles.

Customization occur when you use a CIP profile that includes customized configuration actions.

EAR files deploy with default deployment options. If you must deploy an EAR file with different options, simply include the EAR file as a user file. Then include a script to deploy the EAR file.

Scripts can run at profile creation or deletion time, in the order you specify. A script can call other scripts that you can include as user files.

See "Creating customized CIP profiles from the command line" on page 282 for information about using the command line to create and restore profiles when you cannot use the enhanced Profile Management tool in the CIP.

Profile Creation

Identify scripts that run or files to include after successfully installing the CIP. Perform such actions as running scripts, including and restoring a configuration archive, including an enterprise archive (EAR) file, and deploying the applications within an EAR file.

If you are restoring a customized profile that uses messaging, you must also include a script to configure the service integration bus (SIB). The original SIB configuration is not portable and, therefore, is not included in the CIP.

Profile Deletion

Identify scripts that run when the profile is unaugmented.

At profile deletion time, the CIP can specify additional scripts to run. Generally, these scripts are needed to "undo" the customization actions that occurred at profile creation time. If there are any profile deletion time configuration actions to run, the *cip_app_server_root*/if_augmentingTemplates/deleteRegistry.xml file contains the configuration actions. The manageprofiles command should normally unaugment any IF customized augments when deleting a profile.

Action Type

Identify the type of configuration action:
- Run a script
- Import a configuration archive
- Deploy an enterprise archive

File Name

Identify scripts, enterprise archive files, or the configuration archive file.

Directory Path

Identify the directory that contains scripts, enterprise archive files, or the configuration archive file.

Failure Action

Identify what action to take if a script fails or a file fails to load. Valid choices include:
- Fatal error
- Continue

Add Scripts...

Opens a file browsing dialog window where you can search for and select scripts to include in the CIP. Scripts can be any of the following supported script types:
- ANT scripts (*.ant)
- Windows batch files (*.bat)
- Linux and UNIX shell scripts (*.sh)
- JAR files (.jar)
- JACL scripts (.jacl)
- Jython scripts (.py)

Add Enterprise Archives...

Opens a browse dialog where you can search for and select an enterprise application archive (EAR) file to include in the CIP for an application server profile.

An EAR file is a enhanced Java archive (JAR) file, defined by the J2EE standard used to deploy J2EE applications to J2EE application servers. An EAR file contains enterprise beans, a deployment descriptor, and Web archive (WAR) files for individual Web applications.

Add Configuration Archive...

Opens a browse dialog where you can search for and select a configuration archive file to include in the CIP for an application server profile.

A configuration archive file is an exported configuration file from an existing stand-alone application server profile. Use the AdminTask command scripting interface to create the configuration archive.

The configuration archive contains all of the configuration data for a stand-alone application server, including security settings, resources, defined ports, and so on. The advantage of using a configuration archive is that all of this configuration, including any enterprise archive (EAR) files, can be reliably restored to many nodes. Importing a configuration archive also offers some performance advantages over creating a stand-alone application server in the normal way.

See Administrative command invocation syntax for a description of using an administrative command. See Commands for the AdminTask object for a description of the exportWasprofile and importWasprofile commands that are available for the AdminTask object.

Modify...

Select an entry and click **Modify** to change the file path and file name or the directory path and directory name.

Remove

Removes selected scripts, enterprise archive files, or the configuration archive file from the CIP.

Move Up

Move a script, enterprise archive file, or the configuration archive file up in the list to make it run earlier than other actions below it.

Move Down

Move a script, enterprise archive file, or the configuration archive file down in the list to make it run after other actions above it.

Additional files

You can add files and directories to the customized installation package (CIP). For example, although you can deploy enterprise archive (EAR) files in the Profile Customization panel, those EAR files must deploy with default deployment options. If you must deploy an EAR with different options, include the EAR file as an additional file. Then include a script in the Profile Customization panel to deploy the EAR file.

Scripts can run at any of four times, at CIP installation time and at full uninstall time, and at profile creation or deletion time. A script can call other scripts that you can include as additional files.

All additional files and directories are in the installed CIP in the *cip_uid_root*/userFiles directory.

Add Files...

Browse within a configured system or within a cache of relevant files to select additional files to include in the CIP.

For example, you can include one or more script files that are called by a script listed in the Profile Customization panel. When the script runs at profile creation or deletion time, the script can call other scripts that you include as additional files.

Similarly, a script listed in the Install and Uninstall Scripts panel runs at CIP installation or CIP deletion time. Such a script can call other scripts that you include as additional files.

Add Directories...

Browse to select additional directories to include in the CIP.

You can include a directory full of scripts, for example. Or a directory full of EAR files.

File Name

Identify the file.

Directory Path

Identify the directory where the file resides.

Modify...

Select an entry and click **Modify** to change the file path and file name or the directory path and directory name.
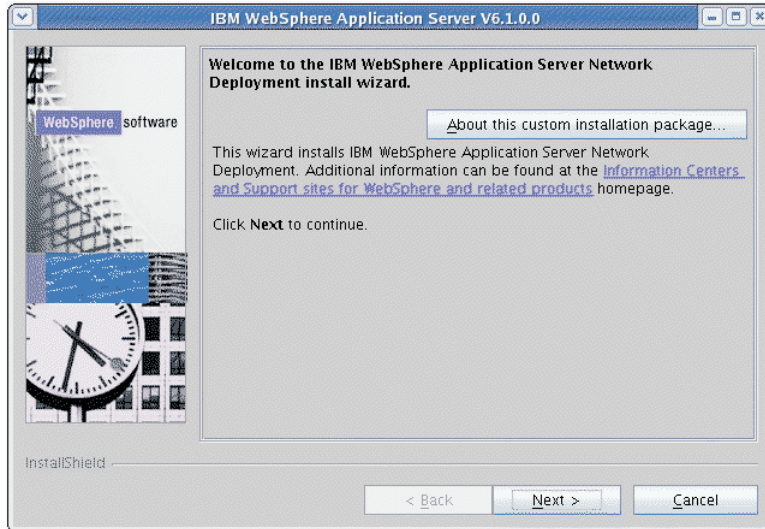
Remove

Removes selected files and directories from the CIP.

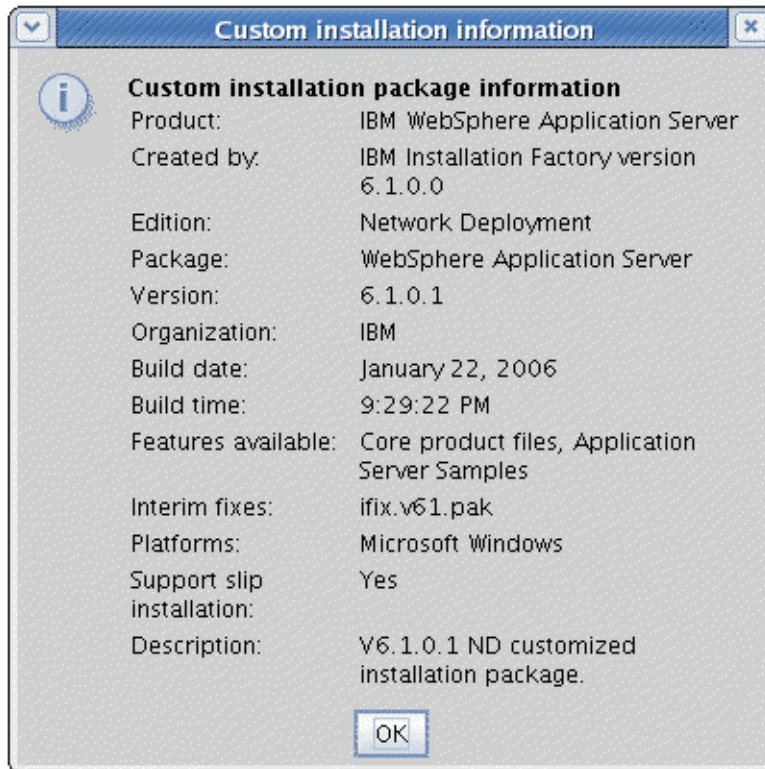# Authorship

Specify an identifier and version for the customized installation package (CIP). You can also provide other information about the CIP.

When using the customized installation package to install a WebSphere Application Server product, a panel similar to the following Network Deployment example is displayed:

IBM WebSphere Application Server V6.1.0.0

WebSphere software

Welcome to the IBM WebSphere Application Server Network Deployment install wizard.

About this custom installation package...

This wizard installs IBM WebSphere Application Server Network Deployment. Additional information can be found at the Information Centers and Support sites for WebSphere and related products homepage.

Click **Next** to continue.

InstallShield

< Back   Next >   Cancel

If the installer clicks **About this custom installation package**, a panel similar to the following example is displayed:

Custom installation information

Custom installation package information

Product:	IBM WebSphere Application Server
Created by:	IBM Installation Factory version 6.1.0.0
Edition:	Network Deployment
Package:	WebSphere Application Server
Version:	6.1.0.1
Organization:	IBM
Build date:	January 22, 2006
Build time:	9:29:22 PM
Features available:	Core product files, Application Server Samples
Interim fixes:	ifix.v61.pak
Platforms:	Microsoft Windows
Support slip installation:	Yes
Description:	V6.1.0.1 ND customized installation package.

OK

The package identifer information is gathered near the beginning of the Build Definition wizard in the Package Identification panel.

The Organization field and the Description field show the information that you provide in the Build Definition wizard.

Fields in this section are displayed in a panel in the CIP Installation wizard titled, About this custom installation:

- Organization: Provide another layer of identification for the CIP.
- Description: Provide a description of the CIP.

Customized installation package preview

The Build Definition wizard provides a summary panel to let you review all of your selections. If you run the Build Definition wizard in connected mode, you can also start the processing engine to build the customized installation package (CIP). If you run the Build Definition wizard in disconnected mode, copy the build definition file to the target system before using the ifcli module to start the processing engine.

The Build Definition wizard produces the XML build definition for input to the processing engine. The processing engine uses the build definition file to locate all of the components that it includes in the CIP.

Disconnected mode affects CIP generation

Select the **Save build definition file and generate customized installation package** radio button if you are in connected mode and the Build Definition wizard and the processing engine are running on the same machine. Otherwise, select the **Save the build definition file only** radio button to save the file. You might intend to use the build definition file on another machine, for example.

Estimate Size and Available Space

Click **Estimate Size and Available Space** to get an estimate of the size of the customized installation package that will be generated.

Click **Finish** to start building the customized installation package when you are running in connected mode. Creating the customized installation package requires time. The more maintenance packages selected, the longer the time required.

A status indicator displays near the bottom of the panel. When processing completes, a completion message displays and the Installation Factory console returns.

Disconnected mode processing

The **Save build definition file and generate customized installation package** radio button is inactive if you are in disconnected mode.

The Customized installation package preview panel shows the location of the build definition file. Click **Finish** to save the build definition file and return to the Installation Factory console.

Copy the build definition file to the system that has the processing engine. Start the processing engine with the *install_factory_root*/bin/ifcli script.

The processing engine reads the build definition file and creates the customized installation package.
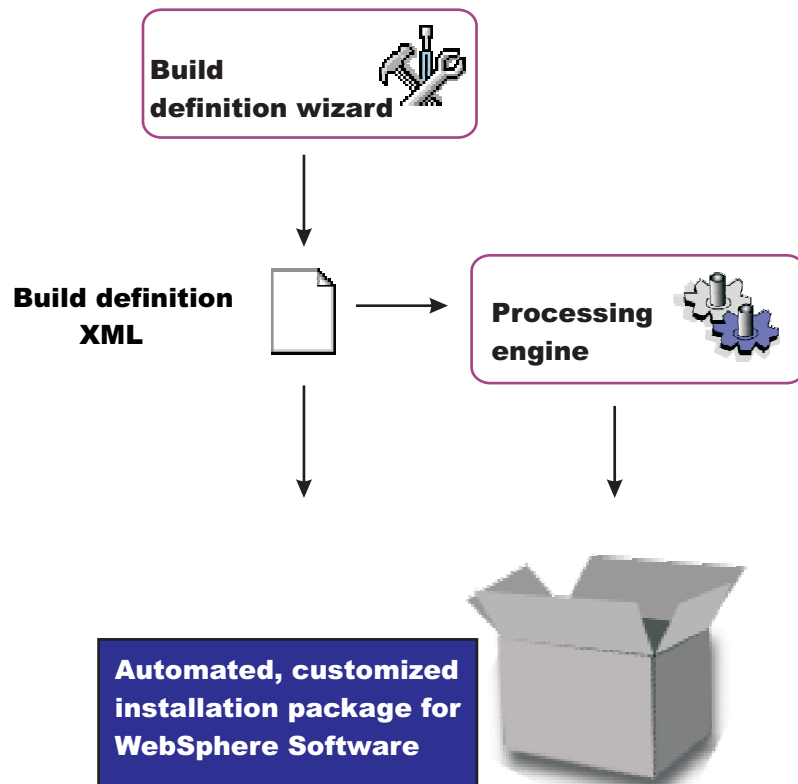
ifcli command

The **ifcli** command-line tool runs on any supported operating system. The ifcli tool accepts a build definition XML file as input and invokes the Installation Factory processing engine. The processing engine interprets the XML file, locates the product source files and maintenance packages, and then creates a customized installation package (CIP).

The ifcli tool is also referred to as the *command-line interface* tool or the *command-line invocation* tool for the Installation Factory.

Running the ifcli tool and installing the CIP are supported for the following architectures:

HP PA-RISC

> The Installation Factory ifcli tool runs on 32-bit HP-UX 11iv2 kernels on PA-RISC platforms.

> The CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit HP-UX 11iv2 kernels on PA-RISC hardware platforms.

HP Itanium

> The Installation Factory ifcli tool runs on 64-bit HP-UX 11iv2 kernels on Itanium platforms.

IBM PowerPC32

> The Installation Factory ifcli tool runs on 32-bit AIX 5L 5.2 systems, AIX 5L 5.3 systems, and Linux systems.

> The CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit AIX or Linux kernels running on 64-bit pSeries hardware platforms.

IBM p5 and pSeries Power4

> The Installation Factory ifcli tool runs on AIX System p5 and pSeries Power4 - 64 bit or 64-bit Linux kernels.

Intel IA32

The Installation Factory ifcli tool runs on 32-bit Intel and AMD hardware platforms running 32-bit Linux kernels or 32-bit Windows kernels.

The CIP for 32-bit WebSphere Application Server products supports Windows 2000 Advanced Server SP4, Windows 2000 Server SP4, Windows 2000 Professional SP4 (development only), Windows Server 2003 Datacenter, Windows Server 2003 Enterprise, Windows Server 2003 Standard, and Windows XP Professional SP1a (development only) on 32-bit Intel and AMD platforms.

Opteron/EM64T

The Installation Factory ifcli tool runs on Opteron or EM64T hardware platforms running 64-bit Linux kernels or Windows 2003 x64 editions.

IBM S/390

The Installation Factory ifcli tool runs on 31-bit mainframe hardware platforms running 31-bit Linux kernels.

The CIP for 31-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit Linux kernels on zSeries platforms.

IBM System z9 and zSeries

The Installation Factory ifcli tool runs on Linux z9 and zSeries - 64 bit.

Sun Sparc

The Installation Factory ifcli tool runs on 32-bit Solaris 8 , Solaris 9, and Solaris 10 operating system kernels on SPARC and UltraSPARC 60 platforms.

The CIP for 32-bit WebSphere Application Server products also provides 64-bit compatibility support for installing on 64-bit Solaris 8, Solaris 9, and Solaris 10 kernels.

Location of the command file

The command file is located in the `/bin` directory of the directory where you unpack the Installation Factory. The command file is a script named:

- Linux `ifcli.sh`
- Windows `ifcli.bat`

Logging

The **ifcli** command creates a build log file that shows whether the customized installation image is produced successfully. When the CIP is not successfully built, examine the trace file to determine what is wrong.

The following files record CIP creation data:

- `trace.xml` is a detailed trace log in XML format
- `log.txt` is the log file

The tracing and logging output and level are configurable as described in the logLevel and traceLevel parameters.

Syntax for the ifcli.sh command

Displaying help for the command:

`./ifcli.sh -help`

Creating a customized installation package:

```
./ifcli.sh -buildDef build_definition_file
   -silent
   -logLevel log_level
   -logFile log_file_path_name
   -traceLevel trace level
   -traceFile trace_file_path_name
```

Syntax for the ifcli.bat command

Displaying help for the command:

```
ifcli.bat -help

ifcli.bat ?
```

Creating a customized installation package:

```
ifcli.bat -buildDef build_definition_file
   -silent
   -logLevel log_level
   -logFile log_file_path_name
   -traceLevel trace level
    -traceFile trace_file_path_name
```

Parameters

Supported arguments include:

Windows **-?**
>   Shows usage information.

-buildDef *build_definition_file*
>   Identifies the build definition file that the Build Definition wizard creates.

-help
>   Shows usage information.

-logFile *log_file_path_name*
>   Identifies the log file. The default value is *current_working_directory*/logs/log.txt.

-logLevel *log_level*
>   Sets the level of logging. The default value is INFO. Valid values are:
>   - ALL
>   - CONFIG
>   - INFO
>   - WARNING
>   - SEVERE
>   - OFF (Turns off logging)

-silent
>   Specifies that the processing engine runs in silent mode, without displaying results to the console.

-traceFile *trace_file_path_name*
>   Identifies the trace file. The default value is *current_working_directory*/logs/trace.xml.

-traceLevel *trace level*
>   Sets the level of tracing. The default value is OFF. Valid values are:
>   - ALL
>   - FINE
>   - FINER
>   - FINEST
>   - OFF (Turns off logging)

Using the customized installation package to install the product

Use the Installation Factory installer program for WebSphere Application Server products to install a customized installation package for a WebSphere Application Server product. Each supported product has its own installer program. See the "install command" on page 289 for more information.

Creating a build definition and CIP on the processing engine machine

This topic describes how to create a build definition and CIP when the processing engine and the Build definition wizard are on the same machine.

If you are creating a build definition for the processing engine that runs on another machine, see "Creating a build definition for another machine" on page 279.

Use the following procedure to create the build definition document and the customized installation package on one machine.

1. Download the Installation Factory code from the download page for the IBM Installation Factory for WebSphere Application Server and unpack the code.

   See the download page for a complete list of tested operating systems.

   Use the Installation Factory console and the processing engine on the same machine with a tested and certified operating system.

2. Mount or access the product installation image for your operating system.

   You need the image to create the customized installation package.

3. Download maintenance packages.

   Locate download packages for Version 6.x of the WebSphere Application Server products on the following Web site: Recommended updates for WebSphere Application Server and Network Deployment. The information also applies to the Express product.

4. Start the Installation Factory console with the ifgui script.

   - **Linux**   Use the *IF_root*/bin/ifgui.sh script.

   - **Windows**   Use the *IF_root*\bin\ifgui.bat script.

5. Create a new build definition or edit an existing build definition.

   Click the button for a New build definition to start two wizards in sequence. The two wizards are the Product Selection wizard and the Build Definition wizard.

   Click the button to Open a build definition file . Opening an existing build definition starts the Build Definition wizard only. If you must change the product, start a new build definition.

6. Select the check box for connected mode processing so that you can create a customized installation package later in addition to creating the build definition file.

   Browse to select the installation image directory and the maintenance package files.

7. Provide all required parameters to identify the product, installation image, maintenance packages, the configuration archive file, enterprise archive files, other files and directories, scripts, the output location for the build definition file, and the output location for the customized installation package (CIP).

8. Select the Save build definition file and generate customized installation package option.

9. Click **Finish** to generate the CIP.

   The amount of time required to generate the CIP depends on the number of maintenance packages and the number of features that you include in the package.

   The Installation Factory logs a completion message in the /logs/install/log.txt file when the processing engine is finished.

10. Installers can now install the customized installation package using the InstallShield for Multiplatforms (ISMP) Installation wizard that is included in the CIP. Panels in the CIP Installation wizard vary according to the product that you are installing.

    The Installation wizard for WebSphere Application Server products is the install command in the *CIP_directory*/WAS directory.

11. Create a CIP-based custom stand-alone application server profile.

    Use one of the following methods to create the profile:

    - After the CIP installation, run the Profile management tool.
    - After the CIP installation, run the **manageprofiles** command once to do a create and augment.
    - After the CIP installation, run the **manageprofiles** command twice sequentially to do a create and then an augment.

        Alternatively, you can run the **manageprofiles** command once to augment an existing profile.

    - In a scratch installation, do the following within the CIP installation wizard:

        a. On the Install Sample Applications panel, select the **Install profile customizations** checkbox.

        b. On the WebSphere Application Server environments panel, select a profile that has profile customization defined.

            If the profile that you select has profile customization defined, then the installation wizard will effectively run the **manageprofiles** command once to do a create and augment. If there is no profile customization defined, you get a regular profile.

    If the profile that you create has a configuration archive in it, then it will be imported.

In some cases, you might be unable to use the console on the target operating system platform. You have two options in such a case:

- Use the console in disconnected mode on a supported machine to create a build definition file for the target operating system on another machine.

    Then copy the file to the target operating system and use the command line interface to start the processing engine and create the customized installation package.

    See "Creating a build definition for another machine" for a description of such a procedure.

- Create the build definition XML document using a validating XML editor.

    Copy one of the sample build definition documents from the *IF_root*/samples/was directory to get started.

    After making your changes, validate the build definition document with its XML schema (the Commom.xsd, BaseBuildDefinition.xsd, and BuildDefinition.xsd files) using a validating XML parser or editor. Then use the command line interface to start the processing engine and create the customized installation package.

Creating a build definition for another machine

This procedure describes how to use the Build Definition wizard to create a build definition for the processing engine that runs on another machine.

If you are creating a build definition for the processing engine that runs on the same machine as the Build Definition wizard, see "Creating a build definition and CIP on the processing engine machine" on page 278.

The download page has a complete list of tested operating systems for the Installation Factory console.

In some cases, you might not be able to use the console on the target operating system platform. You have two options in such a case:

- Use the console in disconnected mode on a supported machine to create a build definition file for the target operating system on another machine.

Then copy the file to the target operating system and use the command line interface to create the customized installation package. This topic describes such a procedure.

- Create the build definition XML document using a validating XML editor.

  Copy one of the sample build definition documents from the *IF_root*/samples/was directory to get started.

  After making your changes, validate the build definition document with its XML schema (the Commom.xsd, BaseBuildDefinition.xsd, and BuildDefinition.xsd files) using a validating XML parser or editor. Then use the command line interface to start the processing engine and create the customized installation package.

This procedure describes a configuration where the Build Definition wizard is not on the same machine as the target system. Although the Build Definition wizard cannot access the installation image and the maintenance packages on the target operating system, you can enter the information manually. Use directory paths and file names that exist on the target operating system.

Run the Build Definition wizard on a Linux system or another supported UNIX system to create the build definition file for an unsupported UNIX system. Use the Build Definition wizard on a Windows 2000 or Windows 2003 machine to create the build definition file for another Windows system.

For example, assume that you run the console on a RHEL 3 system that cannot access a target AIX system. The Build Definition wizard cannot browse to file locations on the target system. However, you can type the directory path of the AIX location for the Network Deployment installation image and other elements of the customized installation package (CIP).

The Build Definition wizard cannot verify the installation image because the wizard cannot access the directory on the AIX system. Verification occurs later, when the processing engine that runs on the target operating system builds the customized installation package. If the installation image or the maintenance packages are not valid, the processing engine logs the problem.

Use the following procedure to create and install the customized installation package.

1. Download the Installation Factory code that is appropriate for the Build Definition operating system.

   Download the code from the download page for the IBM Installation Factory for WebSphere Application Server. Unpack the code on the Build Definition machine.

2. Download the Installation Factory code that is appropriate for the target processing engine system.

   Download the code from the download page for the IBM Installation Factory for WebSphere Application Server. Unpack the code on the target operating system. The target operating system is where you run the Installation Factory processing engine to create the customized installation package.

3. Mount or access the product installation image on the target operating system platform.

   You need to know the location of the image so that you can create a build definition file that points to the image.

   Write down the mount point or the storage location so that you can provide the storage location to the Build Definition wizard that is running on the other machine.

4. Download maintenance packages to the target operating system.

   Locate download packages for Version 6.x of the WebSphere Application Server products on the following Web site: Recommended fixes for WebSphere Application Server

   Refresh pack ZIP files and fix pack ZIP files are bundled with the Update Installer for WebSphere Software. Unzip the file to expose the maintenance package (*.pak) file in the updateinstaller/ maintenance directory.

   Write down the storage location of the downloaded maintenance package so that you can provide the location to the Build Definition wizard that is running on the other machine.

5. Start the Installation Factory console on a supported Linux or UNIX system with the *IF_root*/bin/ifgui.sh script.

   Or start the Installation Factory console with the *IF_root*\bin\ifgui.bat script on Windows systems.

6. Create a new build definition or edit an existing build definition.

   Clicking the New build definition icon starts two wizards in sequence, the Product Selection wizard and the Build Definition wizard.

   Clicking the Open a build definition file icon starts only the Build Definition wizard. If you must change the product, start a new build definition.

7. Select the check box for disconnected mode processing because you are creating the build definition for another machine.

8. Provide all required parameters to identify the product, installation image, maintenance packages, the configuration archive file, enterprise archive files, other files and directories, scripts, the output location for the build definition file, and the output location for the customized installation package (CIP).

   All of the locations must refer to locations on the target operating system machine.

   The Build Definition wizard cannot verify the installation image, the maintenance packages, or any other files or scripts that you enter in disconnected mode. Always enter directory paths and file names in relation to the target operating system machine and not the machine you are using to create the build definition.

9. Click **Finish** to save the build definition file on the Build Definition machine.

10. Copy the build definition file from the Build Definition machine to the target operating system platform.

11. Use the command-line invocation tool (ifcli) on the target operating system platform to launch the processing engine that creates the CIP on the target operating system.

   The amount of time required to generate the CIP is dependent on the number of maintenance packages and the number of features that you are including in the package.

   The processing engine logs a completion message in the /logs/install/log.txt file when the processing engine is finished.

12. Install the customized installation package using the InstallShield for Multiplatforms (ISMP) Installation wizard that is included in the CIP. Panels in the CIP Installation wizard vary according to the product that you are installing.

   The Installation wizard for WebSphere Application Server products is in the WAS directory and is named either install (Linux or UNIX) or install.exe (Windows).

Configuration archive files

A configuration archive (CAR) file captures the configuration of a stand-alone application server profile for later restoration. The CAR can help clone the original profile to another machine or system.

The Installation Factory allows for a previously exported configuration archive of an existing stand-alone application server profile to be bundled with an installation image, maintenance packages, user files, and scripts. The resulting bundle is a *customized installation package*, or *CIP*.

A CIP constructed in this manner can be used to install an exact replica of a model application serving environment with installed maintenance packages, configured profiles, and deployed applications. Configuration archive allow one to restore a pre-configured, working, and tested stand-alone application server configuration from a source machine to one or more target machines. For this reason, the configuration archive support is one of the key customizations that make CIPs so powerful when creating large scale topologies.

The series of configuration events for using a configuration archive and other CIP customizations is shown in the following Version 6.x. example:

1. An expert installs Version 6.x.

2. The expert creates a default (stand-alone application server) profile, deploys applications, and makes other configuration changes.

3. The expert creates a configuration archive of the default profile using the AdminTask exportWasprofile command.

   Note: The first steps above are optional and are only required if a configuration archive needs to be exported for inclusion in a CIP. If configuration archive customization is not required, then the steps above can be omitted.

4. The expert uses the Installation Factory to create a CIP that includes the 6.x product image and optionally includes a refresh pack as well as a fix pack.

   a. The expert optionally includes scripts to run during install time or uninstall time.

   b. The expert optionally includes the configuration archive in the CIP when configuration profile customization for the Stand Alone Application Server config.

   c. The expert optionally includes EARs for any of the four types of profile customization (cell, stand-alone, deployment manager, managed).

   d. The expert optionally includes scripts for any of the three types of profile customization (stand-alone, deployment manager, managed) to run either at profile creation time or profile deletion time. For Version 6.1, you can also perform customization on the ″cell″ profile set, which includes two profiles: deployment manager and federated application server.

   e. The expert optionally includes additional files to be installed on the system.

5. The expert distributes the CIP to installers who require the pre-configured system for their users.

6. The installers install the CIP.

7. The installers create any of the following profile types: cell, stand-alone application server, deployment manager, managed.

   If you are an installer, you can use one of the following methods to create the profile:

   • After the CIP installation, run the Profile management tool.

   • After the CIP installation, run the **manageprofiles** command once to do a create and augment.

   • After the CIP installation, run the **manageprofiles** command twice sequentially to do a create and then an augment.

     Alternatively, you can run the **manageprofiles** command once to augment an existing profile.

   • In a scratch installation, do the following within the CIP installation wizard:

     a. On the Install Sample Applications panel, select the **Install profile customizations** checkbox.

     b. On the WebSphere Application Server environments panel, select a profile that has profile customization defined.

        If the profile that you select has profile customization defined, then the installation wizard will effectively run the **manageprofiles** command once to do a create and augment. If there is no profile customization defined, you get a regular profile.

   If a the stand-alone profile is chosen and a configuration archive is present, it will be automatically restored.

See "Creating customized CIP profiles from the command line" for more information about restoring a configuration archive while creating a stand-alone application server profile.

Creating customized CIP profiles from the command line

The Installation Factory allows for customized installation package (CIP) to be created that bundles an installation image, maintenance packages, previously exported stand-alone application server configuration archives, EARs, user files, and scripts. The resulting bundle is a *customized installation package*, or *CIP*. An installer can use an existing CIP to install an exact replica of a model application serving environment, with installed maintenance packages, configured profiles, and deployed applications. Installers can use the Profile Management tool in the CIP to create a cell, stand-alone application server, deployment manager,

or managed profile, which automatically restores any profile customizations that are included in the CIP. If you cannot use the Profile Management tool, use the commands described in this topic to create pre-configured profiles.

The installer can use the Profile Management tool to create CIP profiles and automatically restore the profile customizations that are included in the CIP. Or, the installer can use the **manageprofiles** command to perform the same tasks manually from the command line.

If you cannot use the enhanced Profile Management tool in the CIP to create and configure profiles, use the **manageprofiles** command to perform the task, as described in this topic.

See "Creating customized profiles" on page 287 for a description of using the enhanced Profile Management tool, which is a graphical user interface.

You must have previously installed a CIP to create CIP profiles and restore customizations that are included in the CIP.

If you are restoring a customized profile that uses messaging, you must also include a script to configure the service integration bus (SIB). The original SIB configuration is not portable and, therefore, is not included in the CIP.

The series of configuration events for using a configuration archive and other CIP customizations is shown in the following Version 6.x. example:

1. An expert installs Version 6.x.
2. The expert creates a default (stand-alone application server) profile, deploys applications, and makes other configuration changes.
3. The expert creates a configuration archive of the default profile using the AdminTask exportWasprofile command.

   Note: The first steps above are optional and are only required if a configuration archive needs to be exported for inclusion in a CIP. If configuration archive customization is not required, then the steps above can be omitted.
4. The expert uses the Installation Factory to create a CIP that includes the 6.x product image and optionally includes a refresh pack as well as a fix pack.
   a. The expert optionally includes scripts to run during install time or uninstall time.
   b. The expert optionally includes the configuration archive in the CIP when configuration profile customization for the Stand Alone Application Server config.
   c. The expert optionally includes EARs for any of the four types of profile customization (cell, stand-alone, deployment manager, managed).
   d. The expert optionally includes scripts for any of the three types of profile customization (stand-alone, deployment manager, managed) to run either at profile creation time or profile deletion time. For Version 6.1, you can also perform customization on the ″cell″ profile set, which includes two profiles: deployment manager and federated application server.
   e. The expert optionally includes additional files to be installed on the system.
5. The expert distributes the CIP to installers who require the pre-configured system for their users.
6. The installers install the CIP.
7. The installers create any of the following profile types: cell, stand-alone application server, deployment manager, managed.

   If you are an installer, you can use one of the following methods to create the profile:
   • After the CIP installation, run the Profile management tool.
   • After the CIP installation, run the **manageprofiles** command once to do a create and augment.
   • After the CIP installation, run the **manageprofiles** command twice sequentially to do a create and then an augment.

Alternatively, you can run the **manageprofiles** command once to augment an existing profile.

- In a scratch installation, do the following within the CIP installation wizard:

    a. On the Install Sample Applications panel, select the **Install profile customizations** checkbox.

    b. On the WebSphere Application Server environments panel, select a profile that has profile customization defined.

       If the profile that you select has profile customization defined, then the installation wizard will effectively run the **manageprofiles** command once to do a create and augment. If there is no profile customization defined, you get a regular profile.

If a the stand-alone profile is chosen and a configuration archive is present, it will be automatically restored.

A configuration archive is available for an application server CIP profile only. A special profile template enables the importation of a configuration archive file into the application server profile.

Use the Profile Management tool to create CIP profiles that accept configuration actions that are included in the CIP. Use the application server CIP profile when you are restoring a configuration archive file or other customizations. The Profile Management tool can also create normal profiles that do not accept customizations.

- When you run the Profile Management tool with CIP customized profiles installed, the Environment Selection panel will show environments with -- *cip_uid* at the end. These are the customized profiles, and each of them will create a regular profile and then apply the customizations through a profile augmentation. If the customized profile that you select contains a configuration archive, then it will be imported.

- The first four environments listed on the Environment Selection panel, which do not have a -- *cip_uid* at the end, are the regular profile types. If you want a regular profile without customizations, select one of these.

Table 64. Allowed customizations

CIP Profile Type	Include and Run Scripts	Include and Deploy an Enterprise Archive (EAR)	Include and Restore a Configuration Archive (CAR)
Cell (deployment manager and a managed node)	Yes	No	No
Deployment manager (dmgr profile)	Yes	No	No
Stand-alone application server (default profile)	Yes	Yes	Yes
Custom (managed profile)	Yes	No	No

The following example creates a customized cell profile.

1. Create the deployment manager portion of the customized cell profile.

```
app_server_root\bin\manageprofiles.bat(sh)
-create
-profileName cell_dmgr_name
-templatePath app_server_root\cip\cip_uid\if_augmentingTemplates\cell\dmgr
```

```
-nodeProfilePath app_server_root\profiles\cell_appserver_name
-cellName cell_name
-nodeName node_name
-appServerNodeName federated_node_name
```

2. Create the application server portion of the customized cell profile.

```
app_server_root\bin\manageprofiles.bat(sh)
-create
-profileName cell_appserver_name
-templatePath app_server_root\cip\cip_uid\if_augmentingTemplates\cell\default
-dmgrProfilePath app_server_root\profiles\cell_dmgr_name
-portsFile app_server_root\profiles\cell_dmgr_name\properties\portdef.props
-nodePortsFile app_server_root\profiles\cell_dmgr_name\properties\nodeportdef.props
-cellName cell_name
-nodeName node_name
-appServerNodeName federated_node_name
```

- Augment an application server profile that includes a CAR file.

    1. Create the profile from the minimal default template.

        > Linux

        ```
        app_server_root/bin/manageprofiles.sh
        -create
        -profileName my_profile
        -profilePath "app_server_root/profiles/my_profile"
        -templatePath app_server_root/cip/profileTemplates/minimal
        ```

        > Windows

        ```
        app_server_root\bin\manageprofiles.bat
        -create
        -profileName my_profile
        -profilePath "app_server_root\profiles\my_profile"
        -templatePath app_server_root\cip\profileTemplates\minimal
        ```

    2. Augment the profile using the customizations for the default profile.

        > Linux

        ```
        app_server_root/profiles/my_profile/bin/manageprofiles.sh
        -augment
        -profileName my_profile
        -templatePath cip_app_server_root/if_augmentingTemplates/default
        ```

        > Windows

        ```
        app_server_root\profiles\my_profile\bin\manageprofiles.bat
        -augment
        -profileName my_profile
        -templatePath cip_app_server_root\if_augmentingTemplates\default
        ```

- Augment an application server profile that does not include a CAR file.

    Use the regular default template in this two-step procedure:

    1. Create the profile from the default template.

        > Linux

        ```
        app_server_root/bin/manageprofiles.sh
        -create
        -profileName my_profile
        -profilePath "app_server_root/profiles/my_profile"
        -templatePath cip_app_server_root/profileTemplates/default
        ```

        > Windows

        ```
        app_server_root\bin\manageprofiles.bat
        -create
        -profileName my_profile
        -profilePath "app_server_root\profiles\my_profile"
        -templatePath cip_app_server_root\profileTemplates\default
        ```

    2. Augment the profile using the customizations (that do not include a CAR) for the default profile.

```
app_server_root/profiles/my_profile/bin/manageprofiles.sh
-augment
-profileName my_profile
-templatePath cip_app_server_root/if_augmentingTemplates/default
```

```
app_server_root\profiles\my_profile\bin\manageprofiles.bat
-augment
-profileName my_profile
-templatePath cip_app_server_root\if_augmentingTemplates\default
```

- Augment a deployment manager profile.

  Use this two-step procedure to augment a deployment manager profile:

  1. Create the profile from the dmgr template.

     ▶ **Linux**

     ```
     app_server_root/bin/manageprofiles.sh
     -create
     -profileName my_dmgr_profile
     -profilePath "app_server_root/profiles/my_dmgr_profile"
     -templatePath app_server_root/cip/profileTemplates/dmgr
     ```

     ▶ **Windows**

     ```
     app_server_root\bin\manageprofiles.bat
     -create
     -profileName my_dmgr_profile
     -profilePath "app_server_root\profiles\my_dmgr_profile"
     -templatePath app_server_root\cip\profileTemplates\dmgr
     ```

  2. Augment the profile using the customizations (that do not include a CAR or an EAR) for the dmgr profile.

     ▶ **Linux**

     ```
     app_server_root/profiles/my_dmgr_profile/bin/manageprofiles.sh
     -augment
     -profileName my_dmgr_profile
     -templatePath cip_app_server_root/if_augmentingTemplates/dmgr
     ```

     ▶ **Windows**

     ```
     app_server_root\profiles\my_dmgr_profile\bin\manageprofiles.bat
     -augment
     -profileName my_dmgr_profile
     -templatePath cip_app_server_root\if_augmentingTemplates\dmgr
     ```

- Augment a custom profile.

  Use this two-step procedure to augment a custom profile:

  1. Create the profile from the managed template.

     ▶ **Linux**

     ```
     app_server_root/bin/manageprofiles.sh
     -create
     -profileName my_custom_profile
     -profilePath "app_server_root/profiles/my_custom_profile"
     -templatePath app_server_root/cip/profileTemplates/managed
     ```

     ▶ **Windows**

     ```
     app_server_root\bin\manageprofiles.bat
     -create
     -profileName my_custom_profile
     -profilePath "app_server_root\profiles\my_custom_profile"
     -templatePath app_server_root\cip\profileTemplates\managed
     ```

  2. Augment the profile using the customizations for a managed profile.

```
app_server_root/profiles/my_custom_profile/bin/manageprofiles.sh
-augment
-profileName my_custom_profile
-templatePath cip_app_server_root/if_augmentingTemplates/managed
```

```
app_server_root\profiles\my_custom_profile\bin\manageprofiles.bat
-augment
-profileName my_custom_profile
-templatePath cip_app_server_root\if_augmentingTemplates\managed
```

After creating a profile and applying the customizations, the target installation should have a profile that is fully configured in the manner as designed by the CIP creator. If a configuration archive was imported, then the target profile should be a fully configured clone of the source profile where the configuration archive was exported.

To create a profile without the exact same customizations, in other words, a normal profile, use the normal profile templates in the *cip_app_server_root*/profileTemplates directory and do not augment the profiles.

After installing your customized system, install a Web server and plug-ins, if necessary, and start the deployment manager, the node agent, and the application server to test your applications.

Creating customized profiles

The Installation Factory captures the configuration of an existing application server profile and bundles it with an installation image, maintenance packages, and user files and scripts. The resulting bundled model environment is a *customized installation package*, or *CIP*. An installer can use a CIP to install an exact replica of the model application serving environment, with identically installed maintenance packages, configured profiles, and deployed applications.

The installer can use the Profile Management tool to create CIP profiles and automatically restore the profile customizations that are included in the CIP. Or, the installer can use the **manageprofiles** command to perform the same tasks manually from the command line.

If you cannot use the Profile Management tool, use the **manageprofiles** command to restore the customized profiles as described in "Creating customized CIP profiles from the command line" on page 282.

You must have previously installed a CIP to create CIP profiles and restore customizations that are included in the CIP.

If you are restoring a customized profile that uses messaging, you must also include a script to configure the service integration bus (SIB). The original SIB configuration is not portable and, therefore, is not included in the CIP.

The series of configuration events for using a configuration archive and other CIP customizations is shown in the following Version 6.x. example:

1. An expert installs Version 6.x.
2. The expert creates a default (stand-alone application server) profile, deploys applications, and makes other configuration changes.
3. The expert creates a configuration archive of the default profile using the AdminTask exportWasprofile command.

   Note: The first steps above are optional and are only required if a configuration archive needs to be exported for inclusion in a CIP. If configuration archive customization is not required, then the steps above can be omitted.

4. The expert uses the Installation Factory to create a CIP that includes the 6.x product image and optionally includes a refresh pack as well as a fix pack.
   a. The expert optionally includes scripts to run during install time or uninstall time.
   b. The expert optionally includes the configuration archive in the CIP when configuration profile customization for the Stand Alone Application Server config.
   c. The expert optionally includes EARs for any of the four types of profile customization (cell, stand-alone, deployment manager, managed).
   d. The expert optionally includes scripts for any of the three types of profile customization (stand-alone, deployment manager, managed) to run either at profile creation time or profile deletion time. For Version 6.1, you can also perform customization on the ″cell″ profile set, which includes two profiles: deployment manager and federated application server.
   e. The expert optionally includes additional files to be installed on the system.
5. The expert distributes the CIP to installers who require the pre-configured system for their users.
6. The installers install the CIP.
7. The installers create any of the following profile types: cell, stand-alone application server, deployment manager, managed.

   If you are an installer, you can use one of the following methods to create the profile:
   • After the CIP installation, run the Profile management tool.
   • After the CIP installation, run the **manageprofiles** command once to do a create and augment.
   • After the CIP installation, run the **manageprofiles** command twice sequentially to do a create and then an augment.
     Alternatively, you can run the **manageprofiles** command once to augment an existing profile.
   • In a scratch installation, do the following within the CIP installation wizard:
     a. On the Install Sample Applications panel, select the **Install profile customizations** checkbox.
     b. On the WebSphere Application Server environments panel, select a profile that has profile customization defined.
        If the profile that you select has profile customization defined, then the installation wizard will effectively run the **manageprofiles** command once to do a create and augment. If there is no profile customization defined, you get a regular profile.

   If a the stand-alone profile is chosen and a configuration archive is present, it will be automatically restored.

A configuration archive is available for an application server CIP profile only. A special profile template enables the importation of a configuration archive file into the application server profile.

Use the Profile Management tool to create CIP profiles that accept configuration actions that are included in the CIP. Use the application server CIP profile when you are restoring a configuration archive file or other customizations. The Profile Management tool can also create normal profiles that do not accept customizations.

• When you run the Profile Management tool with CIP customized profiles installed, the Environment Selection panel will show environments with -- *cip_uid* at the end. These are the customized profiles, and each of them will create a regular profile and then apply the customizations through a profile augmentation. If the customized profile that you select contains a configuration archive, then it will be imported.
• The first four environments listed on the Environment Selection panel, which do not have a -- *cip_uid* at the end, are the regular profile types. If you want a regular profile without customizations, select one of these.

Table 65. Allowed customizations

CIP Profile Type	Include and Run Scripts	Include and Deploy an Enterprise Archive (EAR)	Include and Restore a Configuration Archive (CAR)
Cell (deployment manager and a managed node)	Yes	No	No
Deployment manager (dmgr profile)	Yes	No	No
Stand-alone application server (default profile)	Yes	Yes	Yes
Custom (managed profile)	Yes	No	No

- Create and augment an application server profile that includes a CAR file.

  The Profile Management tool automatically augments the profile with any customizations that exist for the default application server profile.
- Create and augment an application server profile that does not include a CAR file.

  Choose the application server profile in the enhanced Profile Management tool. The Profile Management tool uses the appropriate profile to create an application server that does not require the CAR, but that still accepts other customizations.

  The Profile Management tool automatically augments a CIP profile with any customizations that exist for the profile type.
- Create and augment a deployment manager profile.

  Choose the deployment manager CIP profile in the Profile Management tool.

  The Profile Management tool automatically augments the CIP profile with any customizations that exist for the deployment manager.
- Create and augment a custom profile.

  Choose the custom CIP profile in the Profile Management tool.

  The Profile Management tool automatically augments the CIP profile with any customizations that exist for the custom profile.

After creating the profile and restoring the customizations, the installation should have a profile that is configured like the profile in the model product installation that was the pattern for the CIP. Existing customizations are used only when you create a CIP profile with the Profile Management tool.

After installing your customized system, install a Web server and plug-ins, if necessary, and start the deployment manager, the node agent, and the application server to test your applications.

install command

This topic describes the Installation Factory installer program for WebSphere Application Server products. The install command starts the InstallShield for Multiplatforms (ISMP) Installation wizard. The Installation Factory installer program for WebSphere Application Server installs the customized installation package (CIP) that includes the product image and one or more maintenance packages.

The Installation Factory installer for WebSphere Application Server is based on the Version 6.x full installer program. The Installation Factory installer program is sometimes referred to as the CIP Installation wizard or the Installation Factory Installation wizard.

The Installation wizard has the capability to perform a new product installation, an incremental installation by adding features to an existing installation, or an update to an existing installation that updates the installation to a new service level. The term *slip install* is sometimes used to describe an update to an existing installation that updates the installation to a new service level.

Location of the command file

The install command file is located in the *customized_installation_package*/WAS directory.

Logging

The logging system of the Installation Factory installer program includes:

- ISMP logging to the *app_server_root*/logs/install/log.txt file
- Component deployment and configuration logging
- Profile-related logging to a temporary file in the system temp directory
- Profile-related logging to a dedicated log file when creating, deleting, augmenting, or unaugmenting a profile:
  - *app_server_root*/logs/manageprofiles/*profile_name*_create.log
  - *app_server_root*/logs/manageprofiles/*profile_name*_delete.log
  - *app_server_root*/logs/manageprofiles/*profile_name*_augment.log
  - *app_server_root*/logs/manageprofiles/*profile_name*_unaugment.log
- Other profile-related logging:
  - *app_server_root*/logs/manageprofiles/*profile_name*
  - *app_server_root*/profiles/*profile_name*/logs

Linux and UNIX: Syntax for the install command

Installing using the graphical user interface:

```
./install
```

Installing silently using a customized response file:

```
./install -options /tmp/WAS/myoptionsfile.txt -silent
```

Windows: Syntax for the install.exe command

Installing using the graphical user interface:

```
install
```

Installing silently using a customized response file:

```
install -options "C:\temp\WAS\myoptionsfile.txt" -silent
```

Installing a CIP

Install a customized installation package (CIP) for WebSphere Application Server Network Deployment on AIX 5L, HP-UX, Linux, Solaris, or Windows operating systems.

Read through this topic and its related topics to prepare for installation and to make yourself familiar with installation options before you start to use the installation tools. Also read the hardware and software requirements on the Supported hardware and software Web site to get started.

If you encounter a problem such as needing more disk space or temporary space or missing prerequisite packages on your Linux or UNIX system, cancel the installation, make the required changes, and restart the installation.

`Windows` The installation procedure requires the installer ID to have the following advanced user rights, *Act as part of the operating system* and *Log on as a service* to install Windows services.

`Linux` The installer ID can be a non-root user ID. However, some installation procedures might require the installer ID to be the root user. For detailed information on non-root limitations see, "Limitations of non-root installers" on page 175.

This topic provides an overview of installation procedures. Use the information in this topic to learn about the types of installation available. This topic has links to more detailed installation topics.

The Installation wizard performs the following actions:
- Automatically checks prerequisites
- Looks for a previous WebSphere Application Server Version 6.1 installation to determine whether to let you add features to the product binaries or to install a new set of product binaries
- Looks for a previous Version 6.1 installation to determine whether to let you upgrade from a trial installation to the real product
- Installs the necessary product binaries
- Prompts you to create a cell profile, a deployment manager profile, a stand-alone application server profile, or a custom profile; or prompts you to start the Profile Management tool to create a profile

There are several steps to installing WebSphere Application Server that are outlined in this topic. Use this outline when you are ready to begin the planning and installation process.

1. Plan your installation as described in Chapter 5, "Planning the installation," on page 81.
2. Prepare your operating platform for installation as described in Chapter 6, "Preparing the operating system for product installation," on page 107.
3. Review the roadmap for installing the Network Deployment product as described in "Roadmap: Installing the Network Deployment product" on page 138.
4. Install the Network Deployment product.

   If you cannot use a graphical user interface on your operating system for some reason, use the wizard in silent mode.

   Choose an installation scenario to continue the installation:

   - **Graphical user interface:** Perform the installation with the wizard as described in "Installing a CIP for Network Deployment" on page 292.

     The installation lets you select features to install.

   - **Graphical user interface:** Install additional features to an existing installation as described in "Installing CIP features on an existing Network Deployment product" on page 297.

     After installing the product, you can install it again to update the system files by installing previously uninstalled features.

   - **Command-line interface:** Perform a silent installation as described in "Installing a CIP silently" on page 301.

     A silent installation requires you to edit the response file that contains all of your installation choices. After creating a valid response file, issue the install command with the -silent parameter and the -options parameter from a command window.

   The installer program does not support the ISMP-console installation method at this time.

5. **Optional:** Install IBM HTTP Server.

   After installing a WebSphere Application Server product, you can use the application server to serve applications over the Internet. It is not necessary to install the IBM HTTP Server or another Web server.

The installation solution diagrams in Chapter 5, "Planning the installation," on page 81 show the components that are present in different types of environments.

6. **Optional:** Install Web server plug-ins for IBM HTTP Server or another supported Web server.

   If you install the IBM HTTP Server or another Web server, you must then install a binary module for the Web server to enable it to communicate with WebSphere Application Server products.

   After installing a Web server plug-in, the Plug-ins installation wizard configures a new element in the application server configuration called a *Web server definition*. You can then manage applications for the Web server using the administrative console.

7. **Optional:** Install the application clients.

   You do not need to install the Application Client unless an application that you are deploying was designed to run as a client application.

8. **Optional:** Install the Update Installer for WebSphere Software.

   Use the Update Installer to install maintenance packages for any of the installable WebSphere software components in the product package. See "Installing the Update Installer for WebSphere Software" on page 172 for more information.

9. **Optional:** Use the Install and Migration Tools disc to access the Update Installer, migration tools, the IBM Support Assistant, and World Type fonts.

   See "WebSphere Application Server supplements disc" on page 175 for more information.

You can install a CIP for WebSphere Application Server Network Deployment Version 6.x by following this procedure.

You can also install IBM HTTP Server, the Web server plug-ins for WebSphere Application Server, and the application clients for WebSphere Application Server.

Installing a CIP for Network Deployment

Install a IBM WebSphere Application Server Network Deployment customized installation package (CIP) using the Installation wizard on distributed operating system platforms. You install from a CIP image created with the Installation Factory.

You can also install a customized installation package (CIP) that includes IBM WebSphere Application Server Network Deployment and one or more maintenance packages and other customizations. The Installation Factory must create a CIP before you can install the CIP. See Chapter 11, "Developing and installing customized installation packages," on page 247 for more information about creating a customized installation package (CIP).

This topic describes one of the available installation procedures.
- Installing a Network Deployment CIP, which is this topic
- "Installing CIP features on an existing Network Deployment product" on page 297
- "Installing a CIP silently" on page 301

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see "Planning to install Network Deployment" on page 83. The diagrams show typical topologies for the product. The solutions are also in the *Installation solution diagrams* in the launchpad. See "Using the launchpad to start the installation" on page 24.

Select available features and characteristics for WebSphere Application Server Network Deployment and the profile that you can create.

1. Log on to the operating system.

In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

```
umask
```

To set the umask setting to 022, issue the following command:

```
umask 022
```

When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

- Act as part of the operating system
- Log on as a service

For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Insert the the CD or DVD with the CIP into the disc drive, or access the directory where the CIP is located.

   Mount the drive if necessary as described in "Mounting disc drives on Linux and UNIX operating systems" on page 171.

3. Start the installation directly with the **install** command.

   - /WAS/install

   - \WAS\install

   If a problem occurs with the Java Runtime Environment (JRE), force the installation to use the correct JRE with the following command:

   - `./install -is:javahome disc_mount_point/WAS/java/jre`

   - `install -is:javahome disc_drive:\WAS\java\jre`

   After launching the Installation wizard from the command line, the installer wizard initializes and then displays the Welcome panel.

4. Click **Next** to continue.

   The license agreement displays.

5. Click the radio button beside the **I accept the terms in the license agreement** message to agree to the license agreement and click **Next** to continue.

   After you accept the licensing terms, the Installation wizard checks for a supported operating system and prerequisite patches.

   If you encounter a problem such as not having the right prerequisite updates on your system, cancel the installation, make the required changes, and restart the installation.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

6. After confirming that your operating system is supported and that you have installed all necessary patches, click **Next** to continue.

   The Installation wizard checks for a previous installation at the same product level.

   Specifically, the wizard looks for an existing Version 6.1 installation.

   If the wizard detects a previous installation, it displays the Existing installation panel, where you can:
   - Add features to the existing installation
   - Perform a new installation to another directory
   - Add maintenance from a CIP to the existing installation
   - Add files, directories, enterprise application archive (EAR) files, and a configuration archive (CAR) file from a CIP to the existing installation
   - Use scripts in a CIP to configure the existing system

   See "Installing CIP features on an existing Network Deployment product" on page 297 for more information about the scenario that adds features.

   This procedure assumes that you do not have an existing installation that you intend to update.

7. Select features to install and click **Next**.

   In Version 6.1, just one feature is available, which installs the Samples Gallery.

   A CIP might not have the Samples feature. You can install only what was included in the CIP.

   Note: If an existing installation is at a lower level than the CIP or at the same level as the CIP, the core product will be updated to the CIP level automatically. If an existing installation is at a higher level than the CIP, the core product will not be down leveled. The feature panel only shows the features you are missing, if you select to install the new feature from CIP, the installed features will be at the same level of CIP, which is lower than existing installation. Thus incremental install on a higher level of existing installation is not recommended.

Table 66. Features for the WebSphere Application Server Network Deployment product

Feature	Description
Application Server Samples	Installs the Samples Gallery applications.

Performance considerations

For better performance in either a development or production environment, do not install the Samples. By omitting the Samples, you can improve application server startup time by 60 percent and save 15 percent of disk space. You can save up to 30 percent of process footprint (based on a maximum heap size of 256 MB).

The Installation wizard displays a confirmation panel.

8. Specify the destination of the installation root directory and click **Next**.

   Specify the location of the installation root directory for the product binaries, which are also known as the core product files or system files.

   The core product files do not change unless you:
   - Install a CIP
   - Add a feature
   - Install service, such as refresh packs, fix packs, or interim fixes
   - Install another product that extends the Network Deployment product.

   The system-owned default *app_server_root* directories for installing as a root user or an administrator user are different than the user-owned default *app_server_root* directories when installing as a non-root installer.

   Restriction:

- Deleting the default target location and leaving an installation directory field empty prevents you from continuing.

- ▶ `Linux` Do not use symbolic links as the destination directory. Symbolic links are not supported.

- ▶ `Linux` Spaces are not supported in the name of the installation directory on Linux and UNIX systems.

- ▶ `Windows` Do not use a semicolon in the directory name on Windows systems. WebSphere Application Server cannot install properly on a Windows platform if the target directory includes a semicolon. A semicolon is the character used to construct the class path on Windows systems.

The installer program checks for required space before calling the Installation wizard. If you do not have enough space, stop the installation program, free space by deleting unused files and emptying the recycle bin, and restart the installation.

9. Select an initial profile on the WebSphere Application Server environments panel.

Valid values include:

Application Server
Create a stand-alone application server profile.

Deployment Manager
Create a deployment manager profile.

Cell
Create a cell with two profiles: a deployment manager and an application server node that is already federated into the deployment manager cell.

Custom
Create a profile with an empty node.

You must federate this node to use it.

None
Do not create a profile.

10. Enable administrative security.

The default setting is to enable administrative security. Clear the check box to disable security or supply an administrative ID and password.

Tip:
- In environments where you plan to have multiple stand-alone application servers, the security policy of each application server profile is independent of the others. Changes to the security policies in one application server profile are not synchronized with the other profiles.

- Write down the user name and password. You cannot log onto the administrative console without it. You cannot use WebSphere Application Server at all unless you know the ID and password.

11. Review the summary information, then click **Next** to install the product code or **Back** to change your specifications.

The Installation wizard creates the uninstaller program and then displays a progress panel that shows which components are being installed. At the end of the installation, the wizard displays the Installation completion panel.

12. Verify the success of the installer program by examining the completion panel and the log.txt file for installation status.

Examine the *app_server_root*/logs/install/log.txt file to verify that there were no file system or other unusual errors while installing. If there are problems, correct them, and reinstall the product.

The slip install log for the Installation Factory is located in the *app_server_root*/logs/install/log.txt file, which is the same log file as for a normal installation. If the file already exists, a new log message is appended to the file.

If you use the Update Installer to uninstall maintenance packages that the Installation Factory installed in a slip installation, the results are in a log in the *app_server_root*/logs/update/*name_of_CIP* directory.

If problems occur, consult the following applicable logs:

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 67. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root/logs/install/log.txt	Logs all installation events	**Return code** / **Meaning** **0** Success **1** Failure **2** Partial Success
app_server_root/logs/manageprofiles/*profile_name*_create.log	• Traces all events that occur during the creation of the named profile • Created when using the Profile Management tool or the **manageprofiles** command	**INSTCONFFAIL** Total profile creation failure. **INSTCONFSUCCESS** Successful profile creation. **INSTCONFPARTIALSUCCESS** Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.
app_server_root/logs/manageprofiles/*profile_name*_delete.log	• Traces all events that occur during the deletion of the named profile • Created when using the Profile Management tool or the **manageprofiles** command	**INSTCONFFAIL** Total profile deletion failure. **INSTCONFSUCCESS** Successful profile deletion. **INSTCONFPARTIALSUCCESS** Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.
app_server_root/logs/install/installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure • Gzip file	**Configuration action failed:** Unsuccessful ANT script configuration. **Configuration action succeeded:** Successful ANT script configuration.

If the installation of the core product files fails, fix the error and reinstall.

Troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *app_server_root*/logs/manageprofiles/*profile_name*_create.log file does not contain a record of any problems, but problems exist.

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

▶ Windows ◀ Examine the Start menu entry. The menu is an indication of a successful installation:

• **[All] Programs > IBM WebSphere > Application Server Network Deployment v6.1**

If problems exist that cause you to reinstall the product, correct the errors, uninstall the product as described in Chapter 10, "Uninstalling the product," on page 229, reboot a Windows machine or log off and back on as root on a Linux or UNIX machine, and reinstall.

13. Click **Finish** to close the Installation wizard.

    If you did not create a profile during the installation, the option to launch the Profile Management tool is displayed. Use the Profile Management tool to create an operational environment that includes a profile.

    If you did create a profile, select the check box to open the First Steps console.

The Installation wizard installs the product files into the installation root directory.

After installing a CIP, create an application server profile using the special Profile Management tool to restore a configuration archive customization. See "Creating customized CIP profiles from the command line" on page 282.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Installing CIP features on an existing Network Deployment product

This topic describes one of several options for installing a customized installation package (CIP) that includes the IBM WebSphere Application Server Network Deployment, Version 6 product and one or more maintenance packages. This topic describes how to use the CIP Installation wizard to install features that are included in the CIP. The Installation wizard also installs maintenance packages that are included in the CIP.

This topic describes one of the available installation procedures.
- "Installing a CIP for Network Deployment" on page 292
- "Installing a CIP silently" on page 301

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see "Planning to install Network Deployment" on page 83.

Perform the following procedure to add features to an existing WebSphere Application Server Network Deployment installation.

This installation also installs maintenance packages that are included in the CIP.

1. Log on to the operating system.

   > Linux   In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

   > Windows   When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

- Act as part of the operating system
- Log on as a service

For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

▶ Windows If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Insert the CD or DVD with the customized installation package (CIP). Or access the directory where the CIP is located. If necessary, mount the CD drive as described in "Mounting disc drives on Linux and UNIX operating systems" on page 171.

3. Change to the WAS directory. Start the installation with the /WAS/install command on Linux and UNIX systems or the \WAS\install on Windows systems.

   After launching the CIP Installation wizard from the command line, the installer wizard initializes and then displays the Welcome panel.

4. Click **Next** to continue.

   The license agreement displays.

5. Click the radio button beside the **I accept the terms in the license agreement** message to agree to the license agreement and click **Next** to continue.

   After you accept the licensing terms, the Installation wizard checks for a supported operating system and prerequisite patches.

   If you encounter a problem such as not having the right prerequisite updates on your system, cancel the installation, make the required changes, and restart the installation.

   Although the Installation wizard checks for prerequisite operating system patches with the prereqChecker application, review the prerequisites on the Supported hardware and software Web site if you have not already done so.

   The Web site lists all supported operating systems and the operating system fixes and patches that you must install to have a compliant operating system.

   Refer to the documentation for non-IBM prerequisite and corequisite products to learn how to migrate to their supported versions.

6. After confirming that your operating system is supported and that you have installed all necessary patches, click **Next** to continue.

   The Installation wizard checks for a previous installation at the same major product level.

   If the wizard detects a previous installation, it displays the Existing installation panel. This task describes the scenario where a previous installation exists and you are adding features with an incremental installation.

7. Select the check box to apply maintenance and add features, then click **Next**.

   Do not change the installation directory unless another existing installation is in the directory that you specify. An incremental installation adds features to the shared binaries identified in the field.

   You can add available CIP features to the binaries at any time, by running the CIP Installation wizard again. Installing additional features does not affect profiles that you might have already created. (Profiles are run-time environments that are described in a later step.)

   When adding features during an incremental installation, the wizard displays the Features selection panel next.

8. Select features to install and click **Next**.

   In Version 6.1, just one feature is available, which installs the Samples Gallery.

   A CIP might not have the Samples feature. You can install only what was included in the CIP.

Note: If an existing installation is at a lower level than the CIP or at the same level as the CIP, the core product will be updated to the CIP level automatically. If an existing installation is at a higher level than the CIP, the core product will not be down leveled. The feature panel only shows the features you are missing, if you select to install the new feature from CIP, the installed features will be at the same level of CIP, which is lower than existing installation. Thus incremental install on a higher level of existing installation is not recommended.

Table 68. Features for the WebSphere Application Server Network Deployment product

Feature	Description
Application Server Samples	Installs the Samples Gallery applications.

Performance considerations

For better performance in either a development or production environment, do not install the Samples. By omitting the Samples, you can improve application server startup time by 60 percent and save 15 percent of disk space. You can save up to 30 percent of process footprint (based on a maximum heap size of 256 MB).

The Installation wizard displays a confirmation panel.

9. Review the summary information and click **Next** to install the product code or **Back** to change your specifications.

   The disk space shown on the pre-installation summary panel includes space for the Java Virtual Machine (JVM). Subtract the size of the JVM for your operating system to determine the installed size on disk for the features that you selected.

Table 69. JVM sizes

AIX	HP-UX	Linux	Solaris	Windows
59 MB	pa-risc: 109 MB	ia32: 83 MB	81 MB	ia32: 75 MB
	64 bit: 137 MB	64 bit: 133 MB		64 bit: 71 MB

   Verify that you have the total amount of free space shown before installing. Space is required for a working copy of the JVM during the installation.

   The Installation wizard creates the uninstaller program and then displays a progress panel that shows which components are being installed. At the end of the installation, the wizard displays the Installation completion panel.

   At the end of the installation, the wizard displays the Installation completion panel.

10. Verify the success of the installer program by examining the completion panel and the log.txt file for installation status.

    Examine the *app_server_root*/logs/install/log.txt file to verify that there were no file system or other unusual errors while installing. If there are problems, correct them, and reinstall the product.

    The slip install log for the Installation Factory is located in the *app_server_root*/logs/install/log.txt file, which is the same log file as for a normal installation. If the file already exists, a new log message is appended to the file.

    If you use the Update Installer to uninstall maintenance packages that the Installation Factory installed in a slip installation, the results are in a log in the *app_server_root*/logs/update/*name_of_CIP* directory.

    If problems occur, consult the following applicable logs:

    Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 70. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root/logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/ manageprofiles/ *profile_name*_create.log	• Traces all events that occur during the creation of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile creation failure.
		INSTCONFSUCCESS
		    Successful profile creation.
		INSTCONFPARTIALSUCCESS
		    Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

app_server_root/logs/ manageprofiles/ *profile_name*_delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile deletion failure.
		INSTCONFSUCCESS
		    Successful profile deletion.
		INSTCONFPARTIALSUCCESS
		    Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		    Unsuccessful ANT script configuration.
		Configuration action succeeded:
		    Successful ANT script configuration.

If the installation of the core product files fails, fix the error and reinstall.

Troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *app_server_root*/logs/ manageprofiles/*profile_name*_create.log file does not contain a record of any problems, but problems exist.

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

▶ Windows   Examine the Start menu entry. The menu is an indication of a successful installation:

• **[All] Programs > IBM WebSphere > Application Server Network Deployment v6.1**

If problems exist that cause you to reinstall the product, correct the errors, uninstall the product as described in Chapter 10, "Uninstalling the product," on page 229, reboot a Windows machine or log off and back on as root on a Linux or UNIX machine, and reinstall.

11. Click **Finish** to close the Installation wizard.

If you did not create a profile during the installation, the option to launch the Profile Management tool is displayed. Use the Profile Management tool to create an operational environment that includes a profile.

If you did create a profile, select the check box to open the First Steps console.

The Installation wizard installs the new features in the existing installation root directory. The Installation wizard configures the WebSphere Application Server Network Deployment product for the new features.

The Installation wizard updates selected features to the new maintenance level. If any maintenance package includes service for an existing profile, the profile is updated to the new service level.

Create a deployment manager profile and an application server profile.

Use the Profile Management tool to create profiles in the default *profile_root* directory or in a directory that you select.

Deploy an application to get started!

After creating an application server profile, you can deploy an application.

Note: Adding the samples feature does not automatically deploy the samples to existing profiles that did not have samples deployed to them initially. New profiles need to be created to deploy the samples.

Installing a CIP silently

Installing a customized installation package (CIP) for WebSphere Application Server Network Deployment using silent installation refers to using a file to supply installation options without user interaction. To configure the installation, change the options in the response file before you issue the installation command. Silent installation mode does not accept interactive installation options. To specify non-default options during a silent installation, you must use the response file. To install silently, you must accept the license agreement in the agreement option.

You can also install a customized installation package (CIP) that includes IBM WebSphere Application Server Network Deployment and one or more maintenance packages and other customizations. The Installation Factory must create a CIP before you can install the CIP. See Chapter 11, "Developing and installing customized installation packages," on page 247 for more information about creating a customized installation package (CIP).

This topic describes one of the available installation procedures.

If this topic does not describe the procedure that you meant to select, click the link to the description of the appropriate installation procedure before you issue the **install** command.

- "Installing a CIP for Network Deployment" on page 292
- "Installing CIP features on an existing Network Deployment product" on page 297
- Installing a CIP silently on any supported operating system, which is this procedure

Knowing what component to install and in what order to install the component is an important consideration. At some time before starting this installation, see tins_scenario3.dita{ IDEP205A: tins_scenario3.dita not found. }. The diagrams show typical topologies for the product.

Use this procedure to perform a silent installation of WebSphere Application Server Network Deployment.

A silent installation uses the Installation wizard to install the product in silent mode, without the graphical user interface. Instead of displaying a wizard interface, the silent installation causes the installation program to read all of your responses from a file that you provide.

1. Log on to the operating system.

   ▶ Linux In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

```
umask 022
```

Windows When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:

- Act as part of the operating system
- Log on as a service

For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

Windows If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

2. Copy the response file as myoptionsfile to your disk drive and customize it.

   See "Customizing the response file for a Network Deployment CIP" on page 303.

   The name of the original file is "responsefile.nd.txt" on page 305.

   Do not add an options line to any of the profile creation response files that includes the following parameter:

   ```
   -silent
   ```

   The -silent parameter is not required. If it exists in any of the files, the file cannot create a profile during a silent product installation.

3. Issue the proper command to use your custom response file. For example, issue one of the following commands:

   - **Linux** *mnt_cdrom*/WAS/install -options /tmp/WAS/myoptionsfile.txt -silent
   - **Windows** "*disc_drive_D*:\WAS\install" -options "C:\temp\WAS\myoptionsfile.txt" -silent

The Installation wizard and the Profile Management tool record installation events in the following log files:

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 71. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root /logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success
app_server_root/logs/ manageprofiles/ *profile_name*_create.log	• Traces all events that occur during the creation of the named profile • Created when using the Profile Management tool or the **manageprofiles** command	**INSTCONFFAIL** Total profile creation failure. **INSTCONFSUCCESS** Successful profile creation. **INSTCONFPARTIALSUCCESS** Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

Table 71. Installation and profile creation logs for WebSphere Application Server Network Deployment (continued)

Log	Content	Indicators

app_server_root/logs/ manageprofiles/ *profile_name_*delete.log	• Traces all events that occur during the deletion of the named profile
	• Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		    Total profile deletion failure.
		INSTCONFSUCCESS
		    Successful profile deletion.
		INSTCONFPARTIALSUCCESS
		    Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure
	• Gzip file
		Configuration action failed:
		    Unsuccessful ANT script configuration.
		Configuration action succeeded:
		    Successful ANT script configuration.

Log more information when InstallShield for MultiPlatforms (ISMP) cannot start the Installation wizard.

If the *profile_root* directory does not exist, the pctLog.txt file is in the USER_HOME directory and is named .$~pctLog.txt. Issue the env command to display the USER_HOME directory on Linux and UNIX systems. See the environment variable settings on Windows system to display the value of the variable.

Certain events can prevent ISMP from starting the Installation wizard. Such an event is not enough disk space to launch the Installation wizard for example. If your installation fails and there is no information in the installation logs, use the -is:javaconsole parameter to record entries for events that cause the ISMP program to fail to start the Installation wizard. The syntax of the **install** command for observing such events is:

> Windows

```
install.exe -is:javaconsole
```

Please ensure that you have at least 250 MB free in your temporary directory before attempting to install WebSphere Application Server.

Go to "Installing a CIP" on page 290 to continue the installation and configuration of your system.

Customizing the response file for a Network Deployment CIP

In silent mode, the Installation wizard gathers installation options from a response file instead of from the graphical user interface. This topic describes how to customize the response file for installing a customized installation package (CIP) for the WebSphere Application Server Network Deployment product silently. A silent installation does not use the graphical user interface of the Installation wizard.

Customize the response file to add your selections before attempting to install silently.

Use the response file to supply values to the Installation wizard as the wizard runs in silent mode. The wizard does not display interactive panels when it runs in silent mode, but reads values from the response file instead.

Be precise when supplying values in the file: Customize the options response file precisely to let the installation program read the option values that the file contains. Incorrect specifications affect the silent interface of the Installation wizard. For example, always enclose values in double quotation marks.

If you customize the response file incorrectly, the Installation wizard cannot install the product with the -options or -silent parameters. If the error is an invalid option value, the installer displays a warning message that you must confirm and stops the installation.

Compare your options response file to the file that is shipped with the product to make the necessary corrections. After correcting the file, reinstall.

Perform the following procedure to edit the response file.

1. Locate the sample options response file. The file is named responsefile.nd.txt in the WAS directory on the product CD-ROM.
2. Copy the file to preserve it in its original form. For example, copy it as *myoptions* on your disk drive.
3. Edit the copy in your flat file editor of choice, on the target operating system. Read the directions within the response file to choose appropriate values.

   Important: To prepare the file for a silent installation on AIX, use UNIX line-end characters (0x0D0A) to terminate each line of the options response file. The safest method of preparing the file is to edit the file on the target operating system.

4. Include custom option responses that reflect parameters for your system.

   See "responsefile.nd.txt" on page 305 for an example response file and a description of each option.
5. Save the file.
6. Log on to the operating system.

   ▶ Linux ◀ In addition, select a umask that would allow the owner to read/write to the files, and allow others to access them according to the prevailing system policy. For root, a umask of 022 is recommended. For non-root users a umask of 002 or 022 could be used, depending on whether or not the users share the group. To verify the umask setting, issue the following command:

   ```
   umask
   ```

   To set the umask setting to 022, issue the following command:

   ```
   umask 022
   ```

   ▶ Windows ◀ When installing on a Windows system, you can create a Windows service to autostart the application server. To do so, your installer user account must have the following advanced user rights:
   - Act as part of the operating system
   - Log on as a service

   For example, on some Windows systems, click **Administrative Tools > Local Security Policy > User Rights Assignments** to set the advanced options. See your Windows documentation for more information.

   ▶ Windows ◀ If you plan to run the application server as a Windows service, do not install from a user ID that contains spaces. A user ID with spaces cannot be validated. Such a user ID is not allowed to continue the installation. To work around this problem, install with a user ID that does not contain spaces, or do not choose to install Windows services.

7. Issue the proper command to use your custom response file. For example, issue one of the following commands:

   - ▶ Linux ◀ *mnt_cdrom*/WAS/install -options /tmp/WAS/myoptionsfile.txt -silent
   - ▶ Windows ◀ "*disc_drive_D*:\WAS\install" -options "C:\temp\WAS\myoptionsfile.txt" -silent

This procedure results in creating a customized response file and using the file to start a silent installation. The silent installation takes some time to complete.

Edit the version of the file that ships with the WebSphere Application Server Network Deployment product. The example in "responsefile.nd.txt" is not guaranteed to be an accurate representation of what ships with the product.

After installing the product from the installation image, the next step is to check for available updates. See Chapter 9, "Installing maintenance packages," on page 211 for more information.

After updating the product, create a profile if you have not yet done so. Start the Profile Management tool, and create a deployment manager cell. The cell contains a deployment manager profile and a federated application server profile.

Windows On Windows systems, use the Start menu to locate IBM WebSphere and select appropriate menu options to display the **First steps** option for the profile that you intend to verify.

Linux The First steps console, firststeps.sh, is available in the *profile_root*/firststeps directory. A separate First steps console exists for each profile, except custom profiles. Use the First Steps console of each profile to verify the profile.

Use the installver program to compare the checksum of all installed files against the bill of materials that ships with the product, if you want to perform more installation verification. See "Verifying checksums of installed files" on page 189.

After verifying the product installation and starting the deployment manager or a stand-alone application server, use the administrative console to deploy an existing application.

responsefile.nd.txt:

Installing WebSphere Application Server Network Deployment using silent installation refers to using a file to supply installation options without user interaction. To configure the installation, change the options in the response file before you issue the installation command. Silent installation mode does not accept interactive installation options. To specify non-default options during a silent installation, you must use the response file. To install silently, you must accept the license agreement in the agreement option.

Verify that the required disk space is available.

See Chapter 6, "Preparing the operating system for product installation," on page 107 for more information.

Do not use the default response file that is shipped on the product disk to install the product because the value of the silentInstallLicenseAcceptance option is false. Copy the file to change the value to true.

Location of the response file: The sample options response file is named `responsefile.nd.txt`.

Creating an operational environment: Installing a new installation of WebSphere Application Server Network Deployment with the response file creates an operational environment by default. The installer program:
1. Installs the new product code.
2. Creates the default profile.

    You can create additional profiles using any of these available methods:
    - Use the Profile Management tool.
    - Use the **manageprofiles** command.
    - Install with the response file with the createProfile=″true″ option and select a cell profile, a deployment manager profile, a custom profile, or a stand-alone application server profile with the -OPT profileType=″*profile_type*″ option.

Note: The only other way to create a profile is when installing with the Installation wizard GUI. The wizard installs the product files and creates the selected profile.

Installing with a response file:

1. Copy the `responsefile.nd.txt` file from the `WAS` directory on the product disk to a place that you can easily identify on your system.
2. Edit the file to customize the values for your installation.
3. Save the file as `myresponsefile.txt`, for example.
4. Start the installation. For example:

   ▶ Linux

   ```
   install -options /tmp/WAS/myresponsefile.txt -silent
   ```

   ▶ Windows

   ```
   install -options C:\temp\WAS\myresponsefile.txt -silent
   ```

5. After the installation, examine the logs for success.

Logging:

The Installation wizard and the Profile Management tool record installation events in the following log files.

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 72. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators
app_server_root /logs/install/log.txt	Logs all installation events	**Return code** **Meaning** **0** Success **1** Failure **2** Partial Success

app_server_root/logs/ manageprofiles/ *profile_name_*create.log	• Traces all events that occur during the creation of the named profile
	 • Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		     Total profile creation failure.
		
		 INSTCONFSUCCESS
		     Successful profile creation.
		
		 INSTCONFPARTIALSUCCESS
		     Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.

app_server_root/logs/ manageprofiles/ *profile_name_*delete.log	• Traces all events that occur during the deletion of the named profile
	 • Created when using the Profile Management tool or the **manageprofiles** command
		INSTCONFFAIL
		     Total profile deletion failure.
		
		 INSTCONFSUCCESS
		     Successful profile deletion.
		
		 INSTCONFPARTIALSUCCESS
		     Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.

Table 72. Installation and profile creation logs for WebSphere Application Server Network Deployment (continued)

Log	Content	Indicators
app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure • Gzip file	**Configuration action failed:** Unsuccessful ANT script configuration. **Configuration action succeeded:** Successful ANT script configuration.

Information that ISMP can log when it cannot start the Installation wizard

Verify or troubleshoot the installation if the *app_server_root*/logs/install/log.txt file or the *profile_root*/logs/pctLog.txt file does not contain a record of a problem, but problems exist. If the *profile_root* directory exists, the pctLog.txt file is in the logs directory. If the error happens early in the installation, look for the logs in the system temporary area. The installation program copies the logs from the system temporary area to the logs directory at the end of the installation.

If the *profile_root* directory does not exist, the pctLog.txt file is in the USER_HOME directory and is named .$~pctLog.txt. Issue the env command to display the USER_HOME directory on Linux and UNIX systems. See the environment variable settings on Windows system to display the value of the variable.

Certain events can prevent the installer from starting the Installation wizard. Such an event is not enough disk space to launch the Installation wizard, for example. If your installation fails and there is no information in the installation logs, use the -log parameter to record entries for events that cause the installer program to fail to start the installation wizard. The syntax of the install command for logging such events is:

```
install   -options fully_qualified_options_response_file_name
          -silent
          -log # !fully_qualified_log_file_name  @ALL
```

- ▶ AIX

  ```
  install -options "/usr/IBM/WebSphere/silentFiles/myresponsefile.txt"
          -silent -log # !/usr/IBM/WebSphere/myOptionFiles/log.txt  @ALL
  ```

- ▶ Linux ▶ HP-UX ▶ Solaris

  ```
  install -options "/opt/IBM/WebSphere/silentFiles/myresponsefile.txt"
          -silent -log # !/opt/IBM/WebSphere/myOptionFiles/log.txt  @ALL
  ```

- ▶ Windows

  ```
  install.exe -options "C:\IBM\WebSphere\silentFiles\myresponsefile.txt"
              -silent -log # !C:\IBM\WebSphere\silentFiles\log.txt  @ALL
  ```

See Chapter 12, "Troubleshooting installation," on page 321 and "Installation component troubleshooting tips" on page 341 for more information.

Example of the default file: Edit the version of the file that ships with the WebSphere Application Server Network Deployment product. The following example is not guaranteed to be an accurate representation of the file that ships with the product.

```
################################################################################
#
# V6.1 InstallShield Options File
#
# Wizard name: Install
# Wizard source: setup.jar
#
# This file can be used to configure Install with the options specified below
# when the wizard is run with the "-options" command line option. Read each
# setting's documentation for information on how to change its value.
#
# A common use of an options file is to run the wizard in silent mode. This lets
# the options file's author to specify wizard settings without having to run the
# wizard in graphical or console mode. To use this options file for silent mode
```

```
# execution, use the following command line arguments when running the wizard:
#
#     -options "/<responsefile.path>/responsefile.nd"
#
############################################################################

############################################################################
#
# Invoke the install wizard in silent mode for both local and remote install
# whenever the response file is used.
#

-silent

############################################################################
#
# License Acceptance
#
# Valid options:
# true - Accepts the license. Will install the product.
# false - Declines the license. Install will not occur.
#
# If no install occurs, this will be logged to a temporary log file in the
# /tmp/InstallShield/niflogs temporary directory.
#
# By changing the silentInstallLicenseAcceptance property in this response file
# to "true", you agree that you have reviewed and agree to the terms of the
# IBM International Program License Agreement accompanying this program, which is
# located at <CD_ROOT>/WAS/lafiles.  If you do not agree to these terms, do not
# change the value or otherwise download, install, copy, access, or use the
# program and promptly return the program and proof of entitlement to the party
# from whom you acquired it to obtain a refund of the amount you paid.
#

-OPT silentInstallLicenseAcceptance="false"

############################################################################
# Operating System Prerequisite Checking
#
# If you want to disable operating system prerequisite checking, uncomment
# the following line. This will notify the installer to continue with
# the installation and log the warnings even though the prerequisite checking
# has failed.
#
#-OPT disableOSPrereqChecking="true"

############################################################################
#
# Install Type Settings
#
# The installType option designates the type of installation that will be performed.
# The default installType option is to install a new copy of WebSphere Application Server.
#
# Valid values:
# installNew - default value, installs a new copy.
# addFeature - add features to an existing installation.

#

############################################################################
#
# Install a New Copy
#
# To install a new copy, be sure that the installLocation option is set to a
# new install location.
#

-OPT installType="installNew"

############################################################################
#
# Incremental Install
#
# If you are installing additional features on top of an existing installation,
# (e.g. incremental install), uncomment the following line.  This will notify
# the installer that you are doing an incremental install.
#
#-OPT installType="addFeature"
#
# Define the new features you want to install on top of an existing WebSphere
# Application Server.  The only additional feature available in WebSphere
# Application Server is Application Server Samples.
#
# Ensure the feature option below is set to "samplesSelected" (-OPT feature="samplesSelected")
# and the installLocation option is set to an "existing" WebSphere Application
# Server install location.
#

############################################################################
#
```

```
# Create Profile for an Existing V6.1 Installation
#
# Valid values: true or false
#
# To create a profile for an ***existing installation***, UNcomment the following entry (by removing '#')
# and set the value to "true", and then comment out (by adding '#') "installType" option above
#
#-OPT createProfile="false"
#
# Be sure the installLocation option is set to your existing install location.
#


###############################################################################
#
# "Application Server samples" feature
#
# The selection state of the "Application Server samples" feature.
#
# Valid values:
#     samplesSelected  - Indicates that the feature is selected for installation
#     noFeature - Indicates that the feature is not selected for installation
#
# For example, to select "Application Server samples" for installation, use
#
#     -OPT feature="samplesSelected"
#

-OPT feature="samplesSelected"

###############################################################################
#
# Install Location
#
# The desired install location of the product. Specify a valid directory into which
# the product should be installed.  For new installs, this directory must be
# either empty or not exist.  Otherwise, this directory must be the product install
# location for the product to be modified.
#
# Below is the default WebSphere Application Server install location for the i5
# operating system.
#
# i5OS Default Install Location:
#
#   -OPT installLocation="/QIBM/ProdData/WebSphere/AppServer/V61/ND"
#

-OPT installLocation="/QIBM/ProdData/WebSphere/AppServer/V61/ND"

###############################################################################
#
# Profile Location
#
# The desired install location of profiles.  For new installs, Specify a valid
# directory into which the profiles should be installed.  This directory must be
# either empty or not exist.
#
# Below is the default profile install location for the i5 operating system.
#
# i5OS Default Profile Install Location:
#
#   -OPT defaultProfileLocation="/QIBM/UserData/WebSphere/AppServer/V61/ND"
#

-OPT defaultProfileLocation="/QIBM/UserData/WebSphere/AppServer/V61/ND"

###############################################################################
#
# Allow Profile Location Override
#
# This option allows users to overrule the empty default profile location requirement.
#
# Valid values:
# true - Allow profile location override
# false - Do not allow profile location override
#
# If desired, uncomment the following entry
#
# -OPT allowOverrideProfileLocation="true"
#


###############################################################################
#
# Profile Creation Selection
#
# Valid values:
# standAlone - a profile will be created with a stand alone Application server.
# deploymentManager - a profile will be created with a deployment manager.
# cell - two profiles will be created, one with a deployment manager and
#   and another with a managed node that is pre-federated into the cell.
# custom - a profile will be created with an empty node.
```

```
# none - a profile will not be created during installation.
#
# For example, to select "cell" profile creation for installation, use
#

-OPT profileType="cell"

############################################################################
# Administrative security
#
# Choose to enable Administrative Security for the selected profile/s which
# will be created during install.
#
# *** If profileType="custom" or profileType="none", Administrative Security should
# be disabled.  Use -OPT PROF_enableAdminSecurity="false" to disable security.
#
# Valid Values:
# true - Administrative security is enabled, user name and password required
# false - Administrative security is not enabled
#

-OPT PROF_enableAdminSecurity="false"

# The following two options should only be uncommented when PROF_enableAdminSecurity="true"
# *** If PROF_enableAdminSecurity="false", the following entries will be disregarded.
#
# Replace ADMIN_USER_NAME with the user name for administrative security
# Replace ADMIN_PASSWORD with the password for the user specified under PROF_adminUserName for adminstrative security
#
#-OPT PROF_adminUserName="ADMIN_USER_NAME"
#-OPT PROF_adminPassword="ADMIN_PASSWORD"
#


#####################################################################################################
# There following options are related to creating profiles and are dependent on the profileType option
# specified in the previous section.
############################################################################
# if profileType="standAlone", you may use the following profile creation options:
############################################################################
############################################################################
#
# Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_profileName=
############################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

############################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

############################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

############################################################################
#
# Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
############################################################################
#
# Cell name
```

```
#
# Please specify the cell name for the profile to be created
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
###############################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

###############################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

###############################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

###############################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

###############################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

###############################################################################
# WebServer Check
#
# Please specify whether you wish to set the web server definition
# Valid values: true or false
#-OPT PROF_webServerCheck=

###############################################################################
# WebServer Type
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the type of web server you are creating
# Valid values: IHS | IIS | SUNJAVASYSTEM | DOMINO | APACHE | HTTPSERVER_ZOS
#-OPT PROF_webServerType=

###############################################################################
# WebServer OS
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the operating system of the system where the web server is
# Valid values: linux | windows | aix | hp | solaris | os390 | os400
#-OPT PROF_webServerOS=

###############################################################################
# WebServer Name
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the name of the web server
# Valid values: a string with valid characters
#-OPT PROF_webServerName=

###############################################################################
# WebServer Hostname
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the host name of the system with the web server
# Valid values: a valid hostname
#-OPT PROF_webServerHostname=

###############################################################################
# WebServer Port
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the port that the web server can be accessed from
# Valid values: a valid port number
#-OPT PROF_webServerPort=
```

```
##########################################################################
# WebServer Install Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the installation path of the web server (local or remote)
# Valid values: a valid directory path
#-OPT PROF_webServerInstallPath=

##########################################################################
# WebServer Plugin Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the path to the plugins that will be used by this web server
# Valid values: a valid directory path
#-OPT PROF_webServerPluginPath=

##########################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=


##########################################################################
# if profileType="deploymentManager", you may use the following profile creation options:
##########################################################################
##########################################################################
#
# Profile name
#
# Specify the name of the profile for the Deployment Manager. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_profileName=
##########################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

##########################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

##########################################################################
#
# Host name
#
# Specify the host name for the Deployment Manager. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

##########################################################################
#
# Node name
#
# Please specify the node name for the Deployment Manager. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
##########################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created.
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
##########################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Deployment Manager.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
```

312 Installing your application serving environment

```
#-OPT PROF_serverName=

##############################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

##############################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

##############################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

##############################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

##############################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=


##############################################################################
# if profileType="custom", you may use the following profile creation options:
##############################################################################
##############################################################################
#
# Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_profileName=
##############################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=

##############################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

##############################################################################
# Deployment Manager Host
#
# Please specify the hostname or address of the machine where the deployment manager is running.
# Valid values: a valid dmgr hostname
#-OPT PROF_dmgrHost=

##############################################################################
# Deployment Manager Port
#
# Please specify the SOAP port of the deployment manager.
# Valid values: a valid port number
#-OPT PROF_dmgrPort=


##############################################################################
# Deployment Manager Admin User Name
#
# Please specify an administrative user name that can be authenticated, if the administrative security on the
# deployment manager is enabled.
# Valid values: a valid deployment manager admin userName
```

```
#-OPT PROF_dmgrAdminUserName=

############################################################################
# Deployment Manager Admin Password
#
# Please specify an password that can be authenticated, if the administrative security on the
# deployment manager is enabled.
# Valid values: a valid deployment manager password
#-OPT PROF_dmgrAdminPassword=

############################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

############################################################################
#
# Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=
############################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created.
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
############################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

############################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=

############################################################################
# if profileType="cell", you may use the following profile creation options:
############################################################################
############################################################################
#
# Deployment Manager Profile name
#
# Specify the name of the profile for the deployment manager. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_dmgrProfileName=
############################################################################
#
# Application Server Profile name
#
# Specify the name of the profile for the application server. The profile
# name must be unique for this WebSphere Application Server installation.
# Valid Values: a string with valid characters
#
#-OPT PROF_appServerProfileName=

############################################################################
#
# Profile path
#
# Specify a valid directory to contain the files that define the run-time environment,
# such as commands,configuration files, and log files. If the directory contains
# spaces, enclose it in double-quotes as shown in the Windows example below.
#
# Valid Values: a valid path
# Note that spaces in the install location is only supported on Windows
# operating systems.
#
#-OPT PROF_profilePath=
```

```
################################################################################
# Uncomment the following to make the profile a default profile.
# Valid Values: No value is required for this option.
# -OPT PROF_isDefault=

################################################################################
#
# Host name
#
# Specify the host name for the Application Server. The host name is the domain
# name system (DNS) name (short or long) or the IP address of this computer.
# Valid Values: a valid hostname
#
#-OPT PROF_hostName=

################################################################################
#
# Node name
#
# Please specify the node name for the deployment manager. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_nodeName=

################################################################################
#
# Application Server Node name
#
# Please specify the node name for the Application Server. Node name under one cell
# has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_appServerNodeName=
################################################################################
#
# Cell name
#
# Please specify the cell name for the profile to be created
# Valid Values: a string with valid characters
#
# -OPT PROF_cellName=
################################################################################
#
# Server name
#
# Please UNcomment the following and specify the server name for the Application Server.
# Server name under one node has to be unique.
# Valid Values: a string with valid characters
#
#-OPT PROF_serverName=

################################################################################
# Starting Port
#
# Please specify the number to start with when assigning port values
# Valid values: integer port value
#-OPT PROF_startingPort=

################################################################################
# Port File
#
# Please specify the path to a property file containing the desired port values
# Valid values: valid file path
#-OPT PROF_portsFile=

################################################################################
# Default ports
#
# Uncomment the following to use the WAS base ports
# Valid values: No value is required for this option
#-OPT PROF_defaultPorts=

################################################################################
# Validate Ports
#
# Uncomment the following to validates selected ports are not in use
# Valid values: No value is required for this option
#-OPT PROF_validatePorts=

################################################################################
# WebServer Check
#
# Please specify whether you wish to set the web server definition
# Valid values: true or false
#-OPT PROF_webServerCheck=

################################################################################
# WebServer Type
#
```

```
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the type of web server you are creating
# Valid values: IHS | IIS | SUNJAVASYSTEM | DOMINO | APACHE | HTTPSERVER_ZOS
#-OPT PROF_webServerType=

##############################################################################
# WebServer OS
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the operating system of the system where the web server is
# Valid values: linux | windows | aix | hp | solaris | os390 | os400
#-OPT PROF_webServerOS=

##############################################################################
# WebServer Name
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the name of the web server
# Valid values: a string with valid characters
#-OPT PROF_webServerName=

##############################################################################
# WebServer Hostname
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the host name of the system with the web server
# Valid values: a valid hostname
#-OPT PROF_webServerHostname=

##############################################################################
# WebServer Port
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the port that the web server can be accessed from
# Valid values: a valid port number
#-OPT PROF_webServerPort=

##############################################################################
# WebServer Install Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the installation path of the web server (local or remote)
# Valid values: a valid directory path
#-OPT PROF_webServerInstallPath=

##############################################################################
# WebServer Plugin Path
#
# *Uncomment the following ONLY if PROF_webServerCheck="true"
# Please specify the path to the plugins that will be used by this web server
# Valid values: a valid directory path
#-OPT PROF_webServerPluginPath=

##############################################################################
# Omit Action
#
# Use this option to omit the config action specified
# Valid values: name of a config action
#-OPT PROF_omitAction=

##############################################################################
# Node Omit Action
#
# Use this option to omit the config action for the cell node
# Valid values: name of a config action
#-OPT PROF_nodeOmitAction=


##############################################################################
# Tracing Control
#
# The trace output format can be controlled via the option
# -OPT traceFormat=ALL
#
# The choices for the format are 'text' and 'XML'. By default, both formats will be produced, in two different trace files.
#
# If only one format is required, use the traceFormat option to specify which one, as follows:
#
# Valid Options:
#       text - Lines in the trace file will be in a plain text format for easy readability.
#       XML  - Lines in the trace file will be in the standard Java logging XML format which can be viewed using
#       any text or XML editor or using the Chainsaw tool from Apache (http://logging.apache.org/log4j/docs/chainsaw.html).
#
#
#
# The amount of trace info captured can be controlled using the option:
# -OPT traceLevel=INFO
#
# Valid Options:
#
```

```
#      Level          Numerical Level      Description
#      OFF               0                 No trace file is produced
#      SEVERE            1                 Only severe errors are output to trace file
#      WARNING           2                 Messages regarding non-fatal exceptions and warnings are added to trace file
#      INFO              3                 Informational messages are added to the trace file (this is the default trace level)
#      CONFIG            4                 Configuration related messages are added to the trace file
#      FINE              5                 Tracing method calls for public methods
#      FINER             6                 Tracing method calls for non public methods except getters and setters
#      FINEST            7                 Trace all method calls, trace entry/exit will include parameters and return value

##########################################################################
# Custom Install Package (CIP) Special Paramaters
#
# By using the following option, you can choose whether to install profile customization at CIP install time.
#
# Valid Options:
#       maintenanceOnly              - Only installs product binary files.  If the CIP contains profile customizations, they will NOT be installed.
#       customizationAndMaintenance  - Installs both product binary files and profile customizations (if any).
#
#
-OPT if_cip_modifyexistinginstall=customizationAndMaintenance
```

Installation type options and options for profiles: Options that you can use to install silently vary according to the installation task that you are performing:

- installNew
- addFeature

Options for creating profiles vary according to the profile that you are creating:

- Cell
- Deployment manager
- Stand-alone application server
- Custom
- None

Options for a new installation:
```
-OPT silentInstallLicenseAcceptance=
-OPT allowNonRootSilentInstall=
-OPT installType="installNew"
-OPT feature=
-OPT installLocation=
```

Options for creating a cell:
```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="cell"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_appServerNodeName=
-OPT PROF_appServerProfileName=
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_dmgrProfileName=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_nodeOmitAction=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
-OPT PROF_validatePorts=
-OPT PROF_webServerCheck=
```

```
-OPT PROF_webServerHostname=
-OPT PROF_webServerInstallPath=
-OPT PROF_webServerName=
-OPT PROF_webServerOS=
-OPT PROF_webServerPluginPath=
-OPT PROF_webServerPort=
-OPT PROF_webServerType=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a deployment manager:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="deploymentManager"
-OPT silentInstallLicenseAcceptance="false"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
-OPT PROF_validatePorts=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a stand-alone application server cell:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="standAlone"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_defaultPorts=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_portsFile=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
-OPT PROF_startingPort=
-OPT PROF_validatePorts=
-OPT PROF_webServerCheck=
-OPT PROF_webServerHostname=
-OPT PROF_webServerInstallPath=
```

```
-OPT PROF_webServerName=
-OPT PROF_webServerOS=
-OPT PROF_webServerPluginPath=
-OPT PROF_webServerPort=
-OPT PROF_webServerType=
-OPT PROF_winserviceAccountType=
-OPT PROF_winserviceCheck=
-OPT PROF_winservicePassword=
-OPT PROF_winserviceStartupType=
-OPT PROF_winserviceUserName=
```

Options for creating a custom profile:

```
-OPT allowNonRootSilentInstall="false"
-OPT feature="samplesSelected"
-OPT installLocation="/opt/IBM/WebSphere/AppServer"
-OPT createProfile="true"
-OPT profileType="custom"
-OPT silentInstallLicenseAcceptance="true"
-OPT traceFormat=ALL
-OPT traceLevel=INFO
-OPT PROF_cellName=
-OPT PROF_dmgrAdminPassword=
-OPT PROF_dmgrAdminUserName=
-OPT PROF_dmgrHost=
-OPT PROF_dmgrPort=
-OPT PROF_enableAdminSecurity="false"
-OPT PROF_hostName=
-OPT PROF_isDefault=
-OPT PROF_nodeName=
-OPT PROF_omitAction=
-OPT PROF_profileName=
-OPT PROF_profilePath=
-OPT PROF_serverName=
```

Option descriptions:
- The response file is in English and is intended to be copied and edited.
- Edit this file directly with your flat file editor of choice.
- All lines preceded by a hash mark (#) are comments.
- The file must exist to perform a silent installation. The installation program reads this file to determine installation option values when you install silently.
- Save the file in a location that you can identify when you specify the fully qualified path as part of the installation command.
- If you do not specify a value for a property, the default value is used. Note that for the silentInstallLicenseAcceptance option, the default value of false prevents the installation from running.
- ▶ Windows ◀ If you are installing on a Windows platform, your user ID must belong to the administrator group and must have the advanced rights *Act as part of the operating system* and *Log on as a service*. If you select the following option when your user ID does not comply, the installation fails:

  ```
  -OPT PROF_winserviceCheck="true"
  ```
- Avoid using the following reserved folder names as values:

  Reserved names: Avoid using reserved folder names as field values. The use of reserved folder names can cause unpredictable results. The following words are reserved:
  - cells
  - nodes
  - servers
  - clusters
  - applications
  - deployments

See the "install command" on page 55 for more information about installation types and profile types.

Chapter 12. Troubleshooting installation

This topic describes troubleshooting the installation of the WebSphere Application Server Network Deployment product.

If you are looking for troubleshooting information for the Web server plug-ins for WebSphere Application Server, see "Troubleshooting Web server plug-ins installation and removal" on page 331. This topic does not describe the plug-ins.

Use this topic after installing your WebSphere Application Server product.

The successful installation of the Network Deployment product is a two-part process:
- The first step is using the installation wizard to install a shared set of core product files.
- The second step is using the Profile Management tool to create a *deployment manager profile*, an *Application Server profile*, or a *custom profile*.

If an installation is not successful, use this troubleshooting information to correct the problems.

Use this topic to help interpret the log files and diagnose possible problems when the installation is unsuccessful.

The installer program records the following indicators of success in the logs:
- INSTCONFSUCCESS
- INSTCONFPARTIALSUCCESS
- INSTCONFFAILED

1. Run the installver command to calculate and compare checksums for all installed components to the bill of materials list for the product.

   See "Verifying checksums of installed files" on page 189 for more information.

   Compare the output from the installver command to the installation log files that are described in the next step.

2. Check the installation log files for errors after installing:

   The *app_server_root*/logs/install/log.txt file, the *app_server_root*/logs/manageprofiles/ *profile_name*_create.log file, and the *profile_root*/logs/pctLog.txt file record installation and profile creation status.

   If the error happens early in the installation, look for the log.txt file in the system temporary area. The installation program copies the log from the temporary area to the logs directory at the end of the installation.

   During installation, a single entry in the *app_server_root*/logs/install/log.txt file points to the temporary log file, either %TEMP%\log.txt on Windows platforms, or /tmp/log.txt on Linux and UNIX platforms. The installation program copies the file from the temporary directory to the *app_server_root*/logs/ install/log.txt location at the end of the installation.

   If the installation fails and the log.txt file has only this one pointer to the temporary directory, open the log.txt file in the temporary directory. The log might have clues to the installation failure.

   Uninstalling creates the *app_server_root*/logs/uninstall/log.txt file.

   Log more information when InstallShield for MultiPlatforms (ISMP) cannot start the Installation wizard.

   If the *profile_root* directory does not exist, the pctLog.txt file is in the USER_HOME directory and is named .$~pctLog.txt. Issue the env command to display the USER_HOME directory on Linux and UNIX systems. See the environment variable settings on Windows system to display the value of the variable.

Certain events can prevent the installer from starting the Installation wizard. Such an event is not enough disk space to launch the Installation wizard, for example. If your installation fails and there is no information in the installation logs, use the -log parameter to record entries for events that cause the installer program to fail to start the installation wizard. The syntax of the install command for logging such events is:

```
install  -options fully_qualified_options_response_file_name
         -silent
         -log # !fully_qualified_log_file_name  @ALL
```

- ▶ AIX

  ```
  install -options "/usr/IBM/WebSphere/silentFiles/myresponsefile.txt"
          -silent -log # !/usr/IBM/WebSphere/myOptionFiles/log.txt  @ALL
  ```

- ▶ Linux   ▶ HP-UX   ▶ Solaris

  ```
  install -options "/opt/IBM/WebSphere/silentFiles/myresponsefile.txt"
          -silent -log # !/opt/IBM/WebSphere/myOptionFiles/log.txt  @ALL
  ```

- ▶ Windows

  ```
  install.exe -options "C:\IBM\WebSphere\silentFiles\myresponsefile.txt"
              -silent -log # !C:\IBM\WebSphere\silentFiles\log.txt  @ALL
  ```

Attention:

The following examples show how to use the -log parameter when creating a deployment manager profile.

The command is in the *app_server_root*/bin/ProfileCreator directory. The name of the command varies per platform according to this pattern, pct*platform*:

- ▶ AIX   pctAIX.bin
- ▶ HP-UX   64-bit kernels: pctAIXPPC64.bin
- ▶ HP-UX   pctHPUX.bin
- ▶ HP-UX   64-bit Intel architecture (IA64) kernels: pctHPUXIA64.bin
- ▶ Linux   pctLinux.bin
- ▶ Linux   31-bit compatibility mode on 64-bit zSeries kernels: pctLinux390.bin
- ▶ Linux   64-bit exploitation mode on 64-bit zSeries kernels: pctLinux390z.bin
- ▶ Linux   Power platforms: pctLinuxPPC.bin
- ▶ Solaris   pctSolaris.bin
- ▶ Windows   pctWindows.exe

▶ AIX   The first example shows the command for AIX systems:

```
./pctAIX.bin
-options
  /usr/IBM/WebSphere/silentFiles/responsefile.pct.NDstandAloneProfile.txt
-silent
-log !/usr/IBM/WebSphere/silentFiles/pctlog.txt @ALL
```

▶ Linux   ▶ HP-UX   ▶ Solaris   This example shows the command for Linux on 32-bit platforms. Use the appropriate command for your Linux or UNIX operating system. The options and attributes are the same with only file path differences.

```
./pctLinux.bin
-options
    /opt/IBM/WebSphere/silentFiles/responsefile.pct.NDstandAloneProfile.txt
-silent
-log # !/opt/IBM/WebSphere/silentFiles/log.txt @ALL
```

Windows The following command is for Windows platforms:

```
pctWindows.exe
-options
   "C:\IBM\WebSphere\silentFiles\responsefile.pct.NDstandAloneProfile.txt"
-silent
-log # !C:\IBM\WebSphere\silentFiles\log.txt @ALL
```

Log file names and locations

The following information shows the log files for all of the installable components on the product disc.

Log files for IBM HTTP Server

The following table shows the installation log locations when installing IBM HTTP Server.

Table 73. Installation log locations when installing IBM HTTP Server

Windows system log path name	Linux and UNIX operating system log path name
	AIX /usr/IBMHttpServer/ log.txt
Windows C:\Program Files\IBM HTTP Server\log.txt	**AIX** /usr/IBMHttpServer/ ihsv61_install.log
Windows C:\Program Files\IBM HTTP Server\ihsv61_install.log	**Linux** **HP-UX** **Solaris** /opt/IBMHttpServer/ log.txt
	Linux **HP-UX** **Solaris** /opt/IBMHttpServer/ ihsv61_install.log

Log files for Application Client for WebSphere Application Server

The following table shows the installation log locations when installing the Application Client.

Table 74. Installation log locations when installing the Application Client for WebSphere Application Server

Windows system log path name	Linux and UNIX operating system log path name
	AIX /usr/IBM/WebSphere/AppClient/logs/log.txt
Windows C:\Program Files\IBM\WebSphere\ AppClient\logs\log.txt	**Linux** **HP-UX** **Solaris** /opt/IBM/WebSphere/ AppClient/logs/log.txt

Log files for WebSphere Application Server Network Deployment: The following table shows the installation logs, content, and indicators of success and failure for WebSphere Application Server Network Deployment for Version 6.1:

Table 75. Installation and profile creation logs for WebSphere Application Server Network Deployment

Log	Content	Indicators	
app_server_root /logs/install/log.txt	Logs all installation events	**Return code**	**Meaning**
		0	Success
		1	Failure
		2	Partial Success

Table 75. Installation and profile creation logs for WebSphere Application Server Network Deployment (continued)

Log	Content	Indicators
app_server_root/logs/ manageprofiles/ *profile_name*_create.log	• Traces all events that occur during the creation of the named profile • Created when using the Profile Management tool or the **manageprofiles** command	**INSTCONFFAIL** 　Total profile creation failure. **INSTCONFSUCCESS** 　Successful profile creation. **INSTCONFPARTIALSUCCESS** 　Profile creation errors occurred but the profile is still functional. Additional information identifies the errors.
app_server_root/logs/ manageprofiles/ *profile_name*_delete.log	• Traces all events that occur during the deletion of the named profile • Created when using the Profile Management tool or the **manageprofiles** command	**INSTCONFFAIL** 　Total profile deletion failure. **INSTCONFSUCCESS** 　Successful profile deletion. **INSTCONFPARTIALSUCCESS** 　Profile deletion errors occurred but the profile is still deleted. Additional information identifies the errors.
app_server_root/logs/install/ installconfig.log.gz	• Logs the activities of ANT configuration scripts that run at the end of the installation procedure • Gzip file	**Configuration action failed:** 　Unsuccessful ANT script configuration. **Configuration action succeeded:** 　Successful ANT script configuration.

Description of the *profile_name*_create.log file

The *profile_name*_create.log file is an XML file that contains a record of the events that occur during the creation of the last profile.

In addition to the date tag at the beginning of the file, other tags of interest in the log files include the sequence tag, the level tag, the method tag, and the message tag:

- The sequence tag records the sequence of events that occur during the creation of the profile.
- The level tag is an early indicator of event status:

  INFO　Indicates a normal event.

  WARNING
  　　Indicates an event that occurred with errors that do not prevent the creation of the profile.

  ERROR
  　　Indicates an event that prevents the creation of the profile.

- The method tag indicates the name of the routine that recorded the event.
- The message tag describes the event and contains any data returned by the method.

The following stanza is an example of how an event is documented in each log file:

```
<record>
  <date>2004-09-08T11:51:39</date>
  <millis>1094658699225</millis>
  <sequence>0</sequence>
  <logger>com.ibm.ws.profile.WSProfile</logger>
  <level>INFO</level>
  <class>com.ibm.ws.profile.WSProfile</class>
  <method>getRegistryFile</method>
  <thread>10</thread>
```

```
    <message>Returning registry file at:
        C:\IBM\WebSphere\AppServer\properties\profileRegistry.xml
    </message>
</record>
```

Log files created during the creation of the Application Server profile

In addition to the logs created within the core product files, the following logs are created in the *profile_root*/logs directory.

Both the Profile Management tool and the **manageprofiles** command create the log when creating an application server profile:

activity.log
Compiled activity log from various installation activities

amjrte_config.log
Tivoli Access Manager configuration log for its Java Runtime Environment

collect_metadata.log
Collects metadata information about managed objects in the system to evaluate and prevent potential installation conflicts

createDefaultServer.log
A log from wsadmin recording the creation of the server1 process in the default profile

createshortcutforprofile.log
Windows tool log for creating menu entries and shortcuts

defaultapp_config.log
JACL script log from configuring default application resources

defaultapp_deploy.log
Application DefaultApplication installation log

node_name **Service.log**
Start and stop events for server1

filetransfer_config.log
Application filetransfer installation log

hamanager_config.log
Configuration log for the high availability application

ivt_config.log
Application ivtApp installation log

mejb_config.log
Application ManagementEJB installation log

pctLog.txt
Log created when using the Profile Management tool to create a profile.

This log is not created when using the **manageprofiles** command directly.

This log is not created during product installation.

query_config.log
Application Query installation log

samples_config.log
Configuration log for the PlantsByWebSphere Samples application

samples_install.log
Installation log for the SamplesGallery and PlantsByWebSphere Samples applications

scheduler.cal_config.log
Application SchedulerCalendars installation log

SIBDefineChains.log
> Creation log for service integration bus endpoints, inbound channels and channel chains, outbound thread pool, and outbound channel and channel chains

SIBDeployRA.log
> Deployment log for the service integration bus function

webui_config.log
> Application administrative console installation log

▶ Windows winservice_config.log
> Service log for the Windows service created for server1

The following logs are created in the *profile_root*/logs/server1 directory:

startServer.log
> Log of start server events

stopServer.log
> Log of stop server events

SystemErr.log
> Record system errors

SystemOut.log
> Log of all activity within the system

trace.log
> Log of all traced events within the system

The following logs are created in the *profile_root*/logs/ffdc directory:

server1_exception.log
> First failure data capture log for server1 errors

server1_*numeric_identifier*.txt
> Any first failure data capture logs

Log files for Web server plug-ins for WebSphere Application Server

See "Troubleshooting Web server plug-ins installation and removal" on page 331 for a description of log files and other troubleshooting information.

3. Determine whether the installation problem is caused by a failing ANT script.

   The *app_server_root*/logs/instconfig.log file indicates ANT configuration problems that could prevent the product from working correctly. The log file is not present on Linux systems and UNIX systems.

   See "Diagnosing a failing ANT configuration script" on page 342 for a description of how to manually diagnose and fix an ANT script problem.

4. Verify that no files exist in the *app_server_root*/classes directory.

   IBM Support sometimes queues work for customers and provides test or debugging fixes. A common location for the fixes is in the *app_server_root*/classes directory.

   By default, the *app_server_root*/classes directory is picked up first in the WebSphere Application Server class path to let it override other classes.

   Putting a fix in the directory lets you verify that the fix does indeed solve your problem. After verifying that the fix solves the problem, you are supposed to delete the fix from the *app_server_root*/classes directory to return the system to a working state.

   If you do not remove such fixes from the *app_server_root*/classes directory, you can experience errors.

5. Uninstall the product, if possible, and reinstall after turning on tracing if the error logs do not contain enough information to determine the cause of the problem.
   - Report the stdout and stderr logs to the console window, by adding the -is:javaconsole parameter to the install command:

–

```
install -is:javaconsole
```

Capture the stream to a file with the following commands:

```
install -is:javaconsole > captureFileName.txt 2>&1
```

–

```
install.exe -is:javaconsole
```

Capture the stream to a file with the following commands:

```
install -is:javaconsole > drive:\captureFileName.txt
```

- Capture additional information to a log of your choice with the -is:log *file_name* option.
- Turn on additional installation logging by passing the -W Setup.product.install.logAllEvents=*"true"* parameter to the install command:

–

```
install -W Setup.product.install.logAllEvents="true"
```

–

```
install -W Setup.product.install.logAllEvents="true"
```

6. If you have successfully created an application server profile, use the First steps console or the command line method to start the Application Server.

7. Verify whether the server starts and loads properly by looking for a running Java process and the *Open for e-business* message in the SystemOut.log and SystemErr.log files.

   If no Java process exists or if the message does not appear, examine the same logs for any miscellaneous errors. Correct any errors and retry.

   You can find the SystemOut.log and SystemErr.log files in the following platform-specific directory:

   -    *profile_root*/logs/*server_name*

   -    *profile_root*\logs*server_name*

8. Use the First steps console or the command line method to stop the Application Server, if it is running, and to start the deployment manager if one exists.

   To stop server1 from the command line:

   -    *profile_root*/bin/stopServer.sh server1

   -    *profile_root*\bin\stopServer server1

   If you enable security, specify the -user and the -password parameters of the command.

   To start the deployment manager from the command line:

   -    *profile_root*/bin/startManager.sh

   -    *profile_root*\bin\startManager

9. Verify that the server starts and loads properly by looking for a running Java process and the *Server dmgr open for e-business* message in the *profile_root*/logs/*server_name*/SystemOut.log file.

    Press **Ctrl+Alt+Delete** and type **T** to open the Task Manager. Click the **Processes** tab and the **Image Name** column header to sort by image name. Look for processes named java.exe.

      Open a command window and issue the top command to see a display of running processes. If the top command is not available on your UNIX system, use the ps command:

   ```
   ps -ef | grep java
   ```

   If no Java process exists or if the message does not appear, examine the same logs for any miscellaneous errors. Correct any errors and try again to start the deployment manager.

10. Start the Snoop servlet to verify the ability of the Web server to retrieve an application from the Application Server.

    Test your environment by starting your Application Server, your Web server, and using the snoop servlet with an IP address.

a. Start the Application Server. In a Network Deployment environment, the Snoop servlet is available in the cell only if you included the DefaultApplication when adding the Application Server to the cell. The -includeapps option for the addNode command migrates the DefaultApplication to the cell. If the application is not present, skip this step.

Change directories to the *profile_root*/bin directory and run the startServer command:

- ▶ **Linux** ./startServer.sh server1
- ▶ **Windows** startServer server1

b. Start the IBM HTTP Server or the Web server that you are using.

Use a command window to change the directory to the IBM HTTP Server installed image, or to the installed image of your Web server. Issue the appropriate command to start the Web server, such as these commands for IBM HTTP Server:

To start the IBM HTTP Server from the command line:

Access the apache and apachectl commands in the IBMHttpServer/bin directory.

- ▶ **Linux** ./apachectl start
- ▶ **Windows** apache

c. Point your browser to http://localhost:9080/snoop to test the internal HTTP transport provided by the Application Server. Point your browser to http://*Host_name_of_Web_server_machine*/snoop to test the Web server plug-in.

The HTTP Transport port is 9080 by default and must be unique for every profile. The port is associated with a virtual host named default_host, which is configured to host the installed DefaultApplication and any installed Samples. The snoop servlet is part of the DefaultApplication. Change the port to match your actual HTTP Transport port.

d. Verify that snoop is running.

Either Web address should display the Snoop Servlet - Request/Client Information page.

e. **Remote IBM HTTP Server only:**

Verify that the automatic propagation function can work on a remote IBM HTTP Server by using the following steps. This procedure is not necessary for local Web servers.

1) Create a user=adminUser, password=adminPassword in the *IHS_root* /conf/admin.passwd file. For example: c:\ws\ihs60\bin\htpasswd -cb c:\ws\ihs60\conf\admin.passwd adminUser adminPassword

2) Use the administrative console of the deployment manager or the Application Server to enter the User ID and password information that you created for the administrative user of IBM HTTP Server. Go to **Servers > Web server > *Web_server_definition* > Remote Web server administration**. Set the following values: admin Port=8008, User Id=adminUser, Password=adminPassword.

3) Set the correct read/write permissions for the httpd.conf file and the plugin-cfg.xml file. See the *IHS_root* /logs/admin_error.log file for more information.

Automatic propagation of the plug-in configuration file requires the IBM HTTP administrative server to be up and running. If you are managing an IBM HTTP Server using the WebSphere Application Server administrative console, the following error might display:

```
"Could not connect to IHS Administration server error"
```

Perform the following procedure to correct the error:

1) Verify that the IBM HTTP Server administration server is running.

2) Verify that the Web server host name and the port that is defined in the WebSphere Application Server administrative console matches the IBM HTTP Server administration host name and port.

3) Verify that the fire wall is not preventing you from accessing the IBM HTTP Server administration server from the WebSphere Application Server administrative console.

4) Verify that the user ID and password that is specified in the WebSphere Application Server administrative console under remote managed, is created in the admin.passwd file, using the htpasswd command.

5) If you are trying to connect securely, verify that you export the IBM HTTP Server administration server keydb personal certificate into the WebSphere Application Server key database as a signer certificate. This key database is specified by the com.ibm.ssl.trustStore directive in the sas.client.props file in the profile where your administrative console is running. This consideration is primarily for self-signed certificates.

6) If you still have problems, check the IBM HTTP Server admin_error.log file and the WebSphere Application Server logs (trace.log file) to determine the cause of the problem.

11. Start the WebSphere Application Server administrative console.

   a. Start the Application Server.

   b. Point your browser to http://localhost:9060/ibm/console.

   The HTTP Admin port is 9060 by default and must be unique for the administrative console of each stand-alone Application Server. The port is associated with a virtual host named admin_host, which is configured to host the administrative console, which is installed by default as a system application. Change the port to match your actual HTTP Admin port.

   If you have problems accessing the administrative console after installation, check the installAdminConsole.log file for a failure indication. Clean up the system temporary directory and reinstall the administrative console using the wsadmin scripting facility.

   c. Type any ID and click **OK** at the administrative console window.

   The server starts. The administrative console starts. You can access the administrative console through the browser. The administrative console accepts your login.

12. Federate the base Application Server into the cell. **To add the base Application Server into the cell:**

   - **Deployment manager administrative console method:**

   Click **System administration > Nodes > Add Node** and follow the wizard. The default SOAP port for the Application Server is 8880. You can use localhost as the value of the Host name field, if the Application Server is on the same machine.

   - **Command-line method assuming the SOAP port of the dmgr is 8879:**

     – ▶ Linux   *profile_root*/bin/addNode.sh localhost 8879 -includeapps

     – ▶ Windows   *profile_root*\bin\addNode.bat localhost 8879 -includeapps

   If you enable security, specify the -user and the -password parameters of the command.

13. Verify that the Application Server was incorporated into the cell. The command window displays a sequence of messages when you issue the addNode command:

```
Tool information is being logged in file
          profile_root\logs\addNode.log
Begin federation of node AppServer01 with Deployment Manager at
          localhost:8879.
Successfully connected to Deployment Manager Server: localhost:8879
Servers found in configuration:
Server name: server1
Stopping all server processes for node AppServer01
Creating node agent configuration for node: AppServer01
Reading configuration for node agent process: nodeagent
Adding node AppServer01 configuration to cell: AdvancedDeploymentCell
Performing configuration synchronization between node and cell.
Launching node agent process for node: AppServer01
Node agent launched. Waiting for initialization status.
Node agent initialization completed successfully. Process ID is: 3012
Node AppServer01 has been successfully federated.
```

The last message is an indicator of success. A second Java process is running, which is the nodeagent process. The stdout.log file and stderr.log file in the *node_name* directory each contain relevant messages.

14. Resolve any IP address caching problems.

By default, the Java 2 SDK caches the IP address for the domain name service (DNS) naming lookup. After resolving the host name successfully, the IP address stays in the cache. By default, the cache entry remains forever.

This default IP caching mechanism can cause problems, as described in the following problem scenarios.

Problem scenario 1

Suppose the Application Server at host1.ibm.com has an initial IP address of 1.2.3.4. When a client at host2.ibm.com conducts a DNS lookup of host1.ibm.com, the client stores the 1.2.3.4 address in the cache. Subsequent DNS name lookups return the cached value, 1.2.3.4.

The cached value is not a problem until the host1.ibm.com IP address changes, to 5.6.7.8, for example. The client at host2.ibm.com does not retrieve the current IP address, but always retrieves the previous address from the cache.

If this scenario occurs, the client cannot reach host1.ibm.com unless you stop and restart the client process.

Problem scenario 2

Suppose the Application Server at host1.ibm.com has an initial IP address of 1.2.4.5. Although the IP address of the application server does not change, a network outage can record an exception code as the IP address in the cache, where it remains until the client is restarted on a working network.

For example, if the client at host2.ibm.com disconnects from the network because of an unplugged cable, the disconnected lookup of the Application Server at host1.ibm.com fails. The failure causes the IBM Developer Kit to put the special exception code entry into the IP address cache.

Subsequent DNS name lookups return the exception code, which is java.net.UnknownHostException.

IP address caching and WebSphere Application Server process discovery

If you change the IP address of a federated WebSphere Application Server node, processes running in other nodes cannot contact the changed node until you stop and restart them.

If a deployment manager process starts on a disconnected node, it cannot communicate with cell member processes until you stop and restart the deployment manager process. For example, plugging in an unplugged network cable does not restore proper addresses in the IP cache until the deployment manager process is restarted.

Using the IP address cache setting

You can always stop and restart a deployment manager process to refresh its IP address cache. However, this process might be expensive or inappropriate.

The networkaddress.cache.ttl (public, JDK1.4) and sun.net.inetaddr.ttl (private, JDK1.3) parameters control IP caching. The value is an integer that specifies the number of seconds to cache IP addresses. The default value, -1, specifies to cache forever. A value of zero (0) is a specification to never cache.

Using a zero (0) value is not recommended for normal operation. If you do not anticipate network outages or changes in IP addresses, use the cache forever setting. The never caching setting introduces the potential for DNS spoofing attacks.

For more information about the Java 2 SDK

The Java 2 Platform Standard Edition (J2SE) 1.4.2 Web site and the Java 2 Platform Standard Edition (J2SE) 1.5 Web site describe the private sun.net.inetaddr.ttl property, which works in both J2SE 1.4.2 (WebSphere Application Server V5.1 and V6.0) and J2SE 1.5 (WebSphere Application Server V6.1).

15. ▶ Linux Restore the original copy of the etc/issue file if the file is modified.

The prereqChecker program in the Installation wizard uses the file to verify the version of the operating system. If you cannot restore the original version, ignore the Operating System Level Check message about the operating system being unsupported. The installation can continue successfully despite the warning.

This procedure results in debugging errors that might occur during installation.

The "Installation problems" on page 341 contains more detailed debugging and reporting instructions. See "Installation component troubleshooting tips" on page 341 for more information about troubleshooting the installation.

For current information available from IBM Support on known problems and their resolution, see the IBM Support page.

IBM Support has documents that can save you time gathering the information that you need to resolve a problem. Before opening a PMR, see the IBM Support page.

Troubleshooting Web server plug-ins installation and removal

This topic describes troubleshooting the installation and removal of the Web server plug-ins for WebSphere Application Server.

This procedure is divided into three parts:
- Troubleshooting plug-ins installation
- Troubleshooting plug-ins removal
- Miscellaneous messages, tips, and hints

Log files for Web server plug-ins for WebSphere Application Server

The following log files are in the plug-ins plugins_root/logs/install directory:

log.txt Records all of the ISMP events that occur during the installation. The log also describes whether the installation was local or remote. Messages at the end of the file indicate whether manual configuration steps are required to complete the installation.

masterConfigurationLog.txt
Records all of the configuration events that occur during the installation.

installGSKit.log
Records events that occur during the installation of the GSKit code.

install*Web_server*Plugin.log
Records events that occur during the installation of a Web server plug-in. The name of the file varies to reflect the Web server:
- installAPACHEPlugin.log
- installIHSPlugin.log
- installIISPlugin.log
- installSUNONEPlugin.log
- installDOMINOPlugin.log

configure_*Web_server*_webserver.log
Records events that occur during the configuration of a Web server plug-in. The name of the file varies to reflect the Web server:
- configure_APACHE_webserver.log
- configure_IHS_webserver.log
- configure_IIS_webserver.log

- configure_SUNONE_webserver.log
- configure_DOMINO_webserver.log
- **Troubleshooting plug-ins installation**
  1. Are you reinstalling with an INSTCONFSUCCESS message but no files are being installed?

     If you do not use the Web server Plug-ins uninstaller program to uninstall the plug-ins, a reinstall can fail with an INSTCONFSUCCESS message.

     The Web server Plug-ins installer is an Install Shield for Multiplatforms (ISMP) wizard. The wizard uses the vpd.properties file or the operating system registry to determine if the plug-ins are installed. If you do not use the uninstaller program for the plug-ins, neither the vpd.properties file nor the operating system registry is updated properly. You might see a *plugins_root* /logs/install/log.txt with content similar to the following example:

     ```
     Plugin.Install, com.installshield.product.service.product.
        PureJavaProductServiceImpl$InstallProduct, msg1,
        Did not replace installed object (IBM WebSphere Application
        Server - Plugins) with object (IBM WebSphere Application
        Server - Plugins)
     Plugin.Install, ... msg1, Did not replace installed object
        (WebServer Plugin Binaries and Configurations) with
        object (WebServer Plugin Binaries and Configurations)
     Plugin.Install... Did not replace installed object (GSKit) with object (GSKit)
     Plugin.Install... Did not replace installed object (LAP Component) with
        object (LAP Component)
     Plugin.Install...Did not replace installed object (WebServer Plugin
        Binaries) with object (WebServer Plugin Binaries)
     Plugin.Install... Did not replace installed object (Additional Bytes
        for non-HP) with object (Additional Bytes for non-HP)
     Plugin.Install... Did not replace installed object (GSKit) with object (GSKit)
     Plugin.Install... Did not replace installed object (Standalone JDK)
        with object (Standalone JDK)
     ```

     Use the uninstaller program in the *plugins_root*/uninstPlugin directory to uninstall the Web server Plug-ins. For example, do not delete the *plugins_root* directory to uninstall the plug-ins without running the installer program first.

     If you have this problem, follow the uninstall procedure and the manual uninstall procedure to clean up your system before reinstalling the Web server Plug-ins.

  2. Does the installation image have the proper directories?

     The following directories are present on the installation image of the full product. The directories in bold are required for a successful installation of the plug-ins:
     - *parent_directory*/WAS
     - *parent_directory*/IHS
     - ***parent_directory*/plugin**
     - *parent_directory*/AppClient
     - ***parent_directory*/JDK**
     - ***parent_directory*/GSKit**

     Remember: The *parent_directory* variable is the directory where you can unpack the images. All of the directories in the list must have the same parent directory.

     If the directories are not present, or if the directories are empty, download a new installation image or discuss the product CD that you are using with someone who is knowledgeable about its creation. The IBM product discs are certified.

     Reinstall using the IBM product disc.

     Symptoms that can occur when the JDK directory is missing or is not used: If the *plugins_root*/logs/install/log.txt log file records the following errors, the installer program did not use the correct Java 2 SDK, which is in the JDK directory on the installation image:

```
Plugin.Install, com.ibm.ws.install.ni.ismp.actions.
    ISMPComponentizedFileRepositoryDeployAction, msg1,
    Processing component: prereq.jdk
Plugin.Install, com.ibm.ws.install.ni.ismp.actions.
    ISMPComponentizedFileRepositoryDeployAction, err,
    Component not found: prereq.jdk
Plugin.Install, com.ibm.ws.install.ni.ismp.actions.
    ISMPComponentizedFileRepositoryDeployAction, err,
    ComponentNotFoundException.message
```

The installation program can pick up another Java 2 SDK 1.4 on the system when running from the command prompt in terminal window that already has set the Java 2 SDK for the environment. Another way to point the installation program to a particular SDK is with the -is:javahome option for the Install Shield for Multiplatforms (ISMP) wizard.

In either case, the JDK directory on the installation image is not being used. When the installation attempts to install the prereq.jdk component, the wizard cannot find the JDK directory and throws the error in the *plugins_root*/logs/install/log.txt file. <CD_ROOT>/JDK and thus the error above is thrown.

Verify the cause of the error by examining the CURRENT_WORKING_DIRECTORY value and the JAVA_INSTALL_PATH value in the log.txt file. The working directory value is typically the *CD_root*/plugin directory. An erroneous Java path might be *non_CD_root*/java/jre. The correct Java path is the *CD_root*/JDK/repository/prereq.jdk/java/jre directory.

In such a case:

a. Verify that the JDK directory is on the product disc.

b. Close the current command window.

c. Open a new command window.

d. Change directories to the plugin directory on the product disc.

e. Restart the installation: ./install

Symptoms that occur when the GSKit directory is missing: If the JDK directory is present, but the GSKit directory is not present, the installation is only partially successful, as shown in the logs by the INSTCONFPARTIALSUCCESS indicator.

The *plugins_root*/logs/install/masterConfigurationLog.txt log file shows that the 99SGSKitInstall.ant script failed to run. Complete the full installation by manually installing GSKit. The *plugins_root*/logs/install/installGSKit.log file shows the command to use for the manual installation in the GSKIT 7 entry.

3. Is there any sign that the installation occurred?

   If not, look for the temporaryPluginInstallLog.txt file in the temporary directory of the user who installed the plug-ins.

   For example, the /tmp/temporaryPluginInstallLog.txt file might exist if the root user installed the plug-ins on a Linux or UNIX system.

   This log is of particular interest after a silent installation. Suppose that the silent installation responsefile.txt file has incorrect entries. The installation cannot succeed. The cause of the problem is recorded in the temporaryPluginInstallLog.txt file.

   If the responsefile.txt does not pass validation, the failure is logged as an INSTCONFFAILED entry. The installation does not occur. Correct the failure and run the silent installation again.

   You might have to start with a new copy of the file that is on the product disc if you cannot get your copy to work.

4. Does the installation result in an INSTCONFPARTIALSUCCESS status?

   a. Look for errors in the log.txt file.

   b. Look for an entry in the log.txt file that shows the location of the masterConfigurationLog.txt file.

   c. Edit the masterConfigurationLog.txt file.

   d. Starting at the end of the file, scan towards the front of the file looking for configuration scripts that could not run.

For example, the following stanza shows a configuration script that could not run:

```
<record>
<date>2004-10-08T10:31:43</date>
<millis>1097245903200</millis>
<sequence>189</sequence>
<logger>com.ibm.ws.install.configmanager.ConfigManager</logger>
<level>INFO</level>
<class>com.ibm.ws.install.configmanager.ConfigManager</class>
<method>dumpNonFatalFailedActionsInfoToLogFile</method>
<thread>10</thread>
<message>This action failed to execute:
   C:\Plugins\properties\version\install\plugin\6.0.0.0\
   config\full\install\99SGSKitInstall.ant</message>
</record>
```

   e. A configuration script that fails to run is likely the cause of a partially successful installation
       status. To debug the example, look at the installGSKit.log, which is the log file for GSKit. Look
       for signs of a failed installation to determine if you can correct the problem.

Configuration script log files and recovery procedures: The following configuration scripts run
during the configuration of supported Web servers.

Configuration script: 98SConfigureWebserverDefinition.ant

Log file to investigate for error	Recovery
configure*Web_server_type*_webserver.log For example, the file might be named: configure_IHS_webserver.log Logs the Web server definition creation.	1. If the Web server definition partially exists, delete the Web server definition. 2. Run the Web server definition script manually. The Web server definition is referenced in the script. The script is in the plugins_root/bin directory, with a name similar to the following convention: • `Linux` configure*Web_server_definition_name*.sh • `Windows` configure*Web_server_definition_name*.bat

Configuration script: 99SBootStrapPluginsSunOne.ant

Log file to investigate for error	Recovery
installSunOnePlugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. If the Web server configuration files do not update, investigate the files to verify that they exist and that the file permissions are correct.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsDomino6.ant

Log file to investigate for error	Recovery
installDomino6Plugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. If the Web server configuration files do not update, investigate the files to verify that they exist and that the file permissions are correct.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsDomino5.ant

Log file to investigate for error	Recovery
installDomino5Plugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. If the Web server configuration files do not update, investigate the files to verify that they exist and that the file permissions are correct.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsIIS6.ant

Log file to investigate for error	Recovery
installIIS6Plugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. Start the Internet Information Services (IIS) application and investigate the IIS configuration.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsIIS5.ant

Log file to investigate for error	Recovery
installIIS5Plugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. Start the IIS application and investigate the IIS configuration.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsApache.ant

Log file to investigate for error	Recovery
installApachePlugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. If the Web server configuration files do not update, investigate the files to verify that they exist and that the file permissions are correct.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SBootStrapPluginsIHS.ant

Log file to investigate for error	Recovery
installIHSPlugin.log Investigate the log file to determine what failed: 1. If the error is due to plugin-cfg.xml not existing, investigate why this file is not present. 2. If the error is due to the Web server definition creation failing, address this as discussed under the 98SConfigureWebserverDefinition.ant description. 3. If the Web server configuration files do not update, investigate the files to verify that they exist and that the file permissions are correct.	• You can manually configure the Web server. • You can rerun the Plug-ins installation wizard. Select the existing plug-ins installation root directory. Doing so results in the Web server being configured to use the existing binaries.

Configuration script: 99SGSKitInstall.ant

Log file to investigate for error	Recovery
installGSKit.log Investigate the log file to determine what failed: 1. In cases where the CD layout is not correct, then the gskit installer program cannot be found. GSKit fails to install. 2. In cases where GSKit is already installed, the installation might incorrectly report a failure. If the logs show that an installation already existed, you can safely ignore the error.	Manually install GSKit by running the installer program. The installGSKit.log file shows the installer program that runs to install GSKit. ▶ Linux Run the following command from the /cdrom/GSKit directory: • /cdrom/GSKit/gskit.sh ▶ Windows Run the following command from the ″E:\GSKit\ directory, assuming the E drive is the CD-ROM drive: • ″E:\GSKit\Setup.exe″ WASPLUGIN60_041008085014 ″C:\Program Files″ -s -z -f1″E:\GSKit\setup.iss″

▶ Solaris **Configuration script:** 99SSolarisGSKitInstall4.ant

Log file to investigate for error	Recovery
On Solaris, the installation is logged to the installGSKit.log file. Investigate the log file to determine what failed: 1. In cases where the CD layout is not correct, then the gskit installer program cannot be found. GSKit fails to install. 2. In cases where GSKit is already installed, the installation might incorrectly report a failure. If the logs show that an installation already existed, you can safely ignore the error.	Manually install GSKit by running the installer program. ▶ Solaris Run the following command from the /cdrom/GSKit directory: • /cdrom/GSKit/gskit4.sh

▶ Windows **Configuration script:** 90SCreateWinRegPlugin.ant

Log file to investigate for error	Recovery
This script does not have an associated log file. The script creates the Windows registry entry for the Web server plug-ins for WebSphere Application Server. HKEY_LOCAL_MACHINE > Software > IBM > Web server Plug-ins for IBM WebSphere Application Server > 6.0.0.0	Add the HKEY_LOCAL_MACHINE > Software > IBM > Web server Plug-ins for IBM WebSphere Application Server > 6.0.0.0 key manually with the actual value of the installation location. Set the following registry values under this key: • Name: *plugins_root* • Type: REG_SZ • Data: *plugins_root*

Configuration script: 99SModifySetupCmdLine.ant

Log file to investigate for error	Recovery
This script does not have an associated log file. Investigate the *plugins_root*/bin/setupCmdLine.sh script to verify that the PLUGIN_HOME variable is set to the Web server plug-ins installation root directory. Verify that file permissions are 755 (rwxr-xr-x) on Linux and UNIX systems.	• You can edit the setupCmdLine file, replacing $(PLUGIN_HOME) with the location to the plug-ins installation root directory. • Change the file permissions to 755. Issue the following command from the *plugins_root*/bin directory: `chmod 755 setupCmdLine.sh`

If you do not find the cause of the problem, open the *plugins_root*/logs/*web_server_name* directory. The directory is empty until the Web server loads the plug-in and errors occur. The plug-in then creates the http_plugin.log file to record the errors. If no errors occur, the directory is empty. Examine any relevant files for error entries. Correct any errors and reinstall.

5. Does the installation result in a INSTCONFFAILED status?

   a. This is a serious failure of the installation.

   b. Analyze the log files to determine the problem.

   c. Uninstall the plug-ins.

   d. Delete the plug-ins installation root directory.

   e. Install the plug-ins again.

6. Do errors occur when you start the snoop application?

   See "Start the Snoop servlet" in the installation troubleshooting file.

   If errors occur, look at the *plugins_root*/logs/*web_server_name*/http_plugin.log file for causes.

   Also investigate the WebSphere Application Server installation logs and the logs for your supported Web server.

7. ▶ `Linux` Do you have the correct file permissions for the configure*Web_server_definition_name* script?

   On Linux and UNIX systems, copying the configure*Web_server_definition_name*.sh script from one operating system, such as AIX, to another, such as HP-UX, can cause the file permissions of the script to be invalid for running the script.

   Verify that file permissions are 755 (rwxr-xr-x) on Linux and UNIX systems.

8. ▶ `Linux` Are you using the configure*Web_server_definition_name* script when the Web server machine is running dynamic host configuration protocol (DHCP)?

   The configure*web_server_name*.sh script can contain null values for the name of the host machine of the Web server when using DHCP. Examine the script to see if the last few parameters include the word null. If so, you have this problem.

   The plugins.install log file might also have an entry for the problem:

   ```
   (MMM DD, YYYY HH:MM:SS AM|PM),
   Plugin.Install,
   com.ibm.ws.install.ni.ismp.actions.ISMPLogFileAction,
   msg1, WEB_SERVER_HOSTNAME : null
   ```

   Some Linux and UNIX systems create an association between the host name of the machine and the loopback address -- 127.0.0.1. Red Hat Linux and other Linux systems set the association by default, for example.

   In addition, the /etc/nsswitch.conf file uses the /etc/hosts path before looking up a server using a DNS name server. This setup can cause failures when installing the Web server plug-ins for WebSphere Application Server.

   Perform the following steps to successfully create the configuration script for creating and configuring the Web server definition in the application server node:

   a. Uninstall the Web server plug-ins.

   b. Remove the 127.0.0.1 mapping to the local host in the /etc/hosts file.

   c. Edit the /etc/nsswitch.conf file so that the hosts line reads:

      ```
      hosts:  files [NOTFOUND=return] nis [NOTFOUND=return] dns
      ```

   d. Install the Web server plug-ins again.

- **Troubleshooting plug-ins removal**

   1. Does the *plugins_root*/logs/uninstall directory have any log files?

      If log files exist, examine them, correct the errors, and reinstall.

   2. Is there any sign that the removal occurred?

If not, look for the temporaryPluginUnInstallLog.txt file in the temporary directory of the user who installed the plug-ins.

For example, the /tmp/temporaryPluginUnInstallLog.txt file might exist if the root user uninstalled the plug-ins on a Linux or UNIX system.

3. Does the installation result in a INSTCONFPARTIALSUCCESS status?

   a. Look for errors in the log.txt file.

   b. Look for an entry in the log.txt file that shows the location of the masterConfigurationLog.txt file.

   c. Edit the masterConfigurationLog.txt file.

   d. Starting at the end of the file, scan towards the front of the file looking for configuration scripts that could not run.

   For example, the following stanza shows a configuration script that could not run:

   ```
   <record>
   <date>2004-10-08T10:31:43</date>
   <millis>1097245903200</millis>
   <sequence>189</sequence>
   <logger>com.ibm.ws.install.configmanager.ConfigManager</logger>
   <level>INFO</level>
   <class>com.ibm.ws.install.configmanager.ConfigManager</class>
   <method>dumpNonFatalFailedActionsInfoToLogFile</method>
   <thread>10</thread>
   <message>This action failed to execute:
     C:\Plugins\properties\version\install\plugin\6.0.0.0\
     config\full\uninstall\99SGSKitUnInstall.ant</message>
   </record>
   ```

   e. A script that fails to run is likely the cause of a partially successful installation status. To debug our example, look at the installGSKit.log, which is the log file for GSKit. Look for signs of a failed removal to determine if you can correct the problem.

Configuration script	Log file to investigate for error
99SBootStrapPluginsSunOneUninstall*uniqueID*.ant	uninstall*Web_server_type*Plugin.log
99SBootStrapPluginsDomino6Uninstall*uniqueID*.ant	For example, the file might be named:
99SBootStrapPluginsDomino5Uninstall*uniqueID*.ant	uninstallIHSPlugin.log
99SBootStrapPluginsIIS6Uninstall*uniqueID*.ant	Logs the Web server deconfiguration events for the Web server.
99SBootStrapPluginsIIS5Uninstall*uniqueID*.ant	
99SBootStrapPluginsApacheUninstall*uniqueID*.ant	
99SBootStrapPluginsIHSUninstall*uniqueID*.ant	
99SGSKitUnInstall.ant	uninstallGSKit.log
	On Windows only, the Web server plugins GSKit key will be unregistered. GSKit is uninstalled if no other product is registered to use GSKit.
	On Linux and UNIX, it is your responsibility to uninstall GSKit when no other products are using it.
90SDeleteWinRegPlugin.ant	This script does not have an associated log file.
	The script deletes the Windows registry entry for the Web server plug-ins for WebSphere Application Server.
	HKEY_LOCAL_MACHINE > Software > IBM > Web server Plug-ins for IBM WebSphere Application Server > 6.0.0.0

4. Did the uninstall procedure fail?

   If the uninstall failed in any way, follow the manual uninstall steps to verify the system is clean and if necessary, remove Web server plug-in entries.

- **Miscellaneous messages, tips and hints**

Option	Description
Unable to load mod_was_ap20_http...	This error means that the following actions have occurred: • You have the 32-bit version of the Apache Web Server installed on a 64-bit platform. • You used the 64-bit platform CD to install the plug-in for the 32-bit Apache Web Server • You started the Apache Web Server and it could not load the 64-bit plug-in because it requires the 32-bit plug-in. To fix the problem, install the 32-bit plug-in from the CD for the 32-bit platform. Or manually configure the Apache Web server by changing the httpd.conf file to refer to the correct plug-in. Change the 64bit folder name in the directive to 32bit to fix the reference. For example, change /opt/IBM/WebSphere/Plugins/bin/64bit/mod_was_ap20_http.so to /opt/IBM/WebSphere/Plugins/bin/32bit/mod_was_ap20_http.so on a Linux system.
SAFE_BROWSER_EXCEPTION_CAUGHT	This SAFE_BROWSER_EXCEPTION_CAUGHT error means that: • If you do not have a browser, this error is thrown and the roadmap is not launched when it is selected during the installation of the plug-ins. • ▶ Linux If you have a supported browser that is not the Konqueror browser, the roadmap is launched. This message is thrown with the supported browser when it is not the Konqueror browser. You can safely ignore this exception and open the roadmap in a supported browser.
▶ Solaris **_number_.tmp.sorted**	▶ Solaris A limitation in ISMP does not remove temporary working files in the / root directory on Solaris operating systems. You can safely ignore or delete the files that follow this naming convention.
▶ Linux **WASX7303I: ?????????????**	Shell scripts on some operating systems cannot contain double-byte characters or single-byte characters with pronunciation keys. If the file path to the Web server includes double-byte characters or single-byte characters with pronunciation keys, such as o-umlaut (a diacritic mark over the o), c-cedilla (a mark is under the c), or characters with other keys, the script might not run correctly. Copy the content of such a script to the command line and run the wsadmin command directly.

This procedure results in troubleshooting the installation or removal of the Web server plug-ins for WebSphere Application Server.

For current information available from IBM Support on known problems and their resolution, see the IBM Support page.

IBM Support has documents that can save you time gathering the information that you need to resolve a problem. Before opening a PMR, see the IBM Support page.

Installation component troubleshooting tips

If you are having problems installing the Web server plug-ins for WebSphere Application Server, go to "Troubleshooting Web server plug-ins installation and removal" on page 331 to resolve the problem.

If you are having problems installing your WebSphere Application Server product, follow these steps to resolve the problem:
- Follow the steps that are outlined in Chapter 12, "Troubleshooting installation," on page 321.
- Browse the relevant log files for clues:
  - The main installation log file: *app_server_root*/logs/log.txt.
  - The Profile Management tool log file: *app_server_root*/profiles/*profile_name*/logs/pctLog.txt when you create a profile with the Profile Management tool.
  - The profile creation log for creating the profile: *app_server_root*/logs/manageprofiles/ *profile_name*_create.log.
  - IBM HTTP Server log: *IHS_root*/log.txt and *IHS_root*/ihsv61_install.log.
  - The log files produced when the default application .ear file is installed are: *app_server_root*/profiles/ *profile_name*/logs/defaultapp_config.log and *app_server_root*/profiles/*profile_name*/logs/ defaultapp_deploy.log.
  - Other logs for other applications for a profile in the *app_server_root*/profiles/*profile_name*/logs directory.
- Verify that you have installed the correct level of dependent software, such as operating system version and revision level, by reviewing the Supported hardware and software Web page.

For current information available from IBM Support on known problems and their resolution, see the IBM Support page.

IBM Support has documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see the IBM Support page.

Installation problems

Select the problem that you are having with the WebSphere Application Server installation:
- I need information about "Troubleshooting Web server plug-ins installation and removal" on page 331.
- "Installation either completes with errors or warnings, or hangs."
- The installation process completes, but the server process does not start or starts with errors.
- There are "Messages issued during installation and profile creation" on page 345.
- The installation completes but the administrative console does not start.

If you do not see a problem that resembles yours, or if the information provided does not solve your problem, see Chapter 12, "Troubleshooting installation," on page 321.

IBM Support has documents and tools that can save you time gathering information needed to resolve problems. Before opening a problem report, see the Support page:
- http://www.ibm.com/software/webservers/appserv/was/support/

Installation either completes with errors or warnings, or hangs

Errors while installing the product

If the WebSphere Application Server installation program indicates that errors were encountered while installing the product:

- Browse the log files in the *app_server_root*/logs directory and in the *app_server_root*/profiles/ *profile_name*/logs directory for clues. Pay particular attention to the main installation log file, log.txt.
- Check the command prompt from which the installation panel was launched for error messages.
- Look up any error or warning messages in the message reference table by selecting the ″Reference″ view in the information center navigation and expanding the ″Messages″ heading.
- Review Chapter 12, "Troubleshooting installation," on page 321.

Diagnosing a failing ANT configuration script

This topic helps you determine whether a product installation problem on a Linux system or a UNIX system is caused by a failing ANT configuration script.

Start diagnosing installation problems by looking at the troubleshooting procedure. See Chapter 12, "Troubleshooting installation," on page 321. After the installation completes successfully, several ANT scripts configure the product. This topic describes what to do when an ANT script fails.

If you are looking for troubleshooting information for the Web server plug-ins for WebSphere Application Server, see "Troubleshooting Web server plug-ins installation and removal" on page 331. This topic does not describe the plug-ins.

Use this topic when the installation log does not indicate a failure, to correct any problems with failing ANT configuration scripts.

The *app_server_root*/logs/instconfig.log file contains information about ANT scripts. The file is not created on Linux systems and UNIX systems. The installation utility known as the ConfigManager runs the ANT scripts.

The *app_server_root*/logs/instconfig.log file, when present, describes any failure of an ANT script.

Use this topic to determine if any of the following configuration scripts failed. If so, use the configuration script recovery procedures. Use the investigative action to manually verify that the following configuration scripts ran successfully during the configuration of the WebSphere Application Server product. If any script failed, use the recovery action to complete the function of the script.

- **Configuration script 1: 90SCloudscapeModifyPermission.ant**

  This script changes the permission of the following directory to 766: *app_server_root*/cloudscape/ databases

  Log file to investigate for a possible error: *app_server_root*/logs/ModifyCloudscapePermission.log

  Investigative action: Verify that the permissions of the following directory are 766: *app_server_root*/cloudscape/databases

  Recovery action: Issue the following command to change the permission: chmod -R 766 *app_server_root*/cloudscape/databases

- **Configuration script 2: 90SConfigMigrationScript.ant**

  This script changes the permissions of the following script to 755: *app_server_root*/bin/migration.sh

  This script also replaces the following tokens in the *app_server_root*/bin/migration.sh script:

From:	To the value that you selected during installation:
${JAVAROOT}	*app_server_root*/java/jre/bin/java
${MIGRATIONJAR}	*app_server_root*/bin/migration/migrationGUI/migrationGUI.jar
${WASROOT}	*app_server_root*
${PRODUCTID}	${WS_CMT_PRODUCT_TYPE}

Log file to investigate for a possible error: No log file exists for this script.

Investigative action:

1. Verify that the permissions of the *app_server_root*/bin/migration.sh script are 755.

2. Open the *app_server_root*/bin/migration.sh script in an editor. Verify that real values exist instead of the following values:

    – ${JAVAROOT}
    – ${MIGRATIONJAR}
    – ${WASROOT}
    – ${PRODUCTID}

Recovery actions:

1. Issue the following command: chmod 755 *app_server_root*/bin/migration.sh

2. Change the following tokens to actual values in the *app_server_root*/bin/migration.sh script.

    – ${JAVAROOT}
    – ${MIGRATIONJAR}
    – ${WASROOT}
    – ${PRODUCTID}

- **Configuration script 3: 90SConfigNoProfileFirstStepsND.ant**

    This script copies all files from the *app_server_root* /properties/version/install/firststeps directory to the *app_server_root* /firststeps/html/noprofile directory.

    This script also replaces the following tokens in the *app_server_root* /firststeps/firststeps.sh script:

From:	To the value that you selected during installation:
${JAVAROOT}	*app_server_root*/java/jre/bin/java
${PROFILEROOT}	*app_server_root*
${HTMLSHELLJAR}	*app_server_root*/lib/htmlshell.jar
${CELLNAME}	${WS_CMT_CELL_NAME}

Log file to investigate for a possible error: No log file exists for this script.

Investigative actions:

1. Verify that all files are copied from the *app_server_root* /properties/version/install/firststeps directory to the *app_server_root* /firststeps/html/noprofile directory.

2. Open the *app_server_root*/bin/migration.sh script in an editor. Verify that real values exist instead of the following values:

    – ${JAVAROOT}
    – ${PROFILEROOT}
    – ${HTMLSHELLJAR}
    – ${CELLNAME}

Recovery actions:

1. Copy all of the files from the *app_server_root* /properties/version/install/firststeps directory to the *app_server_root* /firststeps/html/noprofile directory.

2. Change the following tokens to actual values in the *app_server_root*/bin/migration.sh script.

    – ${JAVAROOT}
    – ${PROFILEROOT}
    – ${HTMLSHELLJAR}
    – ${CELLNAME}

- **Configuration script 4: 90SModifyDirectoryPermission.ant**

This script modifies the permissions of the following directories to 755:

– *app_server_root*/uninstall
– *app_server_root*/logs
– *app_server_root*/properties

Log file to investigate for a possible error: *app_server_root*/logs/ModifyPermission.log

Investigative action: Verify that the permissions of the following directories are 755:

– *app_server_root*/uninstall
– *app_server_root*/logs
– *app_server_root*/properties

Recovery action: Issue the following commands:

1. chmod -R 755 *app_server_root*/uninstall
2. chmod -R 755 *app_server_root*/logs
3. chmod -R 755 *app_server_root*/properties

- **Configuration script 5: 99SCreateEmptyDirs.ant**

  This script creates the following empty directories:

  – *app_server_root*/classes
  – *app_server_root*/lib/ext
  – *app_server_root*/properties/version/history

  Log file to investigate for a possible error: No log file exists for this script.

  Investigative action: Verify that the empty directories exist.

  Recovery action: Create the directories.

After you correct any installation errors and any ANT script configuration errors by performing the corrective actions in this procedure, the installation is complete.

Use the firststeps script to start the First steps console. See "firststeps command" on page 182 for more information.

Problems installing or starting an Apache or an IBM HTTP Server

The following topics might help you determine the solution for a problem you experience while installing or starting Apache servers or IBM HTTP Servers.

If you do not see a problem that resembles yours, or if the information provided does not solve your problem, see the *Troubleshooting and support* PDF for further assistance.

"Failed to initialize GSK environment" error appears when trying to start the Apache server

The following messages may appear in Apache's error log file when you attempt to start Apache:

```
[Wed Aug 27 19:21:59 2003] [error] lib_security: initializeSecurity: Failed to initialize GSK environment
[Wed Aug 27 19:21:59 2003] [error] ws_transport: transportInitializeSecurity: Failed to initialize security
[Wed Aug 27 19:21:59 2003] [error] ws_server: serverAddTransport: Failed to initialize security
```

These messages are most common after building the Apache server from the downloadable source code and installing the Apache server separately from WebSphere Application Server.

If a secure transport is defined in the plugin-cfg.xml file, the plug-in will try to load the Global Security Kit (GSKit) library file, libgsk7ssl.so. The error messages appear in the error log file if the level 7 GSKit library file is not installed on your system. To correct these errors, try one of the following:

- Remove the transport section that has "https" in the plugin-cfg.xml file

- Install the level 7 GSKit

  Note: The GSKit installs automatically if you install either the IBM HTTP Server product or the Web server plug-in for either the IBM HTTP Server or the Apache server.

For details and help on the Apache Web server, visit the Apache Web site http://httpd.apache.org/.

IBM HTTP Server on Windows operating system does not start, error `WSADuplicateSocket failed for socket` appears in error.log ▶ Windows

If your installation of IBM HTTP Server on a Windows operating system does not start, you might find a message similar to the following in the log\error.log file of your IBM HTTP Server installation:

`"[crit] (10045) The attempted operation is not supported for the type of object referenced: Parent: WSADuplicateSocket f`

This problem occurs when an IBM HTTP Server is run on an operating system with a Virtual Private Networking client such as Aventail Connect. Aventail Connect is a Layered Service Provider (LSP) that intercepts calls between the Winsock 2 API and Window's native Winsock 2 implementation. The failure occurs because Aventail Connect does not implement WASDuplicateSocket(). The interception still takes place when Aventail Connect is shut down.

To correct the problem try one of the following:
- Reboot the machine, or
- Uninstall the LSP product

For current information available from IBM Support on known problems and their resolution, see the IBM Support page.

IBM Support has documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see the IBM Support page.

Messages issued during installation and profile creation

What kind of problem are you having?
- "Error: The input line is too long"
- "Note: The following file systems will be expanded during the installation" on page 346
- "The disk space is nn Mbyte less than required. The installation cannot continue." on page 346
- "Specify a different directory or perform a manual uninstall" on page 347
- "Error: /usr/opt/ibm/gskta/bin/gsk7ikm: not found" on page 347
- "Error writing file = There may not be enough temporary disk space." on page 347
- "Error: localhost is not a valid host name for remote access" on page 347
- "INFO: Created system preferences directory in java.home" on page 348
- "The installer could not successfully add the product information into the RPM database." on page 348
- "Error: java.io.IOException: konqueror: not found" on page 348

Error: The input line is too long

This is a profile creation error.

▶ Windows   The installation directory path must be no longer than 60 characters.
- **Option 1:** If the installation failed, reinstall the WebSphere Application Server product using a shorter directory path and a shorter node name.

  The node name field is available during a custom installation. The length of the default node name is usually short enough. Avoid using a node name that is longer than 10 characters if possible.

- **Option 2:** If the installation was successful but the ISMPWSProfileLaunchAction failed, use the Profile Management tool to create the profile. Use a shorter profile directory path, a shorter profile name, and a shorter node name when creating the profile.

  You can select your own profiles path, which could be C:\profiles, for example.

  You can select your own profile name.

  Verify from the <install location>/logs/install/log.txt file that the ISMPConfigManagerLaunchAction is successful.

  Examine the following messages in the log.txt file to determine whether the installation was successful. If so, you can run the Profile Management tool to create the default profile.

  ```
  (date time), Install,
        com.ibm.ws.install.ni.ismp.actions.ISMPConfigManagerLaunchAction,
        msg1, INSTCONFSUCCESS: Post-installation configuration is successful.

  (date time), Install,
        com.ibm.ws.install.ni.ismp.actions.ISMPWSProfileLaunchAction,
        err, INSTCONFFAILED: Cannot complete required configuration actions
        after the installation. The configuration failed. The installation is
        not successful.
  Refer to
        C:\Program Files\IBM\WebSphere\AppServer1234567890\logs\manageprofiles\
           default_create.log for more details.
  (date time), Install,
        com.ibm.ws.install.ni.ismp.actions.ISMPLogSuccessMessageAction,
        msg1, INSTCONFFAILED
  ```

The following error within a log in the *app_server_root*\profiles\default\logs directory indicates that a wsadmin action has failed to create a profile. The failure is because the length of the file path, the cell name, and the node name on the command string has caused the entire command to exceed the operating system limit for command length.

```
The input line is too long.
```

▶ Windows   The number of characters in the *profile_root* must be no more than 80 characters.

If your *profiles_directory_path**profile_name* string is 80 characters or less and you still have a problem, edit the *app_server_root*\bin\setupCmdLine.bat file to make it use the Windows subst command. The subst command maps an entire path to a virtual drive. After editing the file, run the Profile Management tool again. If changing the setupCmdLine.bat file does not fix the problem, you can install the WebSphere Application Server product using a shorter installation path, such as C:\WAS.

Note: The following file systems will be expanded during the installation

You can allocate expansion space for directories on AIX. If the Installation wizard does not have enough space, InstallShield for MultiPlatforms (ISMP) issues a system call for more space that increases the space allocation dynamically. The message you might see when this occurs for the /usr directory is similar to the following example:

```
NOTE: The following file systems will be expanded during the installation:
     /usr
```

The disk space is nn Mbyte less than required. The installation cannot continue.

If the file system is not dynamically expandable, an insufficient amount of disk space results in a message that is similar to the following example:

```
The disk space is 33 Mbyte less than required. The installation cannot continue.
```

Specify a different directory or perform a manual uninstall

This error indicates that you deleted the installation root directory before using the uninstaller program to remove the product. Now you are attempting to reinstall into the same directory.

To correct the problem, perform a manual uninstall. See "Uninstalling manually" on page 236 for an introduction to manually uninstalling. The topic has a link to the manual uninstall procedure for your operating system.

The warning entry in the $TMP/log.txt file is:

```
(Month day, year time), Install,
   com.ibm.ws.install.ni.ismp.actions.ISMPWarningDialogAction,
   wrn, Specify a different directory or perform a manual uninstall
   to remove all packages before reinstalling to the same directory.
```

Error: /usr/opt/ibm/gskta/bin/gsk7ikm: not found

This error indicates that the xlC.rte 6.0 run-time code has not been installed. You must install the xlC.rte 6.0 run-time code before you install Global Security Kit 7 (GSKit7).

To correct this problem, download the runtime code from the AIX Support site at https://techsupport.services.ibm.com/server/aix.fdc. If you have AIX 5.2, you can install the xlC.rte 6.0 runtime code from the AIX 5.2 CD.

For a complete list of installation prerequisites, see the Supported hardware and software Web page.

Error writing file = There may not be enough temporary disk space.

```
Searching for Java(tm) Virtual Machine...
A suitable JVM could not be found.
Please run the program again using the option
 -is:javahome <JAVA HOME DIR>
Error writing file =  There may not be enough temporary disk space.
Try using -is:tempdir to use a temporary directory on a partition with more disk space.
```

This error can occur when you have not provided enough temp space to create a profile. Verify that you have a minimum of 40 MB of temp space available before creating a profile.

Error: localhost is not a valid host name for remote access

This error occurs when you enter localhost as the value for the Host name field in the Profile Management tool.

See "Host name values" on page 178 for more information.

Warning: Cannot convert string ″<type_name>″to type FontStruct

If you install the Web server plug-ins for WebSphere Application Server, you also install the ikeyman utility. The ikeyman utility is part of the Global Services Kit 7 (GSKit7).

If you issue the ikeyman.sh script on a Linux system, you might see the following message:

```
Warning: Cannot convert string
   "-monotype-arial-regular-r-normal--*-140-*-*-p-*-iso8859-1"
   to type FontStruct
```

You can safely ignore the warning and use the ikeyman utility.

INFO: Created system preferences directory in java.home

The Key Man Utility (ikeyman) on Linux Redhat Enterprise 3.0 displays the following message after your first use of the utility.

```
[root@bensonl2 bin]# ./ikeyman.sh
Oct 19, 2004 10:47:26 AM java.util.prefs.FileSystemPreferences$3 run
INFO: Created system preferences directory in java.home.
```

The utility is logging preferences. The message does not display when you use the utility again.

You can safell ignore the message.

The installer could not successfully add the product information into the RPM database.

If the last line in the log.txt file is something similar to the following example, the problem might be a corrupt RedHat Package Manager (RPM) database:

```
(Oct 17, 2004 4:02:16 PM),
Plugin.Install,
com.ibm.wizard.platform.linux.LinuxProductServiceImpl,
wrn, The installer could not successfully add the product
information into the RPM database. Installation will continue
as this is not critical to the installation of the product.
```

Run the following command to verify that the problem is a corrupt RPM database:

```
rpm -q --all
```

If the command hangs, the problem is a corrupt RPM database.

Error: java.io.IOException: konqueror: not found

The ISMP Launch Browser action of the Installation wizard or the Update Installer wizard throws the following exception on Linux and UNIX systems:

```
com.installshield.wizardx.actions.LaunchBrowserAction, err, java.io.IOException:
konqueror: not found
STACK_TRACE: 11
java.io.IOException: konqueror: not found
        at java.lang.UNIXProcess.forkAndExec(Native Method)
        at java.lang.UNIXProcess.<init>(UNIXProcess.java:72)
        at java.lang.Runtime.execInternal(Native Method)
        at java.lang.Runtime.exec(Runtime.java:602)
        at java.lang.Runtime.exec(Runtime.java:524)
        at java.lang.Runtime.exec(Runtime.java:490)
        at com.installshield.util.BrowserLauncher.openURL(BrowserLauncher.java:578)
        at com.installshield.wizardx.actions.LaunchBrowserAction.execute(LaunchBrowserAction
.java:62)
        at com.installshield.wizard.RunnableWizardBeanContext.run(RunnableWizardBeanContext.
java:21)
```

This action searches for a Netscape, Mozilla, or Konqueror browser for displaying an HTML page or a Web site. In the case of the Web server plug-ins for WebSphere Application Server, the target page is the Plug-ins roadmap. Even though the ISMP Launch Browser action might find Mozilla or Netscape, the exception is thrown and a log entry occurs.

You can safely ignore this error.

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