Sun Java™ System

Application Server 7 Installation Guide

2004Q2 Update 2

Contents

About This Guide

This guide describes how install the Sun Java System Application Server 7 Standard and Enterprise Edition.

This preface addresses the following topics:

- Who Should Use This Guide
- Using the Documentation
- How This Guide is Organized
- Documentation Conventions
- Contacting Sun
- Accessing the Documentation

Who Should Use This Guide

The intended audience for this guide is the person who develops, assembles, and deploys beans in a corporate enterprise.

This guide assumes you are familiar with:

- Java programming
- Java APIs as defined in the Java™ Servlet, JavaServer Pages™ (JSP™), Enterprise JavaBeans™ (EJB™), and Java™ Database Connectivity (JDBC™) specifications
- The SQL structured database query languages
- Relational database concepts

- Software development processes, including debugging and source code control

Using the Documentation

The Sun Java System Application Server Standard and Enterprise Edition manuals are available as online files in Portable Document Format (PDF) and Hypertext Markup Language (HTML).

The following table lists tasks and concepts described in the Sun Java System Application Server manuals. The manuals marked *(updated for 7 2004Q2)* have been updated for the Sun Java System Application Server Standard and Enterprise Edition 7 2004Q2 release. The manuals not marked in this way have not been updated since the version 7 Enterprise Edition release.

Table 1   Sun Java System Application Server Documentation Roadmap

For information about	See the following
(Updated for 7 2004Q2) Late-breaking information about the software and the documentation. Includes a comprehensive, table-based summary of supported hardware, operating system, JDK, and JDBC/RDBMS.	*Release Notes*
Diagrams and descriptions of server architecture and the benefits of the Sun Java System Application Server architectural approach.	*Server Architecture*
New enterprise, developer, and operational features of Sun Java System Application Server 7.	*What's New*
How to get started with the Sun Java System Application Server product. Includes a sample application tutorial.	*Getting Started Guide*
(Updated for 7 2004Q2) Installing the Sun Java System Application Server Standard Edition and Enterprise Edition software and its components, such as sample applications and the Administration interface. For the Enterprise Edition software, instructions are provided for implementing the high-availability configuration.	*Installation Guide*
(Updated for 7 2004Q2) Evaluating your system needs and enterprise to ensure that you deploy Sun Java System Application Server in a manner that best suits your site. General issues and concerns that you must be aware of when deploying an application server are also discussed.	*System Deployment Guide*
Creating and implementing Java™ 2 Platform, Enterprise Edition (J2EE™ platform) applications intended to run on the Sun Java System Application Server that follow the open Java standards model for J2EE components such as servlets, Enterprise JavaBeans™ (EJBs™), and JavaServer Pages™ (JSPs™). Includes general information about application design, developer tools, security, assembly, deployment, debugging, and creating lifecycle modules. A comprehensive Sun Java System Application Server glossary is included.	*Developer's Guide*

Table 1   Sun Java System Application Server Documentation Roadmap *(Continued)*

For information about	See the following
Creating and implementing J2EE web applications that follow the Java™ Servlet and JavaServer Pages (JSP) specifications on the Sun Java System Application Server. Discusses web application programming concepts and tasks, and provides sample code, implementation tips, and reference material. Topics include results caching, JSP precompilation, session management, security, deployment, SHTML, and CGI.	*Developer's Guide to Web Applications*
(Updated for 7 2004Q2) Creating and implementing J2EE applications that follow the open Java standards model for enterprise beans on the Sun Java System Application Server. Discusses Enterprise JavaBeans (EJB) programming concepts and tasks, and provides sample code, implementation tips, and reference material. Topics include container-managed persistence, read-only beans, and the XML and DTD files associated with enterprise beans.	*Developer's Guide to Enterprise JavaBeans Technology*
(Updated for 7 2004Q2) Creating Application Client Container (ACC) clients that access J2EE applications on the Sun Java System Application Server.	*Developer's Guide to Clients*
Creating web services in the Sun Java System Application Server environment.	*Developer's Guide to Web Services*
Java™ Database Connectivity (JDBC™), transaction, Java Naming and Directory Interface™ (JNDI), Java™ Message Service (JMS), and JavaMail™ APIs.	*Developer's Guide to J2EE Services and APIs*
Creating custom NSAPI plug-ins.	*Developer's Guide to NSAPI*
(Updated for 7 2004Q2) Information and instructions on the configuration, management, and deployment of the Sun Java System Application Server subsystems and components, from both the Administration interface and the command-line interface. Topics include cluster management, the high-availability database, load balancing, and session persistence. A comprehensive Sun Java System Application Server glossary is included.	*Administration Guide*
Editing Sun Java System Application Server configuration files, such as the `server.xml` file.	*Administrator's Configuration File Reference*
Configuring and administering security for the Sun Java System Application Server operational environment. Includes information on general security, certificates, and SSL/TLS encryption. HTTP server-based security is also addressed.	*Administrator's Guide to Security*
Configuring and administering service provider implementation for J2EE™ Connector Architecture (CA) connectors for the Sun Java System Application Server. Topics include the Administration Tool, Pooling Monitor, deploying a JCA connector, and sample connectors and sample applications.	*J2EE CA Service Provider Implementation Administrator's Guide*
(Updated for 7 2004Q2) Migrating your applications to the new Sun Java System Application Server programming model, specifically from iPlanet Application Server 6.x and Sun ONE Application Server 7.0. Includes a sample migration.	*Migrating and Redeploying Server Applications Guide*
(Updated for 7 2004Q2) How and why to tune your Sun Java System Application Server to improve performance.	*Performance Tuning Guide*

Table 1   Sun Java System Application Server Documentation Roadmap *(Continued)*

For information about	See the following
(Updated for 7 2004Q2) Information on solving Sun Java System Application Server problems.	*Troubleshooting Guide*
(Updated for 7 2004Q2) Information on solving Sun Java System Application Server error messages.	*Error Message Reference*
(Updated for 7 2004Q2) Utility commands available with the Sun Java System Application Server; written in manpage style.	*Utility Reference Manual*
Using the Sun™ Java System Message Queue 3.5 software.	The Sun Java System Message Queue documentation at: http://docs.sun.com/db?p=prod /s1.s1msgqu

How This Guide is Organized

This guide addresses the following topics:

- Chapter 1, "Installing Standard and Enterprise Edition Software,"—Provides instructions for installing the Sun Java System Application Server 7 software components. Includes instructions for performing a non-interactive silent installation.

- Chapter 2, "Preparing for HADB Setup"—Provides instructions for configuring shared memory, and setting up host communications and the user environment for the high-availability configuration.

- Chapter 3, "Uninstalling the Standard and Enterprise Edition Software"—Provides instructions for uninstalling the Sun Java System Application Server 7 software. Includes instructions for performing a non-interactive silent uninstallation.

- Appendix A, "Upgrading the Application Server"—Provides instructions for upgrading from a previous installation of Sun Java System Application Server to the current version.

Documentation Conventions

This section describes the types of conventions used throughout this guide:

- General Conventions

-

General Conventions

The following general conventions are used in this guide:

- **File and directory paths** are given in UNIX® format (with forward slashes separating directory names). For Windows versions, the directory paths are the same, except that back slashes are used to separate directories.

- **URLs** are given in the format:

  http://*server.domain/path/file*.html

  In these URLs, *server* is the server name where applications are run; *domain* is your Internet domain name; *path* is the server's directory structure; and *file* is an individual filename. Italic items in URLs are placeholders.

- **Font conventions** include:

  - The `monospace` font is used for sample code and code listings, API and language elements (such as function names and class names), file names, pathnames, directory names, and HTML tags.

  - *Italic* type is used for code variables.

  - *Italic* type is also used for book titles, emphasis, variables and placeholders, and words used in the literal sense.

  - **Bold** type is used as either a paragraph lead-in or to indicate words used in the literal sense.

- **Installation root directories** are indicated by *install_dir* in this document. Exceptions are noted in "Conventions Referring to Directories" on page 6.

  By default, the location of *install_dir* on **most** platforms is:

  - Solaris and Linux file-based installations:

    user's home directory/sun/appserver7

  - Windows, all installations:

    system drive:\Sun\AppServer7

  For the platforms listed above, *default_config_dir* and *install_config_dir* are identical to *install_dir*. See "Conventions Referring to Directories" on page 6 for exceptions and additional information.

- **Instance root directories** are indicated by *instance_dir* in this document, which is an abbreviation for the following:

  default_config_dir/domains/*domain*/*instance*

- **UNIX-specific descriptions** throughout this manual apply to the Linux operating system as well, except where Linux is specifically mentioned.

Conventions Referring to Directories

By default, when using the Solaris package-based or Linux RPM-based distributions, the application server files are spread across several root directories. This guide uses the following document conventions to correspond to the various default installation directories provided:

- *install_dir* refers to /opt/SUNWappserver7, which contains the static portion of the installation image. All utilities, executables, and libraries that make up the application server reside in this location.

- *default_config_dir* refers to /var/opt/SUNWappserver7/domains, which is the default location for any domains that are created.

- *install_config_dir* refers to /etc/opt/SUNWappserver7/config, which contains installation-wide configuration information such as licenses and the master list of administrative domains configured for this installation.

Contacting Sun

You might want to contact Sun Microsystems in order to:

- Give Us Feedback

- Obtain Training

- Contact Product Support

Give Us Feedback

If you have general feedback on the product or documentation, please send this to appserver-feedback@sun.com.

Obtain Training

Application Server training courses are available at:

http://training.sun.com/US/catalog/enterprise/web_application.html/

Visit this site often for new course availability on the Sun Java System Application Server.

Contact Product Support

If you have problems with your system, contact customer support using one of the following mechanisms:

- The online support web site at:

  http://www.sun.com/supportraining/

- The telephone dispatch number associated with your maintenance contract

Please have the following information available prior to contacting support. This helps to ensure that our support staff can best assist you in resolving problems:

- Description of the problem, including the situation where the problem occurs and its impact on your operation

- Machine type, operating system version, and product version, including any patches and other software that might be affecting the problem. Here are some of the commonly used commands:

  - **Solaris:** pkginfo, showrev

  - **Linux:** rpm

  - **All:** asadmin version --verbose

- Detailed steps on the methods you have used to reproduce the problem

- Any error logs or core dumps

- Configuration files such as:

  - *instance_dir*/config/server.xml

  - a web application's web.xml file,
    when a web application is involved in the problem

- For an application, whether the problem appears when it is running in a cluster or standalone

Accessing the Documentation

The Sun Java System Application Server documentation is provided in a number of ways:

- Manuals—You can view Sun Java System Application Server manuals and Release Notes in HTML and in printable PDF downloads at:

  http://docs.sun.com/db/coll/

- Online help—Click the Help button in the graphical interface to launch a context-sensitive help window.

- Man pages—To view man pages at the command line, you must first add *install_dir*/man to your MANPATH environment variable. After setting the variable, you can access man pages for the Sun Java System Application Server commands by typing man *command_name* on the command line. For example: man asadmin.

Installing Standard and Enterprise Edition Software

This chapter describes how to install the Sun Java System Application Server Standard and Enterprise Editions. You can install interactively or use the silent mode to replicate an installation scenario on multiple machines.

The following topics are addressed:

- About the Application Server Installation
- Installing Application Server Software
- Installing the Load Balancer Plug-in Component
- Installing in Silent Mode

For any late-breaking updates to these instructions, check the *Sun Java System Application Server Release Notes.*

For more information about configuring your application server after installation, refer to the *Sun Java System Application Server Administration Guide.*

The following location contains product downloads and other useful information: http://www.sun.com/software/products/appsrvr/home_appsrvr.html

About the Application Server Installation

The Sun Java System Application Server product is made up of a number of software components that work together to create the Sun Java System Application Server experience. There are a number of choices you can make for your installation:

- You can install the Standard Edition or the Enterprise Edition of the product.

- You can install from the product CD or from the download site.

- You can install the file-based or the package-based distribution of the product.

- You can install from the command-line interface or the graphical interface.

- You can install interactively or in the silent mode.

NOTE	If you are using the file-based distribution, you can install multiple instances of Application Server on the same machine.

This section addresses the following topics:

- Requirements and Limitations

- Distributions of the Product

- Packaging Models and Directory Structure

- Installation Components

- Installation Methods

Requirements and Limitations

For detailed information on platform support and requirements, you can refer the Sun Java System Application Server Standard and Enterprise Edition Release Notes. This section lists certain additional requirements that should be met before installing Sun Java System Application Server. From the following sub-sections, select the platform for which you want to understand the requirements:

- General Requirements

- For Solaris

- For HP-UX

- For Microsoft Windows

General Requirements

- Free space—Your temporary directory must have a minimum of 100 MB free.

  On UNIX, you can check your disk space using the df command.

- Available ports—On all platforms, you must have four unused ports available.

- ○ You will assign one for the Admin Server and another for the HTTP server default instance during installation.

- ○ The installation program detects used ports and assign two others for you: Sun Java System Message Queue (by default, 7676), and IIOP (by default, 3700). If either of these default port numbers are in use, the installation program will assign the next available port (for example, 7677 or 7678, and so on).

- Using the uninstallation program—If you need to remove the Sun Java System Application Server from your system, it is important to use the uninstallation program that is installed with the Sun Java System Application Server software. If you attempt to use another method, problems will arise when you try to reinstall the same version, or when you install a new version.

- Granting group write permissions to the deployed directories and files-On UNIX, if one user has deployed applications on the application server instance and if users of the same group are required to make changes to any files on the server instance, explicit permissions need to be given to the other users. For detailed procedure, see the knowledgebase article 77800 on http://sunsolve.sun.com.

- High-Availability Database (HADB)

- ○ HADB supports IPv4 only. IPv6 is not supported.

For Solaris

- Root privileges—For Solaris SPARC and x86 package-based distributions, you must have root privileges on your target machine.

  When installing as root, note the following:

  - ○ For file-based distributions—You can install more than one Sun Java System Application Server as root as long as each installation is in a different installation directory.

  - ○ For all distributions—You can have multiple instances running within the same installation.

- Hardened operating system—This is an operating system stripped of some features for the purpose of enhancing security. Such an operating system usually doesn't allow GUI-based applications to be run in the environment. The following two libraries are required to install and use Sun Java System Application Server 7 in a hardened operating environment:

  - ○ libC.so.5

    ❍   `libCrun.so.1`

These libraries can be obtained by installing the SUNWlibC (Sun Workshop Compilers Bundled libC) package, which is part of the Solaris distribution in the end-user package cluster (not in the core).

- To make your system more secure, protect sensitive directories by executing `chmod 700`.

- Starting previously-installed servers—If there are previously-installed application servers or web servers on the target machine, you must start them before you begin the Sun Java System Application Server installation process. This allows the installation program to detect ports that are in use and avoid assigning them for other uses.

- High-Availability Database (HADB)

  ❍ HADB supports only ext2 file system on Red Hat Linux AS 2.1, not ext3. Both ext2 and ext3 are supported on Red Hat Linux AS 3.0.

  ❍ Due to the excessive swapping problem found in Red Hat Linux AS3.0, HADB experiences problems with stability and performance when co-located with Advanced Server 3.0. and is running under load. Therefore, HADB on RH3.0 is not recommended for production environments.

For HP-UX

Before installing Sun Java System Application Server on HP-UX, you may need to update your system's kernel configuration parameters as explained in this section.

Modifying kernel parameters

Sometimes the command `asadmin start-appserv` may display the error "abnormal subprocess termination", if the values of `nkthread` and `max_thread_proc` are relatively low. So, it is recommended that these values are changed.

➤ **To change a value**

Ensure that you have root permissions to modify kernel parameters.

1. Using the `sam` command, start the System Administration Manager (SAM) program.

2. Double-click the Kernel Configuration icon.

3. Double-click the Configurable Parameters icon.

4. Double-click the parameter that you want to change and enter the new value in the Formula/Value field.

5. After you have made the changes, click OK.

6. Repeat these steps for all of the kernel configuration parameters that you want to change.

   The following table presents the kernel parameters and the recommended values for each parameter.

Table 1-1   HP-UX Kernel Configuration Parameters (Recommended Values)

Kernel Parameter	Physical Memory			
	64-128MB	128-256MB	256-512MB	512MB+
maxuprc	256	384	512	1500
maxfiles	256	256	256	256
nkthread				4096
nproc	512	768	1024	2048
nflocks	2048	4096	8192	8192
ninode	512	1024	2048	2048
nfile	(4 * ninode)	(4 * ninode)	(4 * ninode)	(4 * ninode)
msgseg	8192	16384	32767 (1)	32767 (1)
msgmnb	65535	65535	65535	65535
msgmax	65535	65535	65535	65535
msgtql	256	512	1024	2048
msgmap	130	258	258	2050
msgmni	128	256	256	1024
msgssz	16	16	16	16
semmni	128	256	512	2048
semmap	130	258	514	2050
semmns	256	512	1024	4096
semmnu	256	512	1024	1024

Table 1-1 HP-UX Kernel Configuration Parameters (Recommended Values)

Kernel Parameter	Physical Memory			
shmmax	67108864	134217728 (2)	268435456 (2)	268435456 (2)
shmmni	300	300	300	1000

NOTE	
	1. The parameter msgseg must not be set to a value higher than 32767.
	2. The parameter shmmax should be set to 134217728 or 90% of the physical memory (in bytes), whichever is higher. For example, if you have 196 MB of physical memory in your system, set shmmax to 184968806 (196*1024*1024*0.9).
	3. To maintain the interdependency among kernel parameters, change parameters in the same sequence in which they appear in the preceding table.
	4. For related information, also refer the section HP-UX configuration for Java support at http://www.hp.com/products1/unix/java/infolibrary/prog_guide/configuratio n.html

7. When you are finished setting all of the kernel configuration parameters, from the Action menu bar, select Action and then select Process New Kernel.

The HP-UX operating system automatically restarts after you change the values for the kernel configuration parameters.

Installing Patches

After you have modified the kernel parameters, make sure that the bundled patch required for the HP-UX operating system is installed.

To see which patches are currently installed on your system, enter the following command:

```
swlist -l fileset -a patch_state *.*,c=patch | grep -v superseded
```

Apart from the operating system patch, you may also need to install the patches required for Java. These patches are available at the following URL:
http://www.hp.com/products1/unix/java/patches/index.html

For Microsoft Windows

• Administrator privileges—You must have administrator privileges to install Sun Java System Application Server on Microsoft Windows.

- SNMP—You must install the SNMP service before you install Sun Java System Application Server or the installation of the SNMP subagent will fail.

- Firewall or anti-virus shutdown—You must stop any firewall or anti-virus software before installing Sun Java System Application Server, since some of this software disables all ports by default. The Sun Java System Application Server installation program must be able to accurately determine which ports are available.

- On a given Microsoft Windows machine, you can only install one Sun Java System Application Server.

- HADB

  The network must be configured for User Datagram Protocol (UDP) multicast.

Distributions of the Product

The Sun Java System Application Server offers two types of distributions:

- **File-based distribution** (on Solaris SPARC, x86, Linux, Microsoft Windows)—multiple installations can be installed by any non-root user.

- **RPM-based** (on Linux) or **Package-based distribution** (on Solaris SPARC and x86)—must be installed by a user with root privileges.

You can install these distributions of the product from the product CD or as a download from the web site. The various downloads available for the Sun Java System Application Server product can be found at
http://wwws.sun.com/software/download/app_servers.html

NOTE	Multiple file-based Application Server installations can reside on a single machine.

The following table identifies the distribution types for each platform and the Application Server Edition available for each distribution.

Table 1-2   Product Distribution Definition

Distribution Type	Platform	Application Server Edition
File-based	Solaris SPARC,	Standard and Enterprise
	Solaris x86	Standard and Enterprise
	Linux	Standard and Enterprise
	Microsoft Windows	Standard and Enterprise

Table 1-2   Product Distribution Definition

Distribution Type	Platform	Application Server Edition
Package-based	Solaris SPARC,	Standard and Enterprise
	Solaris x86	Standard and Enterprise
RPM-based	Linux	Standard and Enterprise

Refer to the *Sun Java System Application Server 7 Release Notes* to identify which platform versions are supported.

Packaging Models and Directory Structure

There are different installation programs for package-based and file-based distributions. Depending on the distribution of the product installed on your system, your Sun Java System Application Server software may be installed under a single root directory path or spread across several root directory paths.

This section addresses the following topics:

- Package-Based Installation on Solaris SPARC/x86 and RPM-based on Linux

- File-based Installation on Microsoft Windows and Solaris SPARC/x86

Package-Based Installation on Solaris SPARC/x86 and RPM-based on Linux

On Solaris SPARC/x86 package-based, and on Linux RPM-based distributions, the components are installed as packages. By default, the installation locations are spread across three directory roots:

- `/opt/SUNWappserver7` contains the static portion of the installation image. All utilities, executables and libraries of the Sun Java System Application Server software reside in this location.

- `/etc/opt/SUNWappserver7/config` contains installation-wide configuration information such as licenses and the master list of administrative domains configured for this installation.

- `/var/opt/SUNWappserver7/domains` is the default area under which administrative domains are created.

NOTE	For package-based distributions on Solaris SPARC/x86, and RPM-based distributions on Linux, you must be logged in as root.

File-based Installation on Microsoft Windows and Solaris SPARC/x86

On Microsoft Windows (available in file-based distribution only), and on Solaris SPARC/x86 file-based distributions, the components are installed under a single directory path. The default directories are:

- For Microsoft Windows: `c:\Sun\AppServer7`

- For Solaris SPARC and x86 file-based distribution:
  appserver_install_dir`/sun/appserver7`

In these cases, the `/config` and `/domains` directories are positioned under the installation directory root.

Installation Components

In general, you are installing the basic components that provide the functionality of Sun Java System Application Server. You can choose *not* to install some of the components. Later, if you want to add a component that you initially chose not to install, you can do an *incremental installation* of that component, provided dependencies are met.

NOTE	A partial installation can be followed by any number of incremental installations. For silent mode, you can do a partial *initial* installation, but any subsequent installations must be done using an interactive method.

The installation program enforces component dependencies as specified for each component. Once component dependencies are satisfied, component life cycles are independent. A particular component can be installed or uninstalled dynamically through incremental installation without corrupting other components. However, incremental uninstallation is not supported.

The following components are included with Sun Java System Application Server **Standard** and **Enterprise** Editions:

- **Application Server**—all of Sun Java System Application Server, including its graphical and command-line administrative tools, the `asadmin` command, and Sun Java™ System Message Queue.

  For UNIX package-based or RPM-based distributions, and for Microsoft Windows distributions, the Sun Java System Message Queue software is automatically installed with the Application Server software here: *install_dir*`/imq`

For UNIX file-based distributions, The Sun Java System Message Queue is distributed across `/usr/share/lib`, `usr/share/lib/imq` (lib files) and `/usr/bin` (binaries).

If you want to install the Application Server Enterprise Edition and an HADB server node on the same system, select both components.

- **Application Server Administration Client**— `asadmin` utility

  Select the Administration Client component to install the command-line utility separately on a machine where the Application Server is *not* installed. When you install the Application Server, the Administration Client is also installed.

- **Java 2 Software Development Kit**—During installation, you can choose to reuse a Java 2 SDK that is already installed on your system as long as the Java 2 SDK version is correct. The default installation location for each distribution is:

  ❍ For Solaris SPARC and x86, Linux, and Microsoft Windows file-based distributions: *install_dir*/jdk

  ❍ For Solaris SPARC and x86 package-based distributions: `/usr/j2se`

  ❍ For Linux RPM-based distributions: `/usr/java/j2sdk1.4.2_x`

  Refer to the *Sun Java System Application Server 7 Release Notes* to identify which version of the Java 2 SDK is supported.

NOTE	Sun Java System Application Server is certified to work with Java 2 SDK from Sun Microsystems. Third-party JDK development kits, even with appropriate version numbers, are not supported.

- **Sample applications**—samples come with the source, schema, Ant build scripts, and EAR files. Any existing data associated with the database-related samples is available in the database. These sample applications are categorized as:

  ❍ Technology samples—Introduce various technical aspects of the Java™ 2 Platform, Enterprise Edition (J2EE™) specification as well as the value added features of the Sun Java System Application Server platform.

  ❍ Interoperability samples—Provide more detailed views on how these technologies come together on the Sun Java System Application Server platform.

  By default, the sample applications are installed at: *install_dir*/samples

  More information about samples at: *install_dir*/samples/index.html

- **PointBase Server (Standard Edition only)**—By default, PointBase is installed at: *install_dir*/pointbase

  Refer to the *Sun Java System Application Server 7 Release Notes* to identify which version of the PointBase Server is supported.

The following additional components are included with the Sun Java System Application Server **Enterprise** Edition product:

- **High-Availability Database Server (Enterprise Edition)**—By default, the HADB Server is installed at: *install_dir*/SUNWhadb

  For more information on this component, refer to the HADB Configuration chapter in the *Sun Java System Application Server Administration Guide.*

- **High-Availability Administration Client (Enterprise Edition)**—only the hadbm command.

  Instructions for using the utilities are contained in the *Sun Java System Application Server Administration Guide*, the hadbm man pages, and the asadmin session persistence man pages.

- **Load balancer plug-in (Enterprise Edition)**—This component is dependent on a pre-installed web server. Supported web servers are listed in the *Sun Java System Application Server 7 Release Notes,* in the section titled *Platform Summary.*

  For additional information on this component, refer to the section titled "Installing the Load Balancer Plug-in Component" in this Installation Guide and the "Configuring Load Balancing" chapter in the *Sun Java System Application Server Administration Guide.*

Installation Methods

There are three methods of installation:

- **Graphical (interactive)**—The installation program prompts you using a sequence of graphical screens. This is the default method when you invoke the installation program without options: ./setup.

- **Command-line (interactive)**—The installation program prompts you using a sequence of command-line prompts and messages. To activate the interactive command-line mode, invoke the installation program using the -console option: ./setup -console. You must have root permission to install using the command-line interface.

  If you are using Telnet to access a remote server, you can use the command-line interface to install the product in an interactive fashion.

NOTE	For a Solaris operating environment, you must use the command-line method. To start the installation program in a hardened environment, perform the steps in the "Other Limitations and Requirements" section of the *Sun Java System Application Server Release Notes*.

- **Silent mode**—The installation program reads installation parameters from a supplied configuration file. See "Installing in Silent Mode" on page 38 for more information on generating the configuration file.

The setup command allows you to specify the method of installation, and allows you to create a configuration file for silent installation.

The setup command syntax: `setup [-console [-savestate]] [-savestate] [-silent config_file] [-h || -help]`

Table 1-3 describes the setup command options.

Table 1-3   Options for the setup Command

Option	Description
`-console`	Runs the installation using the command-line method.
`-silent config_file`	Runs the installation in silent mode. Installation parameters are read from an existing installation configuration file. This option is mutually exclusive with the `savestate` option.
	The installation configuration file path must be explicitly provided; there is no default file path. Refer to "Installing in Silent Mode" on page 35 for further specifics on silent mode installation and the installation configuration file.
`-savestate`	Runs the installation using either the graphical or command-line method and creates an installation configuration file based on this installation. This option is mutually exclusive with the `silent` option. If you do not specify this option, no installation configuration file will be created.
	The file will be called `statefile` and located in *install_dir*.
`-h || -help`	Displays the available command-line arguments for the setup command.

Table 1-4 identifies the command for each installation method.

Table 1-4   Commands for all the Installation Methods

Installation Method	Installation Command
Graphical interface (default)	`./setup`
Command-line interface	`./setup -console`

Table 1-4   Commands for all the Installation Methods

Installation Method	Installation Command
Graphical interface for creating configuration file for silent mode installation [1]	`./setup -savestate`
Command-line interface for creating configuration file for silent mode installation [1]	`./setup -console -savestate`
Silent mode based on an existing installation configuration file	`./setup -silent config_file`
Display available Command-line arguments for the `setup` command	`./setup -help`

[1] The file called `statefile` is created in *install_dir*.

Installing Application Server Software

This section provides instructions for installing the Sun Java System Application Server 7 Standard and Enterprise Edition distributions.

The following installation instructions are provided:

- Downloading from the Web Site

- Installing Standard Edition

- Installing Enterprise Edition

Downloading from the Web Site

This section provides for downloading the Sun Java System Application Server installation files from the web site. If you downloaded the product from the web site, a 60-day license is installed.

Downloading for Solaris SPARC and x86 or Linux

1. Select the download from the following Sun Java System Application Server download site and save it in a temporary directory on your Solaris SPARC and x86 or Linux machine.

   http://wwws.sun.com/software/download/app_servers.html

2. Navigate to the directory where you downloaded the file. For example:

   ```
   cd /temp_dir/as7download/
   ```

3. Unzip the `.gz` file using the `gunzip` command in this format:

    gunzip *filename*.tar.gz

4. Untar the unzipped file using the `tar -xvf` command in this format:

    tar -xvf *filename*.tar

This process may take a little time. When the files are unpacked, you will see the `sun-appserver7` directory, which contains the `setup` file and the `package` directory.

To determine whether you have download the file-based, RPM-based (Linux), or package-based distribution, see "Packaging Models and Directory Structure" on page 16.

Proceed to the instructions for installing the selected Application Server edition for your platform.

Downloading for Microsoft Windows

1. Select the download from the following Sun Java System Application Server download site and save it in a temporary directory on your Microsoft Windows machine.

http://wwws.sun.com/software/download/app_servers.html

A progress indicator bar tells you when the download has completed.

2. Navigate to the directory where you downloaded the installation zip file.

3. Unzip the installation zip file by opening the file and extracting its contents to your chosen folder. When the extraction is complete, you will see the `sun-appserver7` directory, which contains the `setup.exe` file, the `package` directory and other associated files.

Proceed to the instructions for installing the Application Server Standard Edition on Microsoft Windows.

Installing Standard Edition

This section provides instructions for installing the Application Server Standard Edition on the various platforms for the various distributions. The following installations are addressed:

• Installing Standard Edition on Solaris SPARC and x86

• Installing Standard Edition on Linux

-

Installing Standard Edition on Solaris SPARC and x86

The following instructions apply to file-based and package-based distribution unless specifically identified. You must have root access to install the package-based distribution. Root access is not required for file-based distribution.

1. Run the installation program.

   a. To run the installation program in the graphical mode, at the command prompt type `setup`.

   b. To run the installation program in the command-line mode, at the command prompt type `setup -console`.

2. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

   The default installation directory is dependent on the distribution you are installing; see "Packaging Models and Directory Structure" on page 16.

3. Select the components you wish to install.

   If a component is disabled, it means that the installation program has detected it as already installed on your system.

4. Choose to install the Java 2 SDK, or use a preinstalled Java 2 SDK.

   o If the correct version of the Java 2 SDK is installed, it is reused or you can enter the path to another correct version.

   o If there is no Java 2 SDK installed, you can choose to let the installation program install the Java 2 SDK automatically.

   o For package-based distributions, if an incorrect version of the Java 2 SDK is found in the default path, you are prompted to upgrade your current version.

   o For file-based distributions, if you choose to install the Java 2 SDK, a private copy is installed in *install_dir.*

   The default Java 2 SDK installation path is:

   o For Solaris SPARC and x86 package-based distributions: `/usr/j2se`

   o For Solaris SPARC and x86 file-based distributions: *install_dir*`/jdk`

5. For package-based distribution, you are prompted to identify your server configuration directory.

   The default server configuration directory is: `/etc/opt/SUNWappserver7`

6. For package-based distribution, you are prompted to identify your server domains directory.

   The default server domain directory is: `/var/opt/SUNWappserver7`

7. In the Server Configuration Information page (or at the command line), enter the following:

   ❍ Admin User—Name of the user who administers the server

   ❍ Admin User's Password—Password to access the Admin Server (8 character minimum)

   ❍ Admin Server Port—Port number to access the Admin Server

   ❍ HTTP Server Port—Port number to access the default server instance

NOTE	The installation program automatically detects ports in use and suggests unused ports for the default settings. The default ports for package-based distribution are 80 for the HTTP Server, and 4848 for the Admin Server.
	If you are installing as non-root user, the default ports for file-based installation are 1024 for the HTTP Server, and 4848 for the Admin Server.

The installation program verifies the available disk space on your machine. If you do not have enough disk space, an error message is displayed. Consult the *Sun Java System Application Server 7 Release Notes* to identify the minimum disk space required.

The Installation Summary page is displayed indicating the installation status. If the installation is unsuccessful, consult the log files located at:

• Install Log: `/var/tmp/Sun_ONE_Application_Server_install.log`

• Low-level log

   ❍ For file-based Solaris SPARC and **x86** root user:
      `/var/sadm/install/logs/Sun_ONE_Application_Server_install.`*timestamp*

   ❍ For file-based Solaris SPARC and **x86** non-root user:
      `/var/tmp/Sun_ONE_Application_Server_install.`*timestamp*

    ❍   For package-based Solaris SPARC and x86:

        `/var/sadm/install/logs/Sun_ONE_Application_Server_install.`*`timestamp`*

If you downloaded the product from the web site, a 60-day license is installed.

If you installed the product from a CD, a non-expiring Application Server Standard Edition production license is installed.

Installing Standard Edition on Linux

The following instructions apply to RPM-based and package-based distribution unless specifically identified. You must have root privileges to install the package-based distribution. However, root privileges are not required for RPM-based distribution.

1. Run the installation program.

    a. To run the installation program in the graphical mode, at the command prompt type `setup`.

    b. To run the installation program in the command-line mode, at the command prompt type `setup -console`.

2. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

The default installation directory is dependent on the distribution you are installing see "Packaging Models and Directory Structure" on page 16.

3. Select the components you wish to install.

If a component is disabled, the installation program has detected it as already installed on your system.

4. Choose to install the Java 2 SDK, or use a preinstalled Java 2 SDK.

    ❍   If the correct version of the Java 2 SDK is installed, it is reused or you can enter the path to another correct version.

    ❍   If there is no Java 2 SDK installed, you can choose to let the installation program install the Java 2 SDK package automatically.

    ❍   For RPM-based, if an incorrect version of the Java 2 SDK is found in the default path, you are prompted to upgrade your current version.

    ❍   For file-based, if you choose to install the Java 2 SDK, a private copy is installed in *install_dir.*

The default Java 2 SDK installation path:

○   For Linux RPM-based distributions: `/usr/java`

○   For Linux file-based distributions: *install_dir*`/jdk`

5.   For RPM-based distribution, you are prompted to identify your server configuration directory.

The default server configuration directory is: `/etc/opt/SUNWappserver7`

6.   For RPM-based distribution, you are prompted to identify your server domains directory.

The default server domain directory is: `/var/opt/SUNWappserver7`

7.   In the Server Configuration Information page (or at the command line), enter the following:

○   Admin User—Name of the user who administers the server

○   Admin User's Password—Password to access the Admin Server (8 character minimum)

○   Admin Server Port—Port number to access the Admin Server

○   HTTP Server Port—Port number to access the default server instance

---

NOTE   The installation program automatically detects ports in use and suggests unused ports for the default settings. The default ports for package-based distribution, or file-based distribution as root user are 80 for the HTTP Server, and 4848 for the Admin Server.

          If you are installing file-based distribution as non-root user, the default ports are 1024 for the HTTP Server, and 4848 for the Admin Server.

The installation program verifies the available disk space on your machine. If you do not have enough disk space, an error message is displayed. Consult the *Sun Java System Application Server 7 Release Notes* to identify the minimum disk space required.

The Installation Summary page is displayed indicating the installation status. If the installation is unsuccessful, consult the log files located at:

•   Install Log: `/var/tmp/Sun_ONE_Application_Server_install.log`

•   Low-level log

○   For file-based Linux root and non-root user:
`/var/tmp/Sun_ONE_Application_Server_install.`*timestamp*

For RPM-based Linux:

/var/tmp/Sun_ONE_Application_Server_install.*timestamp*

If you downloaded the product from the web site, a 60-day license is installed.

If you installed the product from a CD, a non-expiring Application Server Standard Edition production license is installed.

Installing Standard Edition on Microsoft Windows

You must have administrator privileges to install the Application Server software.

1. Navigate to the directory where you unpacked the installation files. You will see the setup.exe file.

2. Run the installation program.

    a. To run the installation program that uses the graphical interface, at the command prompt type setup.

    b. To run the installation program that uses the command-line interface, at the command prompt type setup -console.

3. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

    The default installation directory is: c:\Sun\AppServer7

4. Select the components you wish to install.

    If a component is disabled, the installation program has detected it as already installed on your system.

5. Choose to install the Java 2 SDK, or use a preinstalled Java 2 SDK.

    ○ If the correct version of the Java 2 SDK is installed, it is reused or you can enter the path to another correct version.

    ○ If there is no Java 2 SDK installed, you can choose to let the installation program install the Java 2 SDK package automatically.

    ○ If you choose to install the Java 2 SDK, a private installation is installed at: c:\installdir\jdk

6. In the Server Configuration Information page (or at the command line), enter the following:

    ○ Admin User—Name of the user who administers the server

   ❍ Admin User's Password—Password to access the Admin Server (8
      character minimum)

   ❍ Admin Server Port—Port number to access the Admin Server

   ❍ HTTP Server Port—Port number to access the default server instance

NOTE	The installation program automatically detects ports in use and suggests unused ports for the default settings. The default ports are 80 for the HTTP Server, and 4848 for the Admin Server.

The installation program verifies the available disk space on your machine. If you
do not have enough disk space, an error message is displayed. Consult the *Sun Java
System Application Server 7 Release Notes* to identify the minimum disk space
required.

The Installation Summary page is displayed indicating the installation status. If the
installation is unsuccessful, consult the installation log file located at
installdir\install.log.

If you downloaded the product from the web site, a 60-day license is installed.

If you installed the product from a CD, a non-expiring Application Server Standard
Edition production license is installed.

Installing Enterprise Edition

This section provides instructions for installing the Application Server Enterprise
Edition on the various platforms for the various distributions. The following
installation is addressed:

• Installing Enterprise Edition on Solaris SPARC, x86 and Linux

• Installing Enterprise Edition on Microsoft Windows

Installing Enterprise Edition on Solaris SPARC, x86 and Linux

Unless specifically identified, the following instructions apply to:

• File-based distribution on Solaris SPARC and x86, and Linux

• RPM-based distribution on Linux

• Package-based distribution on Solaris SPARC, x86

You must have root access to install the package-based and RPM-based distributions. Root user is not needed for file-based distribution.

1. After you have planned the topology, run the installation program.

    a. To run the installation program in the graphical mode, at the command prompt type `setup`.

    b. To run the installation program in the command-line mode, at the command prompt type `setup -console`

    .

NOTE	If you are installing the load balancer plug-in, your web server must already be installed. Refer to "Installing the Load Balancer Plug-in Component" on page 33.

2. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

    The default installation directory is dependent on the distribution you are installing see "Packaging Models and Directory Structure" on page 16.

3. For package-based distribution, if you are installing only the HADB Server component, select `/opt` as the installation directory to install the HADB packages into the default location `/opt/SUNWhadb`.

4. For package-based distribution, select identical installation directories on all systems hosting HADB Server nodes.

    When installing the Sun Java System Application Server together with HADB, if you do not want to use the default installation folder, you can create alternate directories, and then create soft links (`ln -s`) to these directories from the `/var/opt` and `/etc/opt` directories.

5. Select the components you wish to install.

    If a component is disabled, it means that the installation program has detected it as already installed on your system.

    If you do not already have your web server installed on the machine where you are installing the load balancer plug-in, you cannot continue to install the load-balancer plug-in.

6. Choose to install the Java 2 SDK, or use a preinstalled Java 2 SDK.

    ○ If the correct version of the Java 2 SDK is installed, it is reused or you can enter the path to another correct version.

❍ If there is no Java 2 SDK installed, you can choose to let the installation program install the Java 2 SDK package automatically.

❍ For package-based or RPM-based distributions, if an incorrect version of the Java 2 SDK is found in the default path, you are prompted to upgrade your current version.

❍ For file-based distribution, if you choose to install the Java 2 SDK, a private copy is installed in *install_dir.*

The default Java 2 SDK installation path is:

❍ For Solaris SPARC and **x86** package-based distribution: `/usr/j2se`

❍ For Linux RPM-based distribution: `/usr/java`

❍ For Solaris SPARC and **x86** file-based distribution: *install_dir*`/jdk`

NOTE	The Sun Java System Application Server Enterprise Edition software is certified to work with Java 2 SDK from Sun Microsystems. Third-party Java 2 SDK development kits, even with appropriate version number, are not supported.

7. For package-based and RPM-based distributions, you are prompted to identify your server configuration directory.

The default server configuration directory is: `/etc/opt/SUNWappserver7`

8. For package-based and RPM-based distributions, you are prompted to identify your server domains directory.

The default server domain directory is: `/var/opt/SUNWappserver7`

9. If you selected the load balancer plug-in component, identify your web server.

10. In the Server Configuration Information page (or at the command line), enter the following:

❍ Admin User—Name of the user who administers the server

❍ Admin User's Password—Password to access the Admin Server (8 character minimum)

❍ Admin Server Port—Port number to access the Admin Server

❍ HTTP Server Port—Port number to access the default server instance

NOTE	The installation program automatically detects ports in use and suggests unused ports for the default settings. For package-based distribution and file-based distribution as non-root user, the default ports are 80 for the HTTP Server, and 4848 for the Admin Server.
	If you are installing file-based distribution as non-root user, the default ports are 1024 for the HTTP Server, and 4848 for the Admin Server.

The installation program verifies the available disk space on your machine. If you do not have enough disk space, an error message is displayed. Consult the *Sun Java System Application Server 7 Release Notes* to identify the minimum disk space required.

The Installation Summary page is displayed indicating the installation status. If the installation is unsuccessful, consult the log files located at:

- Install Log: `/var/tmp/Sun_ONE_Application_Server_install.log`

- Low-level log

    ○ For file-based Solaris SPARC and x86 root user:
      `/var/sadm/install/logs/Sun_ONE_Application_Server_install.`*timestamp*

    ○ For file-based Solaris SPARC and x86 non-root user:
      `/var/tmp/Sun_ONE_Application_Server_install.`*timestamp*

    ○ For package-based Solaris SPARC and x86:
      `/var/sadm/install/logs/Sun_ONE_Application_Server_install.`*timestamp*

    ○ For file-based Linux root and non-root user:
      `/var/tmp/Sun_ONE_Application_Server_install.`*timestamp*

    ○ For RPM-based Linux:
      `/var/tmp/Sun_ONE_Application_Server_install.`*timestamp*

If you downloaded the product from the web site, a 60-day license is installed.

If you installed the product from a CD, a non-expiring Application Server Standard Edition production license is installed.

11. Start the server.

12. If you selected the HADB components, verify that you have successfully installed the HADB on each host by typing: `hadbm --help`

A list of all commands available using the `hadbm` utility is displayed. The `hadbm` is located at *install_dir*`/SUNWhadb/4/bin`.

You are now ready to configure your system for high availability. Proceed to "Preparing for HADB Setup" on page 45.

13. After installation, if you selected the Load-balancer plug-in, edit the supplied `loadbalancer.xml.example` file to include references to actual application server instances. This file is located at:
webserver_instance_dir`/config/loadbalancer.xml.example`

For more information on configuring HTTP load balancing and Failover, consult the *Sun Java System Application Server Administration Guide*.

14. Save the `loadbalancer.xml.example` file as `loadbalancer.xml` in the same directory.

Installing Enterprise Edition on Microsoft Windows

You must have administrator privileges to install the Application Server software.

1. Navigate to the directory where you unpacked the installation files.

2. Run the installation program. by selecting `setup.exe`.

3. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

The default installation directory is: c:\Sun\AppServer7

4. Select the components you wish to install.

If a component is disabled, the installation program has detected it as already installed on your system.

NOTE	If you are installing the load balancer plug-in, your web server must already be installed. Refer to "Installing the Load Balancer Plug-in Component" on page 33.

5. Choose to install the bundled Java 2 SDK, or use a pre-installed Java 2 SDK.

       ❍   If the correct version of the Java 2 SDK is installed, you can re-use the existing installation. If the versions do not match, enter the path to an installation with the correct version.

       ❍   If there is no Java 2 SDK installed, choose to install the bundled Java 2 SDK. The bundled Java 2 SDK is installed at: c:\installdir\jdk.

6. In the Server Configuration Information page (or at the command line), enter the following information:

       ❍   Admin User—Name of the user who administers the server

       ❍   Admin User's Password—Password to access the Admin Server (8 character minimum)

       ❍   Admin Server Port—Port number to access the Admin Server

       ❍   HTTP Server Port—Port number to access the default server instance

NOTE	The installation program automatically detects ports in use and suggests unused ports for the default settings. The default ports are 80 for the HTTP Server, and 4848 for the Admin Server.

The installation program verifies the available disk space on your machine. If you do not have enough disk space, an error message is displayed. Consult the *Sun Java System Application Server 7 Release Notes* to identify the minimum disk space required.

The Installation Summary page is displayed indicating the installation status. If the installation is unsuccessful, consult the installation log file, `Sun_Java_system_Application_Server_install.log`, located in the Windows temp directory.

If you downloaded the product from the web site, a 60-day license is installed.

If you installed the product from a CD, a non-expiring Application Server Enterprise Edition production license is installed.

Installing the Load Balancer Plug-in Component

Follow the steps to separately install the load balancer plug-in component:

1. Check the system hosting the web server and load balancer plug-in to see if a previously-installed load balancer plug-in or reverse proxy plug-in is present. If it is, remove it using the installation program.

2. Verify that the supported web server is installed on the machines where you are going to install the load balancer plug-in.

NOTE	You must install the web server and the load balancer plug-in using the same access permissions.

Consult the *Sun Java System Application Server 7 Release Notes* to identify the currently supported Web Server versions.

3. Identify your web server and the web server instance path.

4. Follow the instructions in the setup program to complete the installation.

NOTE	for Apache web server, the load balancer plug-in installation program extracts the necessary files to the `libexec` folder on Apache 1.3, or the `modules` folder on Apache 2.0.

   ❍ The Installation Summary page is displayed indicating the installation status. If the installation is unsuccessful, consult the installation log file located at `/var/tmp/Sun_Java_System_application_Server_install.log`. In addition, low-level installation log files are created at: `/var/sadm/install/logs/Sun_Java_System_Application_Server_instal l.`*timestamp*.

   On Windows, the installation log file is available in *install_dir*`\install.log`.

   ❍ On Windows, the installation program adds the following properties in `sun-passthrough.properties` file, which is installed in `C:\Inetpub\wwwroot\sun-passthrough\`.

   `lb-config-file`: The path to loadbalancer.xml. The default location is *IIS_www_root*`\sun-passthrough\loadbalancer.xml`.

   `log-file`: The path to the loadbalancer log file. The default location is *IIS_www_root*`\sun-passthrough.log`

   `log-level`: The logging level for the loadbalancer plugin. The default is `INFO`.

5. After installation, edit `loadbalancer.xml.example` file to include references to actual application server instances. This file is located at: *webserver_instance_dir*/config/loadbalancer.xml.example

   On Windows: `ISS_www_root\sun-passthrough\loadbalancer.xml.example`.

6. Save the `loadbalancer.xml.example` file as `loadbalancer.xml` in the same directory.

NOTE   After installing load balancer plug-in on Windows for IIS or Apache, append the path of the Application Server to the Path environment variable.

   • Go to Start->Settings->Control Panel->System->Advanced->Environment Variables->System Variables->Path, and add: `appserver_install_dir\bin`

   • You must restart the machine.

For more information on configuring HTTP load balancing and Failover, consult the *Sun Java System Application Server Administration Guide*.

Installing in Silent Mode

Silent mode installation runs without any user input checking a configuration file to obtain the installation information. The following topics are discussed:

• Creating the Installation Configuration File

• Installing in Silent Mode

Creating the Installation Configuration File

The installation configuration file is created when you use the `savestate` option with the `setup` command to start a interactive installation. During the interactive installation, your input is collected and stored in the configuration file you specified. This forms the template for silent installation, which you can use later to install the product on one or more machines. If needed, you can modify the installation configuration file.

The following topics are addressed:

• Syntax for Creating the Installation Configuration File

• Example Installation Configuration File

• Modifying the Installation Configuration File

Syntax for Creating the Installation Configuration File

The syntax for creating an installation configuration file is as follows:

For graphical method: `./setup -savestate`

For command-line method: `./setup -console -savestate`

Refer to "Installation Methods" on page 19 for more detailed information.

Example Installation Configuration File

An installation configuration file looks similar to the following:

```
# Wizard Statefile created: Mon Jan 17 16:25:26 PST 2004

#                 Wizard path: /tmp/sun-appserver7/./appserv.class

# Install Wizard Statefile for Sun Java System Application Server 7.1 Enterprise Edition

#

[STATE_BEGIN Sun Java System Application Server 108a4222b3a6a8ed98832d45238c7e8bb16c67a5]

defaultInstallDirectory = /opt/SUNWappserver7
currentInstallDirectory = /opt/SUNWappserver7

SELECTED_COMPONENTS = Java 2 SDK, Standard Edition 1.4.21_02#Application Server#Sun ONE
Message Queue 3.5#Sample Applications#Load Balancing Plugin#Uninstall#Startup

USE_BUNDLED_JDK = FALSE
JDK_LOCATION = /usr/j2se
JDK_INSTALLTYPE = PREINSTALLED
INSTALL_DEFAULT_CONFIG_DIR = /etc/opt/SUNWappserver7
INSTALL_CONFIG_DIR = /etc/opt/SUNWappserver7
INSTALL_DEFAULT_VAR_DIR = /var/opt/SUNWappserver7
INSTALL_VAR_DIR = /var/opt/SUNWappserver7
DOMAINS_DIR = /var/opt/SUNWappserver7/domains
WEBSERVER_INSTALL_DEFAULT_DIR = /usr/iplanet/servers
WEBSERVER_INSTALL_DIR = /opt/iplanet/servers/https-tesla.red.iplanet.com
INST_ASADMIN_USERNAME = admin
INST_ASADMIN_PASSWORD = adminadmin
INST_ASADMIN_PORT = 4848
INST_ASWEB_PORT = 81
INSTALL_STATUS = SUCCESS
[STATE_DONE Sun Java System Application Server 108a4222b3a6a8ed98832d45238c7e8bb16c67a5]
```

Modifying the Installation Configuration File

You can modify the installation configuration file by editing the variables and values described in Table 1-5.

Table 1-5   Installation Configuration File Variables

Variable Name	Valid values (if applicable)	Content	Comments
defaultInstallDirectory		Default installation directory path	Value not actively used by installation program.
currentInstallDirectory		Selected installation directory path	
SELECTED_COMPONENTS		List of product components selected for installation	Pound (#') character is used as list delimiter.
USE_BUNDLED_JDK	TRUE FALSE	Whether to install JDK bundled with the product	
JDK_LOCATION		JDK path	Preinstalled JDK path if USE_BUNDLED_J2SE is set to false; otherwise installation location for bundled J2SE.
JDK_INSTALLTYPE	PREINSTALLED CANNOTUPGRADE UPGRADABLE CLEANINSTALL	How to handle existing JDK installation	Only PREINSTALLED and CLEANINSTALL are valid values for silent installation configuration file.
INSTALL_DEFAULT_CONFIG_DIR		Default configuration files directory path	Value not actively used by installation program.
INSTALL_CONFIG_DIR		Selected configuration file directory path	
INSTALL_DEFAULT_VAR_DIR		Default domains configuration files directory path	Value not actively used by installation program.
INSTALL_VAR_DIR		Selected domains configuration file directory path	
DOMAINS_DIR		Selected domains configuration file directory path, plus domains subdirectory	AS_INSTALL_VAR_DIR and DOMAINS_DIR are generally redundant. However, both entries are needed by legacy installation program code.

Table 1-5 Installation Configuration File Variables *(Continued)*

Variable Name	Valid values (if applicable)	Content	Comments
WEBSERVER_INSTALL_DEFAULT_DIR		Default web server instance directory path	**Enterprise Edition ONLY** Value not actively used by installation program.
WEBSERVER_INSTALL_DIR		Selected web server instance directory path	**Enterprise Edition ONLY**
INST_ASADMIN_USERNAME		Administrator username for initial domain	
INST_ASADMIN_PASSWORD		Administrator password for initial domain	
INST_ASADMIN_PORT	0 - 65535	Administration server port number for initial domain	
INST_ASWEB_PORT	0 - 65535	Server port number for initial server instance	
INSTALL_STATUS	SUCCESS FAILURE	Installation outcome	Mandated by installation program implementation. Value not actively used by installation program.

NOTE	You cannot re-use the configuration file created for one distribution on other distributions or editions of the Application Server.
	To view the results of the silent installation, refer to the log file.

Installing in Silent Mode

To install the Sun Java System Application Server software in silent mode:

1. Review configuration file and verify that it contains what you want to use for your silent installation.

2. Copy your installation configuration file to each machine where you plan to install the Sun Java System Application Server software.

3. Copy the Sun Java System Application Server installation files to each machine where you plan to install the Application Server software.

4. Navigate to the directory where you copied the installation files and your installation configuration file.

5. As superuser, start silent installation at the command line using the following command format: `./setup -silent` *config_file*

   The installation program reads the specified *config_file*, checks for adequate disk space, then installs the product based on the data in *config_file*.

   When the prompt is returned, the silent installation is complete and the installation components are installed on your systems.

6. You can start the Application Server software by using the instructions in the *Sun Java System Application Server Administration Guide*.

   When the Admin Console is started, the initial page of the Application Server graphical interface is displayed.

You are now ready to configure your system for high availability. Proceed to to begin this process.

Troubleshooting Installation

This section explains how you can work around issues that you may encounter when installing Application Server.

All Platforms

Application Server does not start if the installation directory contains non-alphanumeric characters.
Application Server startup fails if the installation directory contains characters such as #, spaces, or any other non-alphanumeric characters. In this case, the server log files are not created. The Application Server installation directory can contain only the following characters: alphanumerics, - (dash) or _ (underscore). This also applies to the existing Java 2 SDK directory specified during installation.

Solution
During installation, when you specify the installation directory, ensure that its name contains only alphanumeric, dash, or underscore characters.

Silent installation program does not check user permissions.
Although the interactive installation programs (GUI and command-line) check for appropriate user permissions (UNIX root user), this check is not done during silent installation. As a result, installation may fail because the user will not have sufficient permissions to install packages.

Solution
Make sure that silent installation is being run as the appropriate user.

Silent installation fails if performed as a non-root user.
When the statefile from an installation of Application Server, performed as non-root, is used for silent installation, the installation will fail with the message:

```
No available components have been selected for installation.
Component list is either empty, or contains already installed
components.
```

Solution
1. Open the statefile for editing.

2. Comment out the line starting with "INSTALLED_AS_COMPONENTS."

3. Perform silent installation again using the modified statefile.

UNIX

On Solaris, when installing the Application Server in non-default locations, the package-based installation program does not check disk space in the correct locations.
When installing the Application Server on Solaris (using the package-based installation program) in a non-default location, the installation program does not check for disk space in the specified target directory. Instead, it checks for disk space only in the default directory location (/opt).

Solution
Before installation, verify that you have adequate disk space (85 MB) in /opt directory; even if you do not plan to install in /opt. In addition, make sure you have adequate disk space (85 MB) in the target directory.

On Solaris, an error message is displayed while running installation from a CD.
When a volume is inserted into the CD-ROM drive, Solaris volume management assigns it the next symbolic name. For example, if two CD-ROMs match the default regular expression, they are named cdrom0 and cdrom. Any volume that matches the added regular expression would be named starting with cdrom2. This is

documented on `vold.conf` man page. Every time you install the Application Server from the CD, the CD-ROM mount point appends a number after the label name. The first time the CD is mounted everything goes well. On subsequent mounts, the following error message occurs when the installation program starts:

```
IOException:java.io.FileNotFoundException: /cdrom/appserver7 (No
such file or directory) while loading default flavormap.properties
file
URL:file:/cdrom/appserver7#4/AppServer7/pkg/jre/lib/flavormap.prope
rties
```

Solution

The functionality of the installation program is not affected in any way. The following workaround exists for this issue:

1. Become the superuser using the command `su` and the superuser/root password at the command prompt, or log in as root. The command prompt changes to the pound sign (#).

2. If the `/cdrom` directory does not already exist, enter the following command to create it:

   ```
   # mkdir /cdrom
   ```

3. Mount the CD-ROM drive.

NOTE   The `vold` process manages the CD-ROM device and performs the mounting. The CD-ROM might automatically mount onto the `/cdrom/cdrom0` directory.

If you are running File Manager, a separate File Manager window displays the contents of the CD-ROM.

If the directory `/cdrom/cdrom0` is empty because the CD-ROM was not mounted, or if File Manager does not open a window displaying the contents of the CD-ROM, verify that the vold daemon is running by entering the following command:

```
# ps -e | grep vold | grep -v grep
```

If vold is running, the system displays the process identification number of vold. If the system does not display anything, kill the daemon by typing the following:

```
# ps -ef | grep vold | grep -v grep
```

Stop the vold process by entering:

```
# kill -15 process_ID_number
```

4. Mount the CDROM manually:

```
# mount -F hsfs -r ro /dev/dsk/cxtyd0sz /cdrom/cdrom0
```

where, x is the CD-ROM drive controller number, y is the CD-ROM drive SCSI ID number, and z is the slice of the partition on which the CD-ROM is located.

You have now mounted the CD-ROM drive. Refer to Solaris documentation for procedures on installation.

On Solaris, an incremental installation of the Application Server component on the system, with previously installed Administration Client component, may result in an unusable installation.

This issue affects Solaris package-based installation. If you install the Application Server on a system where a standalone Administration Client component has already been installed, and select a different installation directory from the one originally used for Administration Client installation, the resulting Application Server installation will be unusable even though the installation outcome is reported as successful. This is because the Administration Client Solaris packages will be detected as already installed on the system, and will not be installed as part of the Application Server installation. As a result, files critical for product functionality will be missing.

Solution

Uninstall the standalone Administration Client before attempting to install the Application Server on the same Solaris system.

Alternatively, an incremental installation can be attempted; the same installation directory that was used for the Administration Client installation should be used for the subsequent Application Server installation.

Linux

The command asadmin create-domain **hangs and fails to create a domain on Red Hat Enterprise Linux AS 3.0.**

On Red Hat Enterprise Linux AS 3.0, you must install compat-libstdc++ (standard C++ libraries for backward compatibility) before installing Sun Java System Application Server 7. These libraries are included on the Red Hat Enterprise Linux AS 3.0 product CD set. If this is not done, the asadmin create-domain command hangs and fails to create a domain on Red Hat Enterprise Linux AS 3.0.

**Two Message Queue packages are installed on Linux if you are doing a full
installation and if a qualified Message Queue is already installed.**
Due to a bug in the Linux RPM utility in 4.2.1.xx, the installed Sun ONE Message
Queue (identified as imq) RPM is not recognized. Because of this problem, the
Application Server installation program will install a second version of the Sun
ONE Message Queue RPM. To work around this, either install the 4.2.0.69 version
of RPM on your system or uninstall Message Queue before installing the
application server.

Typically 4.2.1.xx version of RPM is present in Red Hat Enterprise Linux Advanced
Server 3.0 unless the RPM package was upgraded on prior versions of the Linux
system.

Microsoft Windows

On Microsoft Windows, unwanted statements are present in installation log file.
The Sun Java System Application Server 7 Standard Edition installation program
for Microsoft Windows platforms generates the detailed installation log under the
directory defined by the environment variable%TEMP%. The log filename is
`Sun_Java_System_Application_Server_install.b`*timestamp*. The log file will have
statements 'Continuing Multi CD installation' embedded in them along with
useful information about the installation process.

Solution
These messages in the log file can be safely ignored.

**On Microsoft Windows, the services created have the start type set by default to
'Automatic' after an upgrade.**

Solution
1. Open the Windows services.

2. Change the start type of the servers to 'Manual.'

Troubleshooting Installation

Preparing for HADB Setup

After the high-availability components are installed on the servers that will be part of a cluster, you are ready to set up high availability.

The following topics are addressed here:

- Configuring Shared Memory and Semaphores

- Network Configuration Requirements

- Time Synchronization

- File System Support

- Running HADB Node Supervisor Processes with Real-time Priority

- Starting the HADB Management Agent

- Setting Up the User Environment

- Setting Up Administration for Non-Root

- Using clsetup

After you have done the tasks here, proceed to the *Sun Java System Application Server Administration Guide* for comprehensive instructions on configuring and managing the cluster, the load balancer plug-in, and the high-availability database (HADB).

Information on high-availability topologies is available in the *Sun Java System Application Server System Deployment Guide.*

Configuring Shared Memory and Semaphores

This section contains instructions for configuring shared memory and System V semaphores for the HADB host machines. You must configure the shared memory before working with HADB.

- Configuring Shared Memory on Solaris

- Configuring Shared Memory on Linux

Information on high-availability topology is available in the *Sun Java System Application Server System Deployment Guide.*

Configuring Shared Memory on Solaris

1. Log in as `root`.

2. Set the `shmmax` value to the size of the physical memory on the HADB host machine. The maximum shared memory segment size must be larger than the size of the HADB database buffer pool. For a machine with a 2 GBytes (0x8000000 hexadecimal) main memory, add the following to the `/etc/system` file:

```
set shmsys:shminfo_shmmax=0x80000000
set shmsys:shminfo_shmseg=20
```

NOTE	• `shmsys:shminfo_shmseg` is obsolete in Solaris 9 and later.
	• The `shmsys:shminfo_shmmax` value is specified using the hexadecimal value of the memory size. To determine your host's memory, run this command: `prtconf	grep Memory`

3. Check your `/etc/system` file for semaphore configuration entries. This file may already contain `semmni`, `semmns`, and `semmnu` entries. For example:

```
set semsys:seminfo_semmni=10
set semsys:seminfo_semmns=60
set semsys:seminfo_semmnu=30
```

If the entries are present, increment the values by 16, 128, and 1000 respectively. The entries in the example above would change to:

```
set semsys:seminfo_semmni=26
set semsys:seminfo_semmns=188
set semsys:seminfo_semmnu=1030
```

If your `/etc/system` file does not contain the above mentioned entries, add the following entries at the end of the file:

```
set semsys:seminfo_semmni=16
set semsys:seminfo_semmns=128
set semsys:seminfo_semmnu=1000
```

This is sufficient to run up to 16 HADB nodes on the computer. Consult the HADB chapter in the *Sun Java System Performance Tuning Guide* if there will be more than 16 nodes.

4. To make these changes take effect, restart the machine.

Configuring Shared Memory on Linux

1. Log in as root.

2. Set the size of the maximum shared memory segment to the same value as the physical memory on the machine by adding the following entry to the `/etc/sysctl.conf` file:

```
kernel.shmmax=536870912
```

This value is given as number of bytes in decimal numbering. This example is for a machine having 512 Mbytes of physical memory.

3. Reboot the machine.

Network Configuration Requirements

Configuration requirements for the network include the following:

- HADB supports Internet Protocol version 4 (IPv4) only. Addresses given for HADB management agents (configuration variable `ma.server.mainternal.interfaces`) and HADB hosts (given as the `--hosts` option to `hadbm create`) must be IPv4 addresses.

- The network (routers, switches and network interfaces on the hosts) must be configured for User Datagram Protocol (UDP) multicast. If HADB hosts span multiple subnets, routers between the subnets must be configured to forward UDP multicast messages between the subnets.

- Firewalls can be set up between two HADB hosts, or between HADB hosts and and Application Server hosts when an Application Server instance is not co-locating with an HADB node on the same host. Firewalls must be set up to allow all UDP traffic, both ordinary UDP traffic and UDP multicast traffic.

- Do not use dynamic IP addresses (DHCP) for hosts used in `createdomain`, `extenddomain`, or `hadbm` commands.

To ensure HADB availability in spite of single network failures, use one of the following:

- A double network.

  For information on configuring HADB to exploit double networks, see the *Sun Java System Application Server Administration Guide.*

NOTE	Do not configure HADB with double networks on Windows 2003. For more information, refer to text about 5103186 in the Known Problems section of the *Sun Java System Application Server Release Notes.*

- Network multipathing.

  Network multipathing is available on Solaris only and tested on Solaris 9.

  To set up multipathing before you adapt the multipathing setup for HADB, refer to the Administering Network Multipathing section of the *IP Network Multipathing Administration Guide* at http://docs.sun.com/doc/816-5249.

  If the hosts to be used for HADB already use IP multipathing, reconfigure them to suit the HADB requirements:

  ○ Set network interface failure detection time

For HADB to properly support multipathing failover, the network interface failure detection time must not exceed 1000 milliseconds as specified by the FAILURE_DETECTION_TIME parameter in /etc/default/mpathd. Edit the file and change the value of this parameter to 1000 if the original value is higher:

```
FAILURE_DETECTION_TIME=1000
```

To make the above change, use the following command:

```
pkill -HUP in.mpathd
```

❍ IP addresses to use with HADB.

As described in the *IP Network Multipathing Administration Guide*, multipathing involves grouping physical network interfaces into multipath interface groups. Each physical interface in such a group has two IP addresses associated with it:

• a physical interface address used for transmitting data

• a test address for Solaris internal use only

Only the physical interface address can be used for transmitting data, while the test address is only for Solaris internal use.

When hadbm create --hosts is run, each host should be specified with only one physical interface address from the multipath group. For example, assume that Host 1 and Host 2 have two physical network interfaces each. On each host, these two interfaces are set up as a multipath group, and running ifconfig -a yields the following:

Host1:

```
bge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 5 inet 129.159.115.10 netmask ffffff00 broadcast
129.159.115.255 groupname mp0

bge0:1:
flags=9040843<UP,BROADCAST,RUNNING,MULTICAST,DEPRECATED,IPv4,NOF
AILOVER> mtu 1500 index 5 inet 129.159.115.11 netmask ffffff00
broadcast 129.159.115.255

bge1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 6 inet 129.159.115.12 netmask ffffff00 broadcast
129.159.115.255 groupname mp0
```

```
bge1:1:
flags=9040843<UP,BROADCAST,RUNNING,MULTICAST,DEPRECATED,IPv4,NOF
AILOVER> mtu 1500 index 6 inet 129.159.115.13 netmask ff000000
broadcast 129.159.115.255
```

Host2:

```
bge0: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 3 inet 129.159.115.20 netmask ffffff00 broadcast
129.159.115.255 groupname mp0
```

```
bge0:1:
flags=9040843<UP,BROADCAST,RUNNING,MULTICAST,DEPRECATED,IPv4,NOF
AILOVER> mtu 1500 index 3 inet 129.159.115.21 netmask ff000000
broadcast 129.159.115.255
```

```
bge1: flags=1000843<UP,BROADCAST,RUNNING,MULTICAST,IPv4> mtu
1500 index 4 inet 129.159.115.22 netmask ffffff00 broadcast
129.159.115.255 groupname mp0
```

```
bge1:1:
flags=9040843<UP,BROADCAST,RUNNING,MULTICAST,DEPRECATED,IPv4,NOF
AILOVER> mtu 1500 index 4 inet 129.159.115.23 netmask ff000000
broadcast 129.159.115.255
```

In this example, the physical network interfaces on both hosts are those listed as bge0 and bge1. The interfaces listed as bge0:1 and bge1:1 are multipath test interfaces (marked DEPRECATED in the ifconfig output), as described in the *IP Network Multipathing Administration Guide.*

To set up HADB in this environment, select one physical interface address from each host. In this example, the IP address 129.159.115.10 from host 1 and 129.159.115.20 from host 2 are selected for the use of HADB. To create a database with one database node per host, use the --host argument to hadbm create. For example

```
--host 129.159.115.10,129.159.115.20
```

To create a database with two database nodes on each host, use the following argument:

```
--host
129.159.115.10,129.159.115.20,129.159.115.10,129.159.115.20
```

In both cases, you must configure the agents on Host 1 and Host 2 with separate configuration parameters to specify which interface on the machines the agents should use:

```
Host 1: ma.server.mainternal.interfaces=129.159.115.10

Host 2: ma.server.mainternal.interfaces=129.159.115.20
```

For information on the `ma.server.mainternal.interfaces` variable, see the section Starting Management Agents in the chapter Administering the High-Availability Database (Enterprise Edition) of the *Sun Java System Application Server Administration Guide.*

Time Synchronization

Synchronize the clocks on the hosts running HADB, because HADB uses time stamps based on the system clock for debugging purposes as well as for controlling internal events. The events are written to history files prefixed by time stamps. Since HADB is a distributed system, history files from all HADB nodes are analyzed together in troubleshooting. HADB also uses the system clock internally to manage time-dependent events such as timeouts.

Adjusting system clocks on running HADB systems is not recommended. HADB has been implemented to handle this in general, but you should note the following points:

*   Problems in the operating system or other software components on the hosts might cause problems for the whole system when the clock is adjusted. Typical problems include hangs or restarts of nodes.

*   Adjusting the clock backward might cause some HADB server processes to hang for a period of time as the clock was adjusted. Adjusting the time forward does not cause processes to hang.

To synchronize clocks, use one of these:

*   xntpd (network time protocol daemon) in Solaris

*   ntpd in Linux

*   NTPTime in Windows

If a clock adjustment of more than 1 second is detected, this line is output into the history file of the HADB nodes:

```
NSUP   INF 2003-08-26 17:46:47.975 Clock adjusted.
Leap is +195.075046 seconds.
```

File System Support

To configure HADB, you need to understand the following, if you use one of these file systems:

- HADB supports the file systems ext2 and ext3 on Red Hat Enterprise Linux 3.0. On Red Hat Enterprise Linux 2.1, HADB supports only the file system ext2.

- When Veritas File System is used on the Solaris platform, the message `WRN: Direct disk I/O mapping failed` is written to the history files. This message indicates that HADB cannot turn on direct I/O for the data and log devices. Direct I/O is a performance enhancement that reduces the CPU cost of writing disk pages. It also causes less overhead of administering dirty data pages in the operating system.

  To use direct I/O with Veritas File System, use one of the following:

  ○ Create the data and log devices on a file system that is mounted with the option `mincache=direct`. This option applies to all files created on the file system. Check the `mount_vxfs(1M)` command for details.

  ○ Use the Veritas Quick I/O facility to perform raw I/O to file system files. Check the document *VERITAS File System 4.0 Administrator's Guide for Solaris* for details.

NOTE	These configurations have not been tested with Sun Java System Application Server.

Running HADB Node Supervisor Processes with Real-time Priority

Node supervisor processes (NSUP) ensure the high availability of the HADB with the help of exchanging `I'm alive` messages in a timely manner. Timing is affected when an NSUP process is co-located with other processes and resource starvation results. False network partitioning and node restarts (preceded by a warning `Process blocked for .. seconds` in HADB history files) occur, resulting in aborted transactions and other exceptions.

To solve this, NSUP executable `clu_nsup_srv` in the *install_dir*`/lib/server` directory should have setuid root. To avoid any security impact by using setuid, the real-time priority is set immediately after the process is started and the process falls back to the effective uid once the priority has been changed. Other HADB processes run with normal priority.

If NSUP cannot set the real-time priority, it issues a warning `Could not set realtime priority` in Windows. In Solaris and Linux `errno` is set to EPERM. The error is written to the `ma.log` file, and the process continues without real-time priority.

Setting real-time priorities is not possible when:

- HADB is installed on Solaris 10 non-global zones

- `PRIV_PROC_LOCK_MEMORY` (allow a process to lock pages in physical memory) and/or `PRIV_PROC_PRIOCNTL` privileges are revoked in Solaris 10

- Users turn off setuid permission

- Users install the software as tar files (the non-root installation option for Application Server)

NSUP is not CPU consuming, its footprint is small, and running it with realtime priority does not affect performance.

Starting the HADB Management Agent

HADB requires that a management agent must be running on every HADB host before you issue any hadbm management commands, including the creation of the database instance.

Chapter 3, "Administering the High Availability Database," of the *Sun Java System Application Server Administration Guide* describes how the management agents are started.

Setting Up the User Environment

NOTE	The procedures mentioned in this chapter contain UNIX specific examples. Except where indicated, the same commands and examples, with appropriate modifications, are applicable for Microsoft Windows platforms.

After you have set up host communication, you can run the `hadbm` command from the *install_dir*/`SUNWhadb/4/bin` directory location as follows:

```
./hadbm
```

However, it is much more convenient to set up your local environment to use the high-availability management client commands from anywhere. To set this up, perform the following steps.

NOTE	The examples in this section apply to using `csh`. If you are using another shell, refer to the man page for your shell for instructions on setting variables.

1. Set the PATH variable:

   ```
   setenv PATH ${PATH}:install_dir/bin:install_dir/SUNWhadb/4/bin
   ```

2. Verify that the PATH settings are correct by running the following commands:

   ```
   which asadmin
   which hadbm
   ```

3. If multiple Java versions are installed, ensure that the JAVA_HOME environment is accessing JDK version 1.4.2_06 for Enterprise Edition.

   ```
   setenv JAVA_HOME java_install_dir
   setenv PATH ${PATH}:${JAVA_HOME}/bin
   ```

4. If your HADB device files and log files are not in the default location (*appserver_install_dir*/`SUNWhadb/4`),use the following `hadbm` command to locate these important files:

   ```
   hadbm get configpath
   hadbm get devicepath
   hadbm get historypath
   hadbm get installpath
   ```

   Backup the locations listed by these commands.

Setting Up Administration for Non-Root

By default, during the initial installation or setup of the Sun Java System Application Server, write permissions of the files and paths created for Sun Java System Application Server are given to root only. For a user other than root to create or manage the Sun Java System Application Server, write permissions on the associated files must be given to that specific user, or to a group to which the user belongs. The files that are affected are (with their default locations):

- Sun Java System Application Server configuration files—*install_config_dir*/cl*.conf

- Sun Java System Application Servers setup and administration scripts—*install_dir*/bin/cl*

- HADB binaries—*install_dir*/SUNWhadb

- HADB configuration—/etc/opt/SUNWhadb

- clsetup log file location—/var/tmp

You can create a user group for managing the Sun Java System Application Server as described in the following procedure. (An alternate approach is to set permissions and ownership for the specific user.)

To create a Sun Java System Application Server user group and set permissions on the installation root directory, repeat the following process for each affected file:

1. Log in as root.

2. From the command prompt, create the Sun Java System Application Server user group. For example:

   # groupadd sjsasuser

   You can type groupadd at the command line to see appropriate usage.

3. Change the group ownership for each affected file to the newly-created group. For example:

   chgrp -R sjsasuser *install_config_dir*/cl*.conf

4. Set the write permission for the newly-created group:

   chmod -R g+rw *install_config_dir*/cl*.conf

5. Repeat steps 3 and 4 for each affected file.

6. Make the `clsetup` and `cladmin` commands executable by the newly-created group. For example:

```
chmod -R g+x install_dir/bin/cl*
```

7. Delete and recreate the default domain, domain1, using the `--sysuser` option. The sysuser must also belong to the newly-created group. For example:

```
asadmin delete-domain domain1

asadmin create-domain --sysuser bleonard --adminport 4848
--adminuser admin --adminpassword password domain1
```

Using clsetup

The purpose of the `clsetup` utility is to automate the process of setting up a basic cluster in a typical configuration. The utility is located in *install_dir*/bin, where *install_dir* is the directory where the Sun Java System Application Server software is installed.

The `clsetup` utility, as well as the `cladmin` utility are bundled with Sun Java System Application Server.

NOTE	The `cladmin` command is used to streamline the process of configuring and administering the cluster after all installation and configuration tasks are complete. Refer to the *Sun Java System Application Server Administration Guide* for instructions on creating the HADB and on using the `cladmin` command.

The following topics are addressed:

- How clsetup Works

- Requirements and Limitations of clsetup

- Editing the clsetup Input Files

- Running clsetup

- Cleanup Procedures for clsetup

How clsetup Works

The clsetup utility is a set of Sun Java System Application Server commands that allow a cluster to be configured automatically, based on prepopulated input files. As part of cluster setup, an HADB is created. However, you must set up your working cluster using the hadbm commands as described in the *Sun Java System Application Server Administration Guide.*

NOTE	The clsetup utility interface is unstable. An unstable interface may be experimental or transitional, and may therefore change incompatibly, be removed, or be replaced by a more stable interface in the next release.

The following topics are addressed in this section:

- How the Input Files Work
- What clsetup Accomplishes
- Commands Used by clsetup

How the Input Files Work

Three input files are used by the clsetup utility to configure the cluster:

- clinstance.conf—This file is pre-populated with information about application server instances server1 and server2. Refer to "The clinstance.conf File" on page 60 for information on the contents of this file.

- clpassword.conf—This file is pre-populated with the Admin Server password for domain1, which you provided when you installed Sun Java System Application Server 7.1 Enterprise Edition. Refer to "The clpassword.conf File" on page 62 for information on the contents of this file.

- clresource.conf—This file is pre-populated with information about the cluster resources: HADB, JDBC connection pool, JDBC resource, and session store and persistence. Refer to "The clresource.conf File" on page 62 for information on the contents of this file.

NOTE	The configuration parameters required to set up the cluster are always read from the input files, and cannot be supplied through the command line.

Use the clsetup configuration parameters as they are preconfigured to set up a typical cluster configuration. To support a different configuration, make edits to any or all of the configuration files.

What clsetup Accomplishes

Using the pre-populated values in the clsetup input files, the clsetup utility command:

- Creates a new server instance named server2 in the default domain named domain1. The HTTP port number for server2 is the next sequential number after the HTTP port number specified for server1 during installation (for example, if port number 80 is provided for server1 during installation, the port number for server2 is 81).

- Creates the HADB named hadb with two nodes on the local machine. The port base is 15200, and the database password is password.

- Creates the HADB tables required to store session information in the HADB.

- Creates a connection pool named appservCPL in all the instances listed in the clinstance.conf file (server1, server2).

- Creates a JDBC resource named jdbc/hastore in all the instances listed in the clinstance.conf file (server1, server2).

- Configures the session persistence information in all the instances listed in the clinstance.conf file (server1, server2).

- Configures an RMI/IIOP cluster in all the instances listed in the clinstance.conf file (server1, server2); thereby enabling RMI/IIOP failover.

- Configures SFSB failover in all the instances listed in the clinstance.conf file (server1, server2).

- Enables high availability in all the instances listed in the clinstance.conf file (server1, server2).

NOTE	Because the clresource.conf and clpassword.conf input files store passwords, they are access-protected with 0600 permissions.

Commands Used by clsetup

The clsetup utility uses a number of hadbm and asadmin commands to set up the cluster. Table 2-1 lists the clsetup tasks and the commands used to accomplish these tasks.

Table 2-1   hadbm and asadmin Commands Used by the clsetup Utility

Task Performed by clsetup	Command
Checks to see if database exists.	`hadbm status`
Creates and starts the HADB.	`hadbm create`
Gets the JDBC URL.	`hadbm get jdbcURL`
Creates the session store.	`asadmin create-session-store`
Checks the instance status.	`asadmin show-instance-status`
Creates the instance.	`asadmin create-instance`
Creates the JDBC connection pool.	`asadmin create-jdbc-connection-pool`
Registers the data source.	`asadmin create-jdbc-resource`
Configures the persistence type	`asadmin configure-session-persistence`
Configures RMI/IIOP failover	`asadmin add-iiop-cluster-endpoint`
Configures SFSB failover	`asadmin set`
Reconfigures the instance.	`asadmin reconfig -u admin`

Requirements and Limitations of clsetup

The following requirements and limitations apply to the clsetup utility:

- The install paths, device paths, configuration paths, and so on must be the same on all machines that are part of the cluster.

- Before you can use the clsetup utility, the asadmin and hadbm utilities must be available on the local machine. The clsetup utility can only be run on a machine where the following are installed:

  - The Sun Java System Application Server component or the Sun Java System Application Server Administration Client component

  - The HADB component or the HADB Management Client component

- Before you can use clsetup, configure shared memory for UNIX platforms as described in "Configuring Shared Memory and Semaphores" on page 46. The clsetup utility does not set any shared memory values.

  This procedure is not required on Windows platforms.

- Before running clsetup, start the Admin Servers of all the Sun Java System Application Server instances that are part of the cluster.

- The administrator password must be the same for all domains that are part of the cluster.

- If the entities to be handled (HADB nodes and Application Server instances) already exist, clsetup does not delete or reconfigure them, and the respective configuration steps are skipped.

- The values specified in the input files will be the same for all the instances in a cluster. The clsetup utility is not designed to set up instances with different values. For example, clsetup cannot create a JDBC connection pool with different settings for each instance.

- Host names in the shell initialization files—If prompts are included with host names in your .cshrc or .login files, clsetup may appear to hang. Remove any prompts and excess output in any remote command invocations. For example, running the hostname command on hostB should print hostB without a prompt.

- To run clsetup as a user other than root, follow the steps described in Setting Up Administration for Non-Root.

Editing the clsetup Input Files

The input files that are needed by the clsetup utility are installed under the configuration installation directory, (by default /etc/opt/SUNWappserver7 on UNIX and c:\Sun\AppServer7\config\ on Windows), as part of the installation procedure. These input files are pre-populated with the values to set up a typical configuration, you can edit them as needed for your configuration.

This section addresses:

- The clinstance.conf File

- The clpassword.conf File

- The clresource.conf File

The clinstance.conf File

For clsetup to work, all application server instances that are part of a cluster must be defined in the clinstance.conf file. During installation, a clinstance.conf file is created with entries for two instances. If you add more instances to the cluster, you must add information about these additional instances as follows:

```
# Comment
```

```
instancename instance_name
user user_name
host localhost
port admin_port_number
domain domain_n
instanceport instance_port_number
```

One set of entries is required for each instance that is part of the cluster. Any line that starts with a hash mark (#) is treated as a comment.

NOTE	The order in which these entries appear in the `clinstance.conf` file is important and must not be changed from the order specified here. If you add information about more application server instances, entries for these instances must appear in the same order. Comments can be added anywhere in the file.

Table 2-2 provides information about the entries in the `clinstance.conf` file. The left column contains the parameter name, the middle column defines the parameter, and the right column contains the default value.

Table 2-2   Entries in the clinstance.conf File

Parameter	Definition	Default Value
`instancename`	Application Server instance name	server1, server2
`user`	Admin Server user name	`admin`
`host`	Host name	`localhost`
`port`	Admin Server port number	`4848`
`domain`	Administrative domain name	`domain1`
`instanceport`	Application Server instance port	`80, 81`
`master`	Master instance (used for cluster verification)	false

Example clinstance.conf File

This `clinstance.conf` file contains information about two instances.

```
#Instance 1
```

```
instancename server1
user admin
host localhost
port 4848
domain domain1
instanceport 80

#Instance 2

instancename server2
user admin
host localhost
port 4848
domain domain1
instanceport 81
```

The clpassword.conf File

When `clsetup` runs, it launches the `asadmin` command which needs the Admin Server password specified in the `clpassword.conf` file during installation.

The format of the `clpassword.conf` file is as follows:

AS_ADMIN_PASSWORD= *password*

where *password* is the Admin Server password.

Permissions 0600 are preset on the `clpassword.conf` file, which can only be accessed by the root user.

The clresource.conf File

During installation, the `clresource.conf` file is created to set up a typical configuration. The `clresource.conf` file contains information about the following resources that are part of the cluster:

- HADB
- Agent info
- Session store
- JDBC connection pool
- JDBC resource
- Session persistence

On UNIX platforms, permissions 0600 are preset on the `clresource.conf` file, which can only be accessed by the root user.

NOTE	Before running `clsetup`, the values specified in the `clresource.conf` file can be modified for optimization, or for setting up a different configuration. If you edit the values, make sure that the order and format of the file is not changed.
	Any line that begins with a hash mark (#) is treated as a comment.

The parameters of the `clresource.conf` file are described in the following tables. The left column contains the parameter name, the middle column defines the parameter, and the right column contains the default value.

Table 2-3 describes the HADB parameters in the `clresource.conf` File.

Table 2-3   HADB Parameters in the clresource.conf File

Parameter	Definition	Default Value
`historypath`	Path for the history files.	`/var/tmp`
		`On Windows:` *REPLACEDIR (*`REPLACEDIR` is replaced by the actual `URL` at runtime.)
`devicepath`	Path for the data and log devices.	`/opt/SUNWappserver7/SUNWhadb/4`
		`On Windows:` `C:\Sun\AppServer7\SUNWhadb\4.4.0-x`
`datadevices`	Number of data devices on each node.	`1`
`portbase`	Port base number used for node 0. Other nodes are then assigned port number bases in increments of 20 from the number specified here (a random number in the range 10000 - 63000).	`15200`
`spares`	Number of spare nodes.	`0`
`devicesize`	Size of device in MB. This size is applicable to all devices.	`512`
`dbpassword`	Password for the HADB user.	`password`
`hosts`	All hosts used for all data nodes.	Values are populated automatically based on the hosts specified during installation.

The database name is specified at the end of the [HADBINFO] section in the `clresource.conf` file.

Table 2-4 lists the HADB Agent parameters in the `clresource.conf` file.

Table 2-4 HADB Agent Information

Parameter	Definition	Default Value
agent	Specifies the host and port number where the management agent is listening. This value can be modified to be a remote machine if HADB is located on a different machine than where Application Server is installed. The value for the remote agent would be of the form: hostname (or IPaddress):port. For example, nila.example.com:1862	*localhost*:1862 This value must be changed if the agent is started on another machine. Port settings can be changed in the file mgt.cfg located in install_dir/SUNWhadb/4.4.1-X/lib. The attribute to change in mgt.cfg is ma.server.jmxmp.port.
adminpassword	Password of the HADB Agent host administrator. This is introduced in HADB 4.4 to enhance security.	password Users may change this default value.

Table 2-5 describes the session store parameters in the clresource.conf file.

Table 2-5 Session Store Parameters in the clresource.conf File

Parameter	Definition	Default Value
storeurl	URL of the HADB store	*REPLACEURL* NOTE: Value is replaced by actual URL at runtime.
storeuser	User who has access to the session store	appservusr NOTE: Must match the username property in Table 2-6.
storepassword	Password for the storeuser	password NOTE: Must match the password property in Table 2-6.
dbsystempassword	Password for the HADB system user	password

Table 2-6 describes the JDBC connection pool parameters in the clresource.conf file.

Table 2-6   JDBC Connection Pool Parameters in the clresource.conf File

Parameter	Definition	Default Value
steadypoolsize	Minimum and initial number of connections maintained in the pool.	8
maxpoolsize	Maximum number of connections that can be created.	32
datasourceclassname	Name of the vendor-supplied JDBC datasource.	com.sun.hadb.jdbc.ds.HadbDataSource
	Name of the vendor-supplied JDBC datasources capable datasource class will implement javax.sql.XADatasource interface.	
	Non-XA or Local transactions only datasources will implement javax.sql.Datasource interface.	
isolationlevel	Specifies the transaction isolation level on the pooled database connections.	repeatable-read
isisolationguaranteed	Transaction isolation level guaranteed	true
validationmethod	Specifies the type of validation method.	meta-data
property	Property used to specify username, password, and resource configuration.	username=appservusr:password=password:cacheDataBaseMetaData=false:eliminateRedundantEndTransaction=true:serverList=REPLACEURL
		NOTE: Make sure that the username and password properties use the same values as shown in the Session Store Parameters table. REPLACEURL is replaced by the actual URL at runtime.)

The connection pool name is specified at the end of the [JDBC_CONNECTION_POOL] section in the clresource.conf file.

Table 2-7 describes the JDBC resource parameters in the clresource.conf file.

Table 2-7   JDBC Resource Parameters in the clresource.conf File

Parameter	Definition	Default Value
connectionpoolid	Name of the connection pool	appservCPL
		NOTE: Connection pool name is specified in Table 2-6.

The JDBC resource name is defined at the end of the [JDBC_RESOURCE] section in the clresource.conf file.

Table 2-8 describes the session persistence parameters in the clresource.conf file.

Table 2-8   Session Persistence Parameters in the clresource.conf File

Parameter	Definition	Default Value
type	Session persistence type	ha
frequency	Session frequency	web-method
scope	Session scope	session
store	Session store	jdbc/hastore
		NOTE: Store name is defined at end of the [JDBC_RESOURCE] section.

Table 2-9 describes the stateful session bean parameter in the clresource.conf file.

Table 2-9   Stateful Session Bean Parameters in the clresource.conf File

Parameter	Definition	Default Value
sfsb	Stateful session bean failover	false

Table 2-10 describes the RMI/IIOP failover parameter in the clresource.conf file.

Table 2-10   RMI/IIOP Failover Parameters in the clresource.conf File

Parameter	Definition	Default Value
rmi_iiop	RMI/IIOP cluster configuration	false

Table 2-11 describes the cluster identification parameter in the clresource.conf file.

Table 2-11 Cluster Identification Parameters in the clresource.conf File

Parameter	Definition	Default Value
cluster_id	Cluster ID	cluster1

Example clresource.conf File on UNIX

```
[HADBINFO]
agent        localhost:1862
historypath  /var/tmp
devicepath   /opt/SUNWappserver7/SUNWhadb/4
datadevices  1
portbase     15200
spares 0
devicesize 512
dbpassword password
hosts machine1,machine1
hadb

[AGENTINFO]
agent localhost      1862
adminpassword       password

[SESSION_STORE]
storeurl                REPLACEURL
storeuser              appservusr
storepassword             password
dbsystempassword        password

[JDBC_CONNECTION_POOL]
steadypoolsize         8
maxpoolsize         32
datasourceclassname    com.sun.hadb.jdbc.ds.HadbDataSource
isolationlevel         repeatable-read
--isisolationguaranteed=true
validationmethod       meta-data
property
username=appservusr:password=password:cacheDataBaseMetaData=false:eliminat
eRedundantEndTransaction=true:serverList=REPLACEURL

appservCPL
```

```
[JDBC_RESOURCE]
connectionpoolid      appservCPL
jdbc/hastore

[SESSION_PERSISTENCE]
type       ha
frequency  web-method
scope      session
store      jdbc/hastore

[EJB_FAILOVER]

sfsb    true

[RMI_IIOP_FAILOVER]

rmi_iiop    true

[CLUSTER_ID]

cluster_id    cluster1
```

Example clresource.conf file on Windows

```
[HADBINFO]

agent localhost:1862

package V4.4.1-x

historypath    REPLACEDIR

devicepath     C:\Sun\AppServer7\SUNWhadb\4.4.1-x

datadevices    1

portbase    15200

spares    0

#set    LogbufferSize=32,DataBufferPoolSize=128

devicesize    208

dbpassword    password

hosts    machine1,machine2

adminpassword    password

hadb

[SESSION_STORE]

storeurl    REPLACEURL

storeuser    appservusr
```

```
storepassword      password

dbsystempassword      password

[JDBC_CONNECTION_POOL]

steadypoolsize      8

maxpoolsize      32

datasourceclassname      com.sun.hadb.jdbc.ds.HadbDataSource

isolationlevel      repeatable-read

--isisolationguaranteed=true

validationmethod      meta-data

property      username=appservusr:password=password:cacheDataBaseMetaData=fa
lse:eliminateRedundantEndTransaction=true:serverList=REPLACEURL

appservCPL

[JDBC_RESOURCE]

connectionpoolid      appservCPL

jdbc/hastore

[SESSION_PERSISTENCE]

type      ha

frequency      web-method

scope      session

store      jdbc/hastore

[EJB_FAILOVER]

sfsb      true

[RMI_IIOP_FAILOVER]

rmi_iiop      true

[CLUSTER_ID]

cluster_id      cluster1
```

Running clsetup

The syntax for running clsetup is as follows:

```
clsetup [--help] [--instancefile instance_file_location] [--resourcefile
resource_file_location] [--passwordfile password_file_location] verify
```

If no arguments are specified, `clsetup` assumes the following defaults:

`--instancefile` is *install_config_dir*/clinstance.conf

`--resourcefile` is *install_config_dir*/clresource.conf

`--passwordfile` is *install_config_dir*/clpassword.conf

You can override these arguments by providing custom input file locations. For example:

```
./clsetup --resourcefile /tmp/myappservresource.conf
```

When providing custom input files, follow the required format found in the input files. For information on doing this, see "Editing the clsetup Input Files," on page 60.

To run `clsetup`:

1. Verify that the requirements have been met as described in "Requirements and Limitations of clsetup" on page 59.

NOTE   If you want to run `clsetup` as a user other than root, see "Setting Up Administration for Non-Root" on page 55 to set this up.

---

2. Verify that the input files have the required information to set up the cluster. If necessary, edit the input files following the guidelines in "Editing the clsetup Input Files" on page 60.

3. Go to the Sun Java System Application Server installation /bin directory.

4. Invoke the `clsetup` command:

    On Unix:`./clsetup`

    On Windows: `clsetup.bat`

    The `clsetup` command runs in verbose mode. The various commands are displayed on the screen as they run, and the output is redirected to the log file, `/var/tmp/clsetup.log` (on UNIX) or the default Windows `temp` directory (on Windows).

    If a vital error occurs, the configuration stops and the error is recorded in the log file. If the log file already exists, the output is appended to the existing log file.

    If the entities to be handled (HADB nodes and Application Server instances) already exist, `clsetup` does not delete or reconfigure them, and the respective configuration steps are skipped. This type of event is recorded in the log file.

5. When `clsetup` completes the configuration, scan the log file after each run to review the setup.

6. Upon completion, `clsetup` returns the exit codes described in Table 2-12:

Table 2-12   Exit Codes for the clsetup Command

Exit Code	Description
0	Successful exit
2	Usage error
3	Instance file not found
4	Instance file cannot be read
5	Resource file not found
6	Resource file cannot be read
7	Password file not found
8	Password file cannot be read
10	Script cannot find `asadmin`
11	Script cannot find `hadbm`
12	Cannot create temporary file
13	Session store configuration failed
14	Create HADB failed
15	HADB `get jdbc`URL failed

Table 2-12   Exit Codes for the clsetup Command *(Continued)*

Exit Code	Description
16	User exits in welcome message

Cleanup Procedures for clsetup

After running `clsetup`, errors that have occurred are logged in the log file `/var/tmp/clsetup.log`. Examine the log file after every run of the `clsetup` command and correct any significant errors that are reported (for example, failure to create a non-existing instance).

You can undo all or part of the configuration as follows:

- To delete an Application Server instance: `asadmin delete-instance` *instance_name*

- To delete the HADB:

  a. `hadbm stop` *database_name*

  b. `hadbm delete` *database_name*

- To clear the session store: `cladmin clear-session-store --storeurl` *URL_information* `--storeuser` *storeUsername* `--storepassword` *store_user_name*

- To delete the JDBC connection pool: `asadmin delete-jdbc-connection-pool` *connectionpool_name*

- To delete the JDBC resource: `cladmin delete-jdbc-resource` *JDBCresource_Name*

See the Man pages for detailed examples of each of these commands. You are now ready to proceed to the *Sun Java System Application Server Administration Guide* for instructions on configuring the HADB and managing the cluster, the load balancer plug-in, and the HADB.

Uninstalling the Standard and Enterprise Edition Software

This chapter contains instructions for uninstalling the Sun Java System Application Server software from your system.

The following topics are addressed here:

- About Uninstalling
- Uninstalling the Application Server Software
- Uninstalling in Silent Mode (non-interactive)

About Uninstalling

The installation program enforces component dependencies as specified for each component. Once component dependencies are satisfied, component life cycles are independent.

Uninstallation failure will result in a complete rollback of the installation, requiring you to reinstall the product.

NOTE	If an uninstallation fails, you may need to clean up some leftover files or processes before attempting a new installation. See the *Sun Java System Application Server Troubleshooting Guide*.

All components are uninstalled. Partial uninstallation is not supported.

Uninstallation Requirements

The following must be true for uninstallation to succeed on Enterprise Edition:

- All databases are stopped and disabled prior to uninstalling.

  For guidelines on stopping the HADB, refer to the *Sun Java System Application Server Administration Guide*.

- The uninstallation program is run from the original installation host.

Uninstalling the Application Server Software

The uninstallation program detects any running Sun Java System Application Server processes and stops them before continuing to uninstall.

NOTE	If your JDK used in the product is installed in a non-default directory, you must run: `uninstall –javahome valid_j2se_directory` where *valid_j2se_directory* is the path to your JDK installation.

To uninstall the Application Server software, perform the following steps:

1. Log in as the same user who performed the installation on the machine where you want to uninstall the Sun Java System Application Server software.

2. Navigate to your machine's Sun Java System Application Server installation directory.

3. Select your installation method.

   ❍ To run uninstallation using the graphical interface: `./uninstall`

   ❍ To run uninstallation using the command-line interface: `./uninstall –console`

4. Click Uninstall to start the uninstallation process.

   A details listing displays the top portion of the log file. Complete information on the uninstallation can be found in the uninstallation log file specified at the end of the details listing:

- uninstall Log for Solaris SPARC, x86 and Linux:
  `/var/tmp/Sun_ONE_Application_Server_uninstall.log`

- uninstall Log for Microsoft Windows: *installdir*`\uninstall.log`

- Low-level log

  ○ **For file-based Solaris SPARC and x86 root user:**
  `/var/sadm/install/logs/Sun_ONE_Application_Server_un install.`*`timestamp`*

  ○ **For file-based Solaris SPARC and x86 non-root user:**
  `/var/tmp/Sun_ONE_Application_Server_un install.`*`timestamp`*

  ○ **For package-based Solaris SPARC and x86:**
  `/var/sadm/install/logs/Sun_ONE_Application_Server_un install.`*`timestamp`*

  ○ **For file-based Linux root and non-root user:**
  `/var/tmp/Sun_ONE_Application_Server_un install.`*`timestamp`*

  ○ **For RPM-based Linux:**
  `/var/tmp/Sun_ONE_Application_Server_un install.`*`timestamp`*

5. Select Close to quit the uninstallation program.

6. Verify that uninstallation succeeded by checking to see that the Application Server components have been removed from the system.

Uninstalling in Silent Mode (non-interactive)

To uninstall the Application Server software in non-interactive silent mode:

1. Log in as the same user who performed the installation on the machine where you want to uninstall the Application Server software.

2. Start silent uninstallation: `uninstall -silent`

   When the prompt is returned, the silent uninstallation is completed.

3. Verify that uninstallation succeeded by checking to see that the Sun Java System Application Server components have been removed from the system.

4. Repeat this process for each server which you want to uninstall.

Uninstalling in Silent Mode (non-interactive)

Upgrading the Application Server

The Sun Java System Application Server installation program is capable of upgrading from a previous installation of the Application Server to the current version.

Consult the *Sun Java System Application Server Release Notes* to identify the upgrade options available with the Sun Java System Application Server installation program.

The following points should be kept in mind when upgrading the Application Server installation:

- Only package-based to package-based, file-based to file-based, and RPM-based to RPM-based upgrades are supported.

- The option to upgrade is available only when using the graphical and command-line installation modes; silent mode upgrade is not supported.

- All the Application Server components can be upgraded as a whole or individually. Additionally, incremental installation can be used to upgrade each component separately.

- If you have a previous installation of Solaris 9 bundled with Application Server 7 Platform Edition, you must use the `prodreg` utility to uninstall Application Server. The utility lists all the software bundles installed. Select the desired installation and uninstall it. This removes all the dependent packages from the machine and from the Solaris product registry.

This appendix includes the following topics:

- Getting Ready to Upgrade

- Upgrading the Standard or Enterprise Edition

- Post-Upgrade Tasks

Getting Ready to Upgrade

Keep in mind the following points when you are upgrading Application Server:

- Before upgrading on Solaris and Linux platforms, make sure that the partition on which Application Server is installed has enough free disk space, as mentioned in the section System Requirements in *Sun Java System Application Server 7 2004Q2 Update 2 Release Notes.*

- To safeguard configurations of an existing installation, you must take a complete installation backup to be used as a reference should the upgrade encounter an error and fail.

  Use the following procedure to recover an installation if an error occurs during the upgrade process:

  - ❍ Perform a full uninstallation of Application Server.

  - ❍ Manually clean up any configuration files that are not removed by the uninstallation program.

  - ❍ Reinstall the product at the same location, redeploy and reconfigure the installation using the backed-up copy as a reference.

- While upgrading from Application Server 7 2004Q2 UR1 Standard Edition to Application Server 7 2004Q2 Update 1Enterprise Edition on Microsoft Windows, the upgrade might stop with the following message:

```
Samples and Pointbase 4.2 should be installed at the same location where
Application server is installed. Please go back and select the same
installation directory.
```

  If you get this message, go to Windows registry and modify the value of the key, HKEY_LOCAL_MACHINE/SOFTWARE/Sun Microsystems/Application Server/7 2004Q2, from 2004Q2UR1 to 2004Q2SEUR1.

  After changing this registry key value repeat the upgrade process.

- After upgrading an earlier version of Application Server Enterprise Edition, do not perform any HADB operations if there is an existing database under *appserver_install_dir*/SUNWhadb/4. The existing HADB configuration files might get deleted.

  To safeguard HADB configuration files, move all the files named hadb.data* and hadb.nilog* from the directory *appserver_install_dir*/SUNWhadb/4.3-0.16 to the directory *appserver_install_dir*/SUNWhadb/4.3-0.19 before performing any HADB operation.

  If your HADB database name is other than hadb, the files will be named as *database_name*.data* and *database_name*.nilog*.

Upgrading the Standard or Enterprise Edition

The following instructions apply to both file-based and package-based distributions unless specifically identified.

1. Run the installation program.

   a. To run the installation program in the graphical mode, at the command prompt, type setup.

   b. To run the installation program in the command-line mode, at the command prompt type setup -console.

2. Follow the installation wizard screens to accept the license agreement, and specify the path to the Application Server installation directory; or accept the default installation directory.

   The default installation directory is dependent on the distribution you are installing. For more information, see "Packaging Models and Directory Structure" on page 16.

3. If you have a previous version of the Application Server installed on your system, the installation program detects it, identifies the upgrade option available, and prompts you to do one of the following:

   ❍ For file-based installation, select a new directory or continue with the upgrade.

   ❍ For package-based and RPM-based installation:

   - If the selected installation directory is the same directory that was used by the previously installed (old) version of the Application Server, select Continue.

- If the selected installation directory is different from the directory used by the previously installed (old) version of the Application Server, you are prompted to change the directory path to that directory and continue with the upgrade.

4. In the Component Selection screen, components that are already installed are disabled. Select the additional components you wish to install.

5. Proceed with the rest of the installation process.

Post-Upgrade Tasks

After the upgrade is completed, do the following:

1. Stop the database.

2. If any new options were added during or after the database creation, extract them using the following command:

   ```
   hadbm get -all
   ```

3. Delete the old database.

4. Start up the management agent after creating the following directories:

   ❍ `/var/opt/SUNWhadb/ma` for the management agent

   ❍ `/var/opt/SUNWhadb/dbdef` for the data files

   ❍ `/var/opt/SUNWhadb/repository` for the config repository.

   If you want to change the default directories, the following attributes in the `mgt.cfg` file need to be changed appropriately: `logfile.name`, `ma.server.dbconfigpath` and `repository.dr.path` along with `ma.server.dbdevicepath`, and `ma.server.dbhistorypath`.

5. Run the `clsetup` utility with the configuration files appropriately verified. This will recreate the database and configure the application server instances.

6. Add any options extracted in Step 2, using the following command:

   ```
   hadbm set
   ```

7. If the database is set up on a remote machine different than the application server machine, the `clsetup` configuration files need to be appropriately changed before executing the `clsetup` utility; for example, the agent host and port number may need to be changed.

Troubleshooting

Error condition when Application Server 7 upgrade is in progress may result in an unexpected uninstallation and deletion of product and data files from existing base installation. (Bug #5052938, 5052939)

Under certain conditions, performing an upgrade operation from base installation (that is, SunOne Application Server 7.0) to the version Sun Java System Application Server 7 2004Q2 may result in an automatic product uninstallation, which has the effect of removing the entire product directory from the system. To recover from this error, you must perform a fresh product installation and reconfigure the installation back to its original setup.

Both the file-based and the package-based installation can be affected by this issue.

Application Server 7 uses InstallSDK framework to build the installation program. The current upgrade installation program does not utilize transactional upgrade, meaning that it will not make any distinction between the first time installation of the component and installation over an existing component. As the result, if the upgrade installation fails or is stopped, it will revert to the uninstallation sequence, which will uninstall product files. This is a known behavior of InstallSDK framework.

The upgrade installation program does not create backup copies of files, which are being upgraded in order to be able to revert back to the original state in the case of failed upgrade.

Solution

DO NOT use the upgrade feature of Application Server 7 2004Q2. Instead perform a manual migration as follows:

1. Stop all user applications.

2. Back up the existing system and configuration.

3. Uninstall the existing application server installation (that is, Sun ONE Application Server 7.0).

4. Install the new product version (i.e., Sun Java System Application Server 7 2004Q2).

5. Reconfigure and restore the needed files back to the desired setup.

6. Redeploy all user applications.

If an upgrade is necessary, perform the following steps before initiating an upgrade:

1. Stop all user applications.

2. Perform a full system backup or application server system backup.

3. Stop or limit other processes while the upgrade is in progress.

4. If the upgrade fails, restore the files from the backup.

5. Redeploy user applications.

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Section **W**