Sun Directory Server Enterprise Edition 7.0 Installation Guide

Sun microsystems

Contents

Preface

The Installation Guide provides detailed instructions for installing and uninstalling the Directory Server Enterprise Edition software. This guide also covers how to pre-configure the software to make the installation operational and how to test if the installation is fully operational.

Who Should Use This Book

This Installation Guide is for administrators deploying Directory Server Enterprise Edition, Directory Service Control Center, and Identity Synchronization for Windows software. This document also covers configuration of Identity Synchronization for Windows.

If you are installing Directory Server Enterprise Edition software for evaluation purposes only, put this guide aside for now, and see *Sun Directory Server Enterprise Edition 7.0 Evaluation Guide*.

Before You Read This Book

Review pertinent information in the *Sun Directory Server Enterprise Edition 7.0 Release Notes*.

If you are deploying Directory Server Enterprise Edition software in production, also review pertinent information in the *Sun Directory Server Enterprise Edition 7.0 Deployment Planning Guide*.

Readers installing Identity Synchronization for Windows should be familiar with the following technologies:

- Directory Server
- Microsoft Active Directory or Windows NT authentication
- Lightweight Directory Access Protocol (LDAP)
- Java™ technology
- Extensible Markup Language (XML)
- Public-key cryptography and Secure Sockets Layer (SSL) protocol
- Intranet, extranet, and Internet security
- Role of digital certificates in an enterprise

How This Book Is Organized

Chapter 1, "Before You Install," covers the information that you must know before installing the product.

Part I covers the installation of Directory Server Enterprise Edition on supported systems.

Part II covers all the additional information that you need to know to use Directory Server Enterprise Edition.

Sun Directory Server Enterprise Edition Documentation Set

This documentation set explains how to use Sun™ Directory Server Enterprise Edition to evaluate, design, deploy, and administer directory services. In addition, it shows how to develop client applications for Directory Server Enterprise Edition. The Directory Server Enterprise Edition documentation set is available at `http://docs.sun.com/coll/1819.1`.

The following table lists all the available documents.

TABLE P–1   Directory Server Enterprise Edition Documentation

Document Title	Contents
Sun Directory Server Enterprise Edition 7.0 Release Notes	Contains the latest information about Directory Server Enterprise Edition, including known problems.
Sun Directory Server Enterprise Edition 7.0 Documentation Center	Contains links to key areas of the documentation set that help you to quickly locate the key information.
Sun Directory Server Enterprise Edition 7.0 Evaluation Guide	Introduces the key features of this release. Demonstrates how these features work and what they offer in the context of a deployment that you can implement on a single system.
Sun Directory Server Enterprise Edition 7.0 Deployment Planning Guide	Explains how to plan and design highly available, highly scalable directory services based on Directory Server Enterprise Edition. Presents the basic concepts and principles of deployment planning and design. Discusses the solution life cycle, and provides high-level examples and strategies to use when planning solutions based on Directory Server Enterprise Edition.
Sun Directory Server Enterprise Edition 7.0 Installation Guide	Explains how to install the Directory Server Enterprise Edition software. Shows how to configure the installed software and verify the configured software.
Sun Directory Server Enterprise Edition 7.0 Upgrade and Migration Guide	Provides upgrade instructions to upgrade the version 6 installation and migration instructions to migrate version 5.2 installations.

TABLE P–1 Directory Server Enterprise Edition Documentation *(Continued)*

Document Title	Contents
Sun Directory Server Enterprise Edition 7.0 Administration Guide	Provides command-line instructions for administering Directory Server Enterprise Edition.
	For hints and instructions about using the Directory Service Control Center, DSCC, to administer Directory Server Enterprise Edition, see the online help provided in DSCC.
Sun Directory Server Enterprise Edition 7.0 Developer's Guide	Shows how to develop directory client applications with the tools and APIs that are provided as part of Directory Server Enterprise Edition.
Sun Directory Server Enterprise Edition 7.0 Reference	Introduces technical and conceptual foundations of Directory Server Enterprise Edition. Describes its components, architecture, processes, and features.
Sun Directory Server Enterprise Edition 7.0 Man Page Reference	Describes the command-line tools, schema objects, and other public interfaces that are available through Directory Server Enterprise Edition. Individual sections of this document can be installed as online manual pages.
Sun Directory Server Enterprise Edition 7.0 Troubleshooting Guide	Provides information for defining the scope of the problem, gathering data, and troubleshooting the problem areas by using various tools.
Sun Java System Identity Synchronization for Windows 6.0 Deployment Planning Guide	Provides general guidelines and best practices for planning and deploying Identity Synchronization for Windows.
Sun Java System Identity Synchronization for Windows 6.0 Installation and Configuration Guide	Describes how to install and configure Identity Synchronization for Windows.
Additional Installation Instructions for Sun Java System Identity Synchronization for Windows 6.0	Provides additional installation instructions in context of Directory Server Enterprise Edition 7.0.

For an introduction to Directory Server Enterprise Edition, review the following documents in the order in which they are listed.
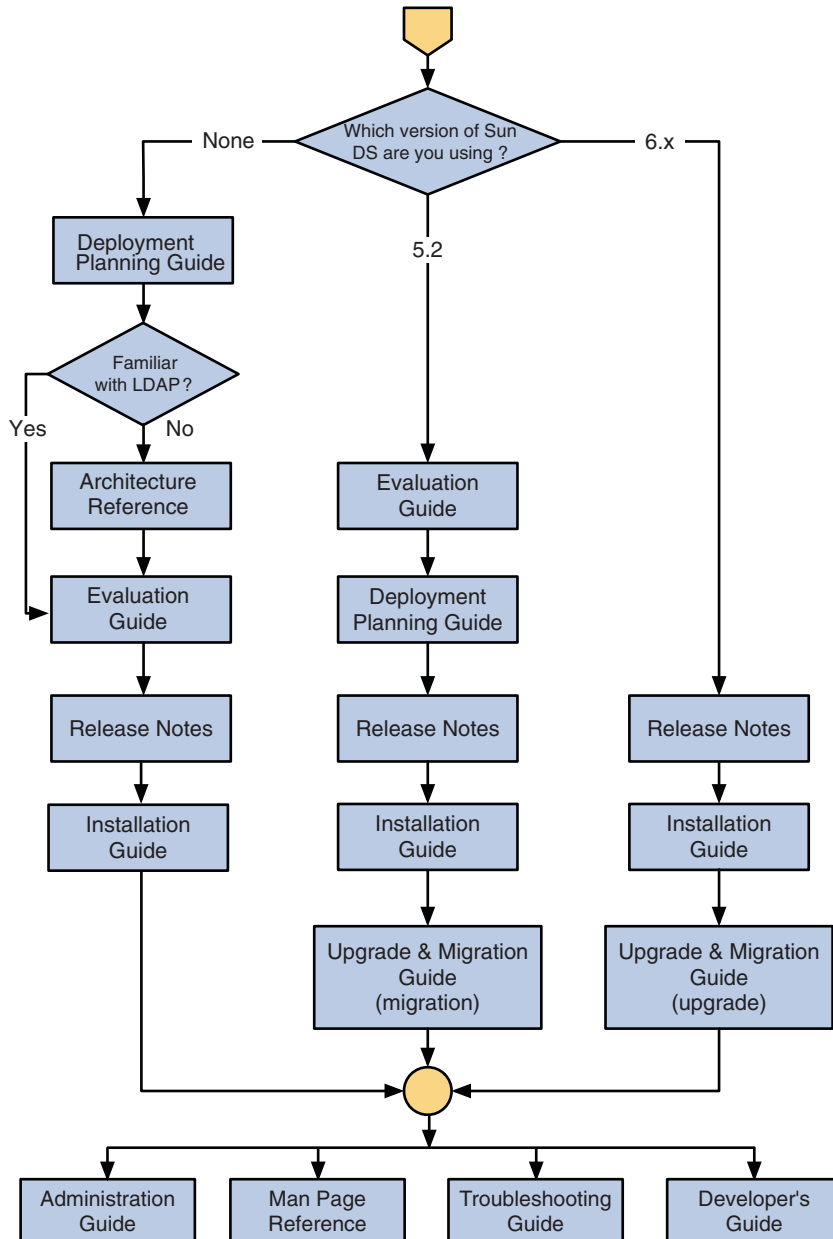
Related Reading

The SLAMD Distributed Load Generation Engine is a Java application that is designed to stress test and analyze the performance of network-based applications. This application was originally

developed by Sun Microsystems, Inc. to benchmark and analyze the performance of LDAP directory servers. SLAMD is available as an open source application under the Sun Public License, an OSI-approved open source license. To obtain information about SLAMD, go to `http://www.slamd.com/`. SLAMD is also available as a java.net project. See `https://slamd.dev.java.net/`.

Java Naming and Directory Interface (JNDI) supports accessing the Directory Server using LDAP and DSML v2 from Java applications. For information about JNDI, see `http://java.sun.com/products/jndi/`. The *JNDI Tutorial* contains detailed descriptions and examples of how to use JNDI. This tutorial is at `http://java.sun.com/products/jndi/tutorial/`.

Directory Server Enterprise Edition can be licensed as a standalone product, as part of a suite of Sun products, such as the Sun Java Identity Management Suite, or as an add-on package to other software products from Sun.

Identity Synchronization for Windows uses Message Queue with a restricted license. Message Queue documentation is available at `http://docs.sun.com/coll/1307.2`.

Identity Synchronization for Windows works with Microsoft Windows password policies.

- Information about password policies for Windows 2003, is available in the Microsoft documentation online.
- Information about the Microsoft Certificate Services Enterprise Root certificate authority, is available in the Microsoft support documentation online.
- Information about configuring LDAP over SSL on Microsoft systems, is available in the Microsoft support documentation online.

Redistributable Files

Directory Server Enterprise Edition does not provide any files that you can redistribute.

Default Paths and Command Locations

This section explains the default paths used in documentation, and provides locations of commands on different operating systems and deployment types.

Default Paths

The table in this section describes the default paths that are used in this document. For complete descriptions of the files installed, see Chapter 1, "Directory Server Enterprise Edition File Reference," in *Sun Directory Server Enterprise Edition 7.0 Reference*.

TABLE P–2   Default Paths

Placeholder	Description	Default Value
install-path	Represents the base installation directory for Directory Server Enterprise Edition software.	When you install from a zip distribution using unzip, the *install-path* is the *current-directory*/dsee7. When you install from a native package distribution, the default *install-path* is /opt/SUNWdsee7.
instance-path	Represents the full path to an instance of Directory Server or Directory Proxy Server. Documentation uses /local/dsInst/ for Directory Server and /local/dps/ for Directory Proxy Server.	No default path exists. Instance paths must nevertheless always be found on a *local* file system. On Solaris systems, the /var directory is recommended:
serverroot	Represents the parent directory of the Identity Synchronization for Windows installation location	Depends on your installation. Note that the concept of a *serverroot* no longer exists for Directory Server and Directory Proxy Server.
isw-*hostname*	Represents the Identity Synchronization for Windows instance directory	Depends on your installation
/*path/to*/cert8.db	Represents the default path and file name of the client's certificate database for Identity Synchronization for Windows	*current-working-dir*/cert8.db
serverroot/isw-*hostname*/logs/	Represents the default path to the Identity Synchronization for Windows local log files for the System Manager, each connector, and the Central Logger	Depends on your installation
serverroot/isw-*hostname*/logs/central/	Represents the default path to the Identity Synchronization for Windows central log files	Depends on your installation

Command Locations

The table in this section provides locations for commands that are used in Directory Server Enterprise Edition documentation. To learn more about each of the commands, see the relevant man pages.

TABLE P–3 Command Locations

Command	Native Package Distribution	Zip Distribution
cacaoadm	/usr/sbin/cacaoadm	Solaris, Linux, HP—UX — *install-path*/bin/cacaoadm
		Windows - *install-path*\bin\cacaoadm.bat
certutil	/usr/sfw/bin/certutil	*install-path*/bin/certutil
dpadm(1M)	*install-path*/bin/dpadm	*install-path*/bin/dpadm
dpconf(1M)	*install-path*/bin/dpconf	*install-path*/bin/dpconf
dsadm(1M)	*install-path*/bin/dsadm	*install-path*/bin/dsadm
dsccmon(1M)	*install-path*/bin/dsccmon	*install-path*/bin/dsccmon
dsccreg(1M)	*install-path*/bin/dsccreg	*install-path*/bin/dsccreg
dsccsetup(1M)	*install-path*/bin/dsccsetup	*install-path*/bin/dsccsetup
dsconf(1M)	*install-path*/bin/dsconf	*install-path*/bin/dsconf
dsmig(1M)	*install-path*/bin/dsmig	*install-path*/bin/dsmig
dsutil(1M)	*install-path*/bin/dsutil	*install-path*/bin/dsutil
entrycmp(1)	*install-path*/bin/entrycmp	*install-path*/bin/entrycmp
fildif(1)	*install-path*/bin/fildif	*install-path*/bin/fildif
idsktune(1M)	Not provided	At the root of the unzipped zip distribution
insync(1)	*install-path*/bin/insync	*install-path*/bin/insync
ldapsearch(1)	/opt/SUNWdsee/dsee6/bin	*install-path*/dsrk/bin
repldisc(1)	*install-path*/bin/repldisc	*install-path*/bin/repldisc

Typographic Conventions

The following table describes the typographic conventions that are used in this book.

TABLE P–4   Typographic Conventions

Typeface	Meaning	Example
AaBbCc123	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file.
		Use `ls -a` to list all files.
		`machine_name% you have mail.`
AaBbCc123	What you type, contrasted with onscreen computer output	`machine_name%` **su**
		`Password:`
aabbcc123	Placeholder: replace with a real name or value	The command to remove a file is `rm` *filename*.
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*.
		A *cache* is a copy that is stored locally.
		Do *not* save the file.
		Note: Some emphasized items appear bold online.

Shell Prompts in Command Examples

The following table shows the default UNIX® system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–5   Shell Prompts

Shell	Prompt
C shell	`machine_name%`
C shell for superuser	`machine_name#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell for superuser	`#`

Shell Prompts in Command Examples

The following table shows default system prompts and superuser prompts.

TABLE P–6 Shell Prompts

Shell	Prompt
C shell on UNIX and Linux systems	`machine_name%`
C shell superuser on UNIX and Linux systems	`machine_name#`
Bourne shell and Korn shell on UNIX and Linux systems	`$`
Bourne shell and Korn shell superuser on UNIX and Linux systems	`#`
Microsoft Windows command line	`C:\`

Symbol Conventions

The following table explains symbols that might be used in this book.

TABLE P–7 Symbol Conventions

Symbol	Description	Example	Meaning
[ ]	Contains optional arguments and command options.	`ls [-l]`	The `-l` option is not required.
{ | }	Contains a set of choices for a required command option.	`-d {y|n}`	The `-d` option requires that you use either the `y` argument or the `n` argument.
${ }	Indicates a variable reference.	`${com.sun.javaRoot}`	References the value of the `com.sun.javaRoot` variable.
-	Joins simultaneous multiple keystrokes.	Control-A	Press the Control key while you press the A key.
+	Joins consecutive multiple keystrokes.	Ctrl+A+N	Press the Control key, release it, and then press the subsequent keys.
→	Indicates menu item selection in a graphical user interface.	File → New → Templates	From the File menu, choose New. From the New submenu, choose Templates.

Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- Documentation (http://www.sun.com/documentation/)
- Support (http://www.sun.com/support/)
- Training (http://www.sun.com/training/)

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to `http://docs.sun.com` and click Feedback.

1

Before You Install

Before installing Directory Server Enterprise Edition software in a production environment, obtain the plans for deployment that were created with the help of *Sun Directory Server Enterprise Edition 7.0 Deployment Planning Guide*. With the plans in hand, read this section to gauge how to approach installation for your deployment.

This chapter includes the following sections.

Quick Scan of Fully Installed and Running Directory Server Enterprise Edition

After Directory Server Enterprise Edition is installed and running on your system, the following elements are found on your system:

- Software Files
- Data Files
- Background Processes

Software Files

The software files include executable files, resource files, and template files. These files are copied on your system from the Directory Server Enterprise Edition distribution.

The software files are organized hierarchically below a single directory, *installation-path*, which is chosen at the time of installation. The hierarchy below the installation path is called the

installation layout. User commands are located in `installation-path/bin` and `installation-path/dsrk/bin` directories. For more information about information layout, see Chapter 1, "Directory Server Enterprise Edition File Reference," in *Sun Directory Server Enterprise Edition 7.0 Reference*.

Disk space occupied by *installation-path* is fixed and around `1GB`.

Data Files

There are two types of data files, that is, server instances and administration files.

Server Instances

- Contain user and configuration data for a single server.
- Multiple server instances can reside on the same host.
- Server instance location can be freely chosen. They can be separate from the *installation-path*.
- Disk space occupied by a server instance is potentially unlimited.

For more information about server instances, see Chapter 2, "Directory Server Instances and Suffixes," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide* and Chapter 17, "Directory Proxy Server Instances," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide*.

Administration Files

- Administration files are located in `installation-path/var` or `/var/opt/SUNWdsee7` directory.
- Disk space occupied is limited, that is, a few hundred KB.

Background Processes

- Core Server Daemons (*ns-slapd*)

  There is one daemon running per server instance. This daemon listens to the port that is configured in the server instance (389 by default) and processes the incoming LDAP requests. This daemon reads and writers configuration and user data located in the server instance.

- Common Agent Container Framework Daemon

  This daemon allows Directory Service Control Center to startup server instances that exist on remote hosts. The daemon listens to port `11162`, by default. It hosts Directory Service Control Center Agent plugin.

- Application Server Daemon

  The application server daemon listens to HTTP on port 8080, by default. The daemon hosts Directory Service Control Center web application and present only on the host where Directory Service Control Center is deployed.

- Directory Service Control Center Registry Daemon

  This is a directory server instance for Directory Service Control Center's own use. The daemon listens to LDAP port 3998, by default. The daemon responds to requests from Directory Service Control Center and present only on the host where Directory Service Control Center is deployed.

Generally, all the elements listed above are rarely present on the same machine. In a typical deployment:

- One machine (the administration host) is dedicated to Directory Service Control Center. On this machine, only Application Server daemon and Directory Service Control Center registry daemon are running.

- One or more machines are dedicated to server instances. Each machine hosts a single server instance. Only one core server daemon and the common agent container framework daemons are running.

The following figure shows an example of such deployment:
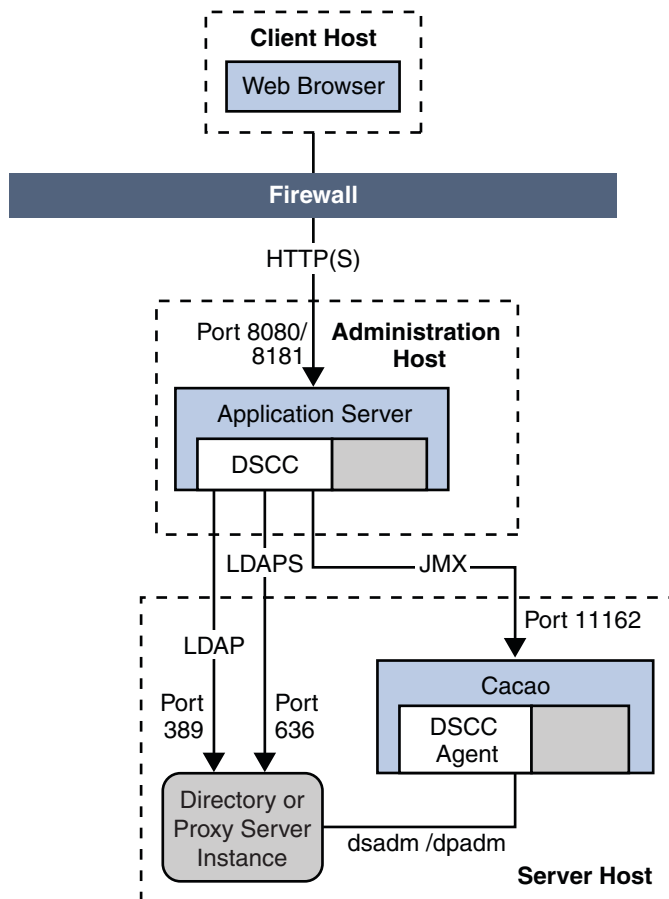
FIGURE 1–1   Administration Host and Server Host on Different Systems

For more information, see "Directory Server Enterprise Edition Administration Model" in *Sun Directory Server Enterprise Edition 7.0 Deployment Planning Guide*.

Directory Server Enterprise Edition Software Distributions

Directory Server Enterprise Edition is available in two forms, that is, native packages based distribution and zip distribution.

Zip Distribution

- All the files composing the installation layout are zipped in a single archive
- Installing means unzipping the archived file using any ZIP tool

- Any user can perform the unarchiving process

Each software installation performed from the zip distribution is independent. You can therefore install software from multiple zip distribution versions on the same system. Your system administrator must manually configure the software that you install to restart when the operating system reboots.

Native Distribution

- All the files composing the installation layout are bundled in a set of Solaris packages and patches.
- Installing means running the pkgadd and patchadd commands.
- Only root (or a privileged user) can perform the unarchiving process.

The Native packages based distribution can be installed only on a Solaris operating system.

Comparison of Native Packages and Zip Distribution

This section identifies the software supported in each distribution.

Both the native packages and zip distributions allow you to create and configure Directory Server and Directory Proxy Server instances as non-root.

Directory Server Enterprise Edition Software Component	Native Packages	Zip Distribution
Directory Server, Directory Proxy Server, and Directory Service Control Center	Provided. Directory Service Control Center is configurable by deploying the WAR file with the supported application server.	Provided. Directory Service Control Center is configurable by deploying the WAR file with the supported application server.
Directory Server Resource Kit	Not provided in this distribution	Provided
Identity Synchronization for Windows	Provided, but *not* installed with the native packages based distribution installation.	Provided, but *not* installed with the zip distribution installation.

File and Process Ownership on Unix Systems

Ownership of installed Directory Server Enterprise Edition elements depends on that software distribution that you have installed. Assuming `install-user` is the user who runs unzip command and `instance-owner` is the user who creates a server instance, the ownership assignment table looks like the following:

Installed Directory Server Enterprise Edition Elements	Ownership	
	Zip	Native
Software files	*install-user*	root
Data files - Administrative files	*install-user*	root or noaccess
Data files - Server instances	*instance-owner*	*instance-owner*
Processes - `ns-slapd` daemon	*instance-owner*	*instance-owner*
Processes - Common Agent Container daemon	*install-user*	root
Processes - Application Server daemon	*install-user*	root or noaccess
Processes - Directory Service Control Center Registry daemon	*install-user*	noaccess

For files and processes related to server instance, ownership can be freely chosen (*instance-owner*), no matter which distribution (ZIP or native) is used. Each server instance may have a different ownership.

For all other files, ownership must be assigned as following:

- Zip distribution: To a single user (*install-user*)
- Native distribution: To root or noaccess

Installation in Solaris Zones

This section addresses the key points to consider when installing Directory Server Enterprise Edition in a Solaris zone.

Global and full local Solaris zones present Directory Server Enterprise Edition software with complete systems. Directory Server Enterprise Edition software treats both the zones as an independent physical system. The Directory Server Enterprise Edition installation is like installing on an independent system. The software does not share services or file locations with other zones.

In sparse zones, you can install some services to be used in system-wide fashion. Single instances of common component services can therefore be used by multiple server instances. For example, Directory Server Enterprise Edition software in sparse zones can use the same Common Agent Container and Monitoring Framework installed in the global zone. You must, however, install the system-wide services before you can complete installation of sparse zone software that depends on the system-wide services.

Directory Server Enterprise Edition does not require you to use system-wide services when you install in a sparse zone. When you install self-contained software from the zip distribution, you also install the common component services in the sparse zone. Therefore, zip distribution installations in sparse zones resemble installations on independent systems.

The following table outlines constraints for Directory Server Enterprise Edition installations, which pertain essentially to installations in sparse zones.

Directory Server Enterprise Edition Software Component	Software Distribution	Constraints Installing in Global or Full Local Zone	Constraints For Sparse Zone Installations
Directory Server, Directory Proxy Server, and Directory Service Control Center	Native Packages	No constraints	First install shared components in the global zone, then install SUNWdsee7* packages in the sparse zone.
	Zip distribution	No constraints	No constraints
Identity Synchronization for Windows	Zip distribution	Not supported	Not supported
Directory Server Resource Kit	Zip distribution	No constraints	No constraints

Installing and Uninstalling Directory Server Enterprise Edition

This part includes the following chapters:

- Chapter 2, "Installing Directory Server Enterprise Edition," explains how to install Sun Directory Server Enterprise Edition, pre-configure the installation to make it operational, and test the installation.

- Chapter 3, "Uninstalling Directory Server Enterprise Edition," explains how to uninstall the Directory Server Enterprise Edition software.

- Chapter 4, "Installing and Uninstalling Directory Server Enterprise Edition Using Native Packages," explains how to install and uninstall Directory Server Enterprise Edition using native packages.

2

Installing Directory Server Enterprise Edition

This chapter focuses on the zip distribution based installation.

Note – For information about native packages based installation, refer to Chapter 4, "Installing and Uninstalling Directory Server Enterprise Edition Using Native Packages."

The installation procedure can be divided into following three steps:

1. Laying out the software elements in the chosen place on a host filesystem.

    See "Installing Directory Server Enterprise Edition Using Zip Distribution" on page 28.

2. Pre-configuring installation, that is, running the minimum set of commands that make the software installation operational.

    See "Pre-Configuring the Directory Server Enterprise Edition Installation" on page 29.

3. Checking the installation, that is, running a few commands to confirm if the software is fully operational.

    See "Checking Your Directory Server Enterprise Edition Installation" on page 31.

For information about installing Identity Synchronization for Windows, refer to *Sun Java System Identity Synchronization for Windows 6.0 Installation and Configuration Guide* and Additional Installation Instructions for Sun Java System Identity Synchronization for Windows 6.0.

Installing Directory Server Enterprise Edition Using Zip Distribution

Before you proceed with the installation, check "Operating System Requirements" in *Sun Directory Server Enterprise Edition 7.0 Release Notes*.

You can install the zip distribution as a non-root user.

▼ To Install Directory Server Enterprise Edition Using Zip Distribution

1   **Download the Directory Server Enterprise Edition zip distribution binaries as specified in "Getting the Software" in** *Sun Directory Server Enterprise Edition 7.0 Release Notes***.**

After this operation is complete, you should have one of the following files in your temporary space, for example, /var/tmp/dsee:

- `DSEE.7.0.Solaris-Sparc-zip.tar.gz`
- `DSEE.7.0.Solaris10-X86-zip.tar.gz`
- `DSEE.7.0.Solaris9-X86-zip.tar.gz`
- `DSEE.7.0.Linux-X86-zip.tar.gz`
- `DSEE.7.0.Linux-X86-64-zip. tar.gz`
- `DSEE.7.0.HP-UX-zip.tar.gz`
- `DSEE.7.0.Windows-X86-zip.zip`

2   **Type the following commands to install the Directory Server Enterprise Edition software.**

```
# mkdir -p install-path
# cd /var/tmp/dsee
# gunzip DSEE.7.0.xxx-zip.tar.gz
# tar xf DSEE.7.0.xxx-zip.tar
# unzip -qq sun-dsee7.zip -d install-path
```

Note – You can remove /var/tmp/dsee contents now.

The *install-path* directory is where all the software elements are placed. Minimum 1 Gb space is required.

You are now ready to start working with the Directory Server Enterprise Edition installation.

Note – Directory Server Enterprise Edition 7.0 depends on the Microsoft Visual C++ 2008 Redistributable Package. If your computer does not have Visual C++ 2008 installed, you must install the Microsoft Visual C++ 2008 Redistributable Package (x86). This package is available from the Microsoft Download Center at http://www.microsoft.com/downloads (Product family: Developer tools).

To use AES_256 with Java™ technology based applications and utilities, you must download the JCE Unlimited Strength Jurisdiction Policy Files from `http://java.sun.com/javase/downloads/index.jsp` and install them.

See Also If you are already using version 6 or 5.2, and want to use the same legacy instances with the version 7.0 installation, refer to *Sun Directory Server Enterprise Edition 7.0 Upgrade and Migration Guide*.

Pre-Configuring the Directory Server Enterprise Edition Installation

After installing the Directory Server Enterprise Edition software successfully, you must do the pre-configuration to make the software functional.

This section includes the following subsections:

- "To Pre-Configure Directory Service Control Center" on page 29
- "To Pre-Configure the DSCC Agent" on page 30

▼ To Pre-Configure Directory Service Control Center

The Directory Service Control Center (DSCC) has a web-based interface to manage Directory Server and Directory Proxy Server instances.

1 Create the WAR file for DSCC.

```
$ install-path/bin/dsccsetup war-file-create
```

```
Created dscc-war-file-path
```

Make a note of the *dscc-war-file-path*, which is the path of the DSCC war file.

2 Initialize the DSCC registry.

```
$ install-path/bin/dsccsetup ads-create
Choose password for Directory Service Manager:directory-service-pwd
Confirm password for Directory Service Manager:directory-service-pwd
```

```
Creating DSCC registry...
DSCC Registry has been created successfully
```

The value that you provide for *directory-service-pwd*, will be needed to authenticate the DSCC login page and is also used as a DSCC registry password.

DSCC uses its own local instance of Directory Server to store information about your directory service configuration. The instance is referred to as the DSCC Registry.

3   Note the port and the path assigned to DSCC registry.

```
# install-path/bin/dsccsetup status
...
Path of DSCC registry is dscc-registry-path
Port of DSCC registry is dscc-registry-port
...
```

The *dscc-registry-port* is the port assigned to the DSCC registry by dsccsetup ads-create. The default port that is assigned to the DSCC registry is 3998.

4   Deploy the WAR file in any of the supported application server instance.

For example deployment procedures, refer to Appendix A, "Deploying DSCC WAR File With Supported Application Servers."

▼ To Pre-Configure the DSCC Agent

● **Register the DSCC agent in Common Agent Container.**

```
$install-path/bin/dsccsetup cacao-reg

Configuring Cacao...
Cacao will listen on port dscc-agent-port
```

The *dscc-agent-port* specifies the port of the DSCC agent.

Note – On Windows 2008, for a non-administrator user, the Cacao configuration fails. To solve this problem, set the following Windows registry parameters to zero:

```
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System\EnableInstallerDetection
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System\EnableLUA
```

Useful Information for Your Records

You must make a note of the following information that is gathered during the pre-configuration operation.

Information	Description	Comments
install-path	Path under which Directory Server Enterprise Edition 7.0 is installed.	
directory-service-pwd	Password assigned to the Directory Service Manager.	
dscc-war-file-path	Path of the DSCC WAR file that is to be deployed in your application server.	*install-path*/`var/dscc7.war`
dscc-registry-path	Path of the DSCC Registry	*install-path*/`var/dcc/ads`
dscc-registry-port	Port of the DSCC Registry	3998 or random. DSCC Registry port can be retrieved by typing the following command: `install-path/bin/dsccsetup status`
dscc-agent-port	Port of the DSCC Agent	11162 or random. DSCC Registry port can be retrieved by typing the following command: `install-path/bin/dsccsetup status`

Checking Your Directory Server Enterprise Edition Installation

After the successful installation and pre-configuration of the Directory Server Enterprise Edition software, you can check your installation by creating the server instances and start working with them.

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Creating Server Instances From Command Line

The following set of commands create a sample server instance, populates it with example data and registers it with DSCC. These commands should execute without any error if software is correctly installed and configured.

▼ To Create a Directory Server Instance From the Command Line

Non-`root` users can create server instances.

Refer to the following procedure to create a Directory Server instance using the command line:

1 Create a new Directory Server instance.

```
$ dsadm create -p 1389 -P 1636 /local/dsInst

Choose the Directory Manager password:secret12
Confirm the Directory Manager password:secret12
Use 'dsadm start /local/dsInst' to start the instance
```

The dsInst instance is created under the existing directory, /local/ and secret12 is assigned as the Directory Manager password.

2 Start the instance.

```
$ dsadm start /local/dsInst
Server started: pid=2845
```

3 (Optional) Prepare an example suffix.

a. Create an empty suffix.

```
$ dsconf create-suffix -p 1389 -e dc=example,dc=com
Enter "cn=Directory Manager" password:secret12
```

A suffix with root dc=example,dc=com is created.

b. Populate the suffix with LDIF data.

```
$ dsconf import -p 1389 -e\
install-path/resources/ldif/Example.ldif dc=example,dc=com

Enter "cn=Directory Manager" password:

New data will override existing data of the suffix "dc=example,dc=com".
Initialization will have to be performed on replicated suffixes.

...
...
## Closing files...
## Import complete.  Processed 160 entries in 4 seconds. (40.00 entries/sec)

Task completed (slapd exit code: 0).
```

The suffix is populated with sample data from Example.ldif.

c. Search for data in the new instance.

```
$ ldapsearch -p 1389 -b dc=example,dc=com "(uid=bjensen)" mail

version: 1
dn: uid=bjensen, ou=People, dc=example,dc=com
mail: bjensen@example.com
```

4 (Optional) Manage your server instance using DSCC.

The following steps assume that DSCC is installed and pre-configured on *dscc-host*.

a. Register the server instance with DSCC:

```
$ dsccreg add-server -h dscc-host -p dscc-registry-port /local/dsInst

Enter DSCC administrator's password: directory-service-pwd
/local/dsInst is an instance of DS
Enter password of "cn=Directory Manager" for /local/dsInst: secret12
This operation will restart /local/dsInst.
Do you want to continue ? (y/n) y
Connecting to /local/dsInst (using ldap://127.0.0.1:1389)
Enabling DSCC access to /local/dsInst
Restarting /local/dsInst
Registering /local/dsInst in DSCC on dscc-host:dscc-registry-port.
```

b. List the server that are currently registered into DSCC

```
# dsccreg list-servers -h dscc-host -p dscc-registry-port

Enter DSCC administrator's password: directory-service-pwd
Hostname       Port     sPort Type Owner Flags iPath      Description
-------------- -------- ----- ---- ----- ----- ---------- -----------
current-host   1389     1636  DS   uid         /local/dsInst
```

5 (Optional) If you need to use the installation for production and want to clean the system, type the following commands:

```
# dsccreg remove-server -h dscc-host -p dscc-registry-port /local/dsInst
# dsadm delete /local/dsInst
```

Next Steps You can add more suffixes, configure replication with other server instances, tune the instance, and generally proceed with other configuration operations.

See Part I, "Directory Server Administration," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide* for instructions on configuring Directory Server with command-line administration tools.

Similarly, you can create Directory Proxy Server instance using the command line tools. For more information, see Chapter 17, "Directory Proxy Server Instances," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide*.

Creating Server Instances Using Directory Service Control Center

After successfully deploying DSCC, use the following procedure to create a sample Directory Server instance.

▼ To Create Server Instances with Directory Service Control Center

Non-root users can create server instances.

Refer to the following procedure to create server instances using DSCC.

1 Access DSCC by using `http://`*dscc-host*`:`*port*`/dscc7`**.**

2 Log in to DSCC as Directory Service Manager.

Directory Service Manager's entry is stored in the DSCC registry. Directory Service Manager also has administrator access to the server instances registered with DSCC.

a. Type the following values:

```
*  Directory Server Manager: admin
* Password: directory-service-pwd
```

b. Click the Log In button.

3 Under the Directory Servers tab, click New Server.

The Directory Service Control Center New Directory Server wizard displays.
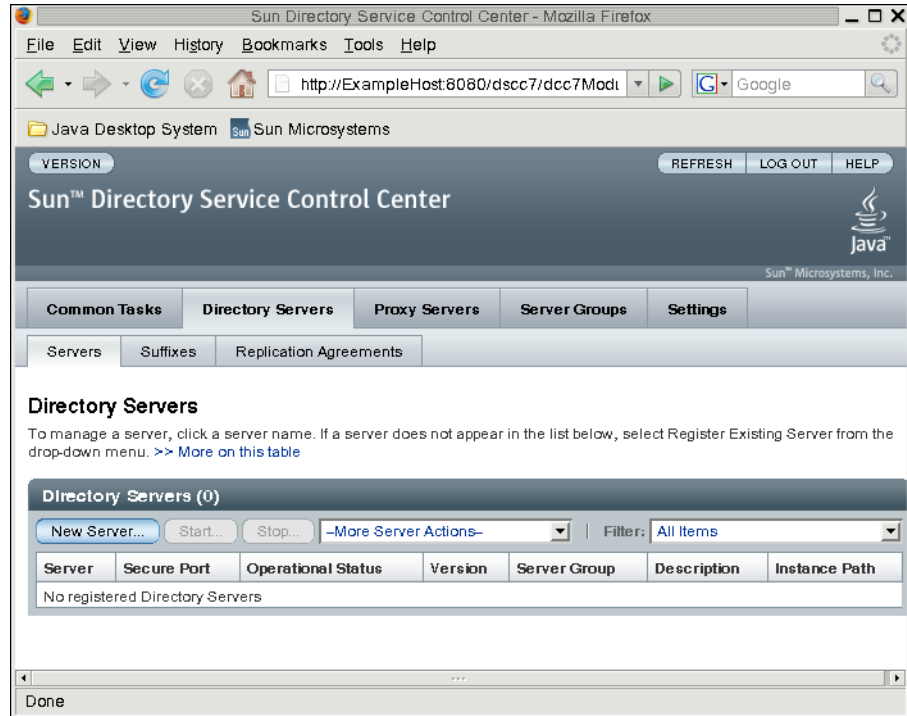
4 **Follow the instructions in the Directory Service Control Center New Directory Server wizard to create the server instance.**

While creating the new server instances, you need to provide the following information:

```
*  Host: server-host   # Host where DSCC agent has been configured
*  LDAP Port: 1389
* LDAPS Port: 1636
* Instance Path: /local/dsInst
* Directory Manager Password: secret12
* Confirm Password: secret12
* Runtime User ID: install-user
* Runtime User Password: install-user-pw
* DSCC Agent Port: dscc-agent-port
```

Note – The instance path does not support non-ASCII characters.

Note – To successfully create an instance on Windows 2003 Primary Domain Controller, type *domainname\username* in Runtime User Id.

5   **Complete the create server instance process by following the instructions provided in the graphical user interface.**

6   **(Optional) You can choose to delete the server instance by clicking Delete in the More Server Actions drop-down menu.**

See Also   Similarly, you can create Directory Proxy Server instances using the Proxy Server tab.

For further configuration and administration of Directory Server and Directory Proxy Server instances, refer to *Sun Directory Server Enterprise Edition 7.0 Administration Guide*.

See the online help for Directory Service Control Center for hints on configuring Directory Server and Directory Proxy Server through the graphical user interface.

Note – If you setup your browser for your preferred language, DSCC may sometimes report few messages in other language. The language in which such messages are shown is the language that was effective when the dsccsetup cacao-reg command was executed. Such a language usually is the default locale of the host.

Environment Variables

This section lists environment variables that you can set to facilitate creating server instances and using Directory Server Resource Kit and software development kits.

Environment Variable	Description	Reference
DIR_PROXY_HOST	Hostname of Directory Proxy Server, used when the --hostname option is not specified.	dpconf(1M) command
DIR_PROXY_PORT	Port number of Directory Proxy Server, used when the --port and --secure-port options are not specified.	dpconf(1M) command

Environment Variable	Description	Reference
DIRSERV_HOST	Hostname of Directory Server, used when the --hostname option is not specified.	dsconf(1M) command
DIRSERV_PORT	Port number of Directory Server, used when the --port and --secure-port options are not specified.	dsconf(1M) command
DSCC_HOST	Hostname of the DSCC registry, used when the --hostname option is not specified.	dsccreg(1M), dsccmon(1M) commands
DSCC_PORT	Port number of the DSCC registry, used when the --port and --secure-port options are not specified.	dsccreg(1M), dsccmon(1M) commands
LDAP_ADMIN_PWF	Path to the file that contains a password, used when the --pwd-file option is not specified. When server instances are registered with Directory Service Control Center, setting this variable to a file containing the Directory Service Manager password allows to manage all the server instances even if they have different Directory Manager passwords.	dpconf(1M), dsconf(1M), dsccreg(1M), dsccmon(1M) commands
LDAP_ADMIN_USER	Directory administrator DN, used when the --user-dn option is not specified. When server instances are registered with Directory Service Control Center, you may set this variable to cn=admin,cn=Administrators,cn=dscc or any other administrator DN create using DSCC.	dpconf(1M), dsconf(1M), dsccreg(1M), dsccmon(1M) commands
MANPATH	Zip distribution: install-path/resources/man/:\ $install-path/ext/cacao_2/usr/share/man Native packages: /opt/SUNWdsee7/man	Online manual pages to browse with the man command
MANSECT	Add any of the following sections that are not listed in your MANSECT environment variable. 1:1m:4:5dsconf:5dpconf:5dssd:5dsat:5dsoc:5 Alternatively, specify the sections to search explicitly when using the man command.	The man command uses the MANSECT environment variable to identify the sections to search by default.

Environment Variable	Description	Reference
PATH	Zip distribution: *install-path*/bin Native packages: /opt/SUNWdsee7/man	Directory Server Enterprise Edition commands
	Zip distribution: *install-path*/dsrk/bin	Directory Server Resource Kit and LDAP client commands

3

Uninstalling Directory Server Enterprise Edition

This chapter guides you to remove the Directory Server Enterprise Edition software.

This chapter contains the following sections:

- "Removing Server Instance" on page 41 covers removing the server instances that depend on the software to remove.
- "Removing Software" on page 43 covers how to remove the software after you have removed server instances.

Removing Server Instance

Before removing the Directory Server Enterprise Edition software that the server instances use on the system, you must remove all the server instances.

The following sections describe how to remove Directory Proxy Server and Directory Server instances:

- "To Delete a Directory Proxy Server Instance With DSCC" on page 41
- "To Delete a Directory Proxy Server Instance From the Command Line" on page 42
- "To Delete a Directory Server Instance With DSCC" on page 42
- "To Delete a Directory Server Instance From the Command Line" on page 43

▼ To Delete a Directory Proxy Server Instance With DSCC

1 Access Directory Service Control Center.

Use http://*dscc-host*:8080/dscc7 or https://*dscc-host*:8181/dscc7 to access DSCC based on your application server configuration.

2 Under the Proxy Servers tab, select the server to delete and click Delete in the More Server Actions drop-down list.

3   **Delete the server instance with the Delete command in the action drop-down list.**

▼ To Delete a Directory Proxy Server Instance From the Command Line

1   **(Optional) If you have used DSCC to manage the server instance, remove registration for the server.**

```
$ dsccreg remove-server -h dscc-host -p dscc-registry-port /local/dps

Enter DSCC administrator's password: directory-service-pwd
/local/dps is an instance of DPS
Enter password of "cn=Proxy Manager" for /local/dps:
Unregistering /local/dps from DSCC on hostname.
Connecting to /local/dps
Disabling DSCC access to /local/dps
```

For details, see the dsccreg(1M) man page.

2   **Delete the server instance.**

```
$ dpadm delete /local/dps
Directory Proxy Server instance '/local/dps' stopped
Directory Proxy Server instance '/local/dps' removed.
```

See Also   After you have removed all server instances on the system, go to "Removing Software" on page 43.

▼ To Delete a Directory Server Instance With DSCC

⚠   **Caution –** Deleting a Directory Server instance completely removes all the instance files, including all LDAP entries managed by the instance. Before you delete an instance, back up your data as described in Chapter 8, "Directory Server Backup and Restore," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide*.

1   **Access Directory Service Control Center.**

Based on your application server configuration, use http://*dscc-host*:8080/dscc7 or https://*dscc-host*:8181/dscc7 to access Directory Service Control Center.

2   **Under the Directory Servers tab, select the server to delete and click Delete in the More Server Actions drop-down list.**

3   **Delete the server instance with the Delete command in the action drop-down list.**

▼ To Delete a Directory Server Instance From the Command Line

Deleting a Directory Server instance completely removes all the files under the *instance-path* directory. If the databases and logs are saved in another directory, they are not removed while deleting a Directory Server instance. .

Before you delete an instance, back up your data as described in Chapter 8, "Directory Server Backup and Restore," in *Sun Directory Server Enterprise Edition 7.0 Administration Guide*.

1 (Optional) If you have used DSCC to manage the server instance, remove registration for the server.

```
$ dsccreg remove-server -h dscc-host -p dscc-registry-port /local/dsInst

Enter DSCC administrator's password: directory-service-pwd
/local/dsInst is an instance of DS
Enter password of "cn=Directory Manager" for /local/dsInst:
This operation will restart /local/dsInst.
Do you want to continue ? (y/n) y
Unregistering /local/dsInst from DSCC on hostname.
Connecting to /local/dsInst
Disabling DSCC access to /local/dsInst
Restarting /local/dsInst
```

For details, see dsccreg(1M)

2 Delete the server instance.

```
$ dsadm delete /local/dsInst
Server stopped
/local/dsInst deleted
```

See Also   After you have removed all the server instances on the system, go to "Removing Software" on page 43.

Removing Software

After you have removed all the server instances that depend on the installed product, you can remove the Directory Server Enterprise Edition software.

The following sections describe how to unconfigure and remove the Directory Server Enterprise Edition software:

- "To Unconfigure Directory Service Control Center " on page 44
- "To Remove Directory Server Enterprise Edition Installed From the Zip Distribution" on page 44

▼ To Unconfigure Directory Service Control Center

Refer to the following procedure to remove DSCC from your system.

1 Undeploy DSCC from your application server.

2 Dismantle DSCC with the `dsccsetup dismantle` **command.**

For example, on a Solaris system the following command dismantles DSCC.

```
bash-2.05# ./dsccsetup dismantle
***
Unregistering DSCC Agent from Cacao...
Stopping Cacao...
***
Deleting DSCC Registry...
All server registrations will be definitively erased.
Existing server instances will not be modified.
Do you really want to delete the DSCC Registry ? [y/n]y
Directory Server instance 'install-path/dsee7/var/dcc/ads' stopped
DSCC Registry has been deleted successfully
***
Deleted install-path/dsee7/var/dscc7.war
***
```

On Windows, type the following command to dismantle DSCC.

```
C:\install-path\bin>dsccsetup.exe dismantle
```

On Solaris, the `dsccsetup` command is located in *install-path*/bin. See "Default Paths" on page 11 to determine the default *install-path* for your system.

▼ To Remove Directory Server Enterprise Edition Installed From the Zip Distribution

● **Remove Directory Server Enterprise Edition with a system command.**

```
$ rm -r install-path
```

On Windows, delete the `install-path` folder or run the following commands to remove the components:

```
C:\>del /s install-path
C:\>del install-path
```

4

Installing and Uninstalling Directory Server Enterprise Edition Using Native Packages

Using native packages, you can install Directory Server Enterprise Edition only on the Solaris operating system.

You must be root to perform this procedure.

This chapter contains all the information related to installing and uninstalling Directory Server Enterprise Edition using native packages. Refer to the following procedures:

- "Installing Directory Server Enterprise Edition" on page 45
- "Uninstalling Directory Server Enterprise Edition" on page 47

Installing Directory Server Enterprise Edition

Before you proceed with the installation, check "Operating System Requirements" in *Sun Directory Server Enterprise Edition 7.0 Release Notes*.

▼ To Install Directory Server Enterprise Edition

1 **Download the Directory Server Enterprise Edition binaries as specified in "Getting the Software" in** *Sun Directory Server Enterprise Edition 7.0 Release Notes***.**

After this operation is complete, you should have one of the following files in your temporary space, for example, /var/tmp/dsee:

- `DSEE.7.0.Solaris-Sparc-pkg.tar.gz`
- `DSEE.7.0.Solaris10-X86-pkg.tar.gz`
- `DSEE.7.0.Solaris9-X86-pkg.tar.gz`

Directory Server Enterprise Edition is also installed in French, German, Spanish, Japanese, Korean, Simplified Chinese, and Traditional Chinese languages. All the localized resources are a part of the `SUNWdsee7` package.

2   Type the following commands to unzip the bundled file:

```
# cd /var/tmp/dsee
# gunzip DSEE.7.0.xxx-pkg.tar.gz
# tar -xf DSEE.7.0.xxx-pkg.tar
```

3   Prepare your system for the Directory Server Enterprise Edition software installation.

For more information, see "Preparing Your System for Directory Server Enterprise Edition Installation" on page 48.

4   Type the following commands to install the Directory Server Enterprise Edition software.

```
cd /var/tmp/dsee
# pkgadd -d . SUNWdsee7
# pkgadd -d . SUNWdsee7-var
# pkgadd -d . SUNWdsee7-man
```

5   If you are running Solaris 9 operating system, you must install the SUNWdsee7—config **package.**

■ On a Solaris SPARC system, type:

```
# pkgadd -d SunOS5.9 SUNWdsee7-config
```

■ On a Solaris x86 system, type:

```
# pkgadd -d . SUNWdsee7-config
```

Pre-Configuring the Directory Server Enterprise Edition Installation

The pre-configuration steps are the same for both zip and native packages installations except the following differences:

Key Difference	Summary
Root privileges	The dsccsetup must be executed with root privileges.
DSCC WAR file location	The dsccsetup command generates DSCC WAR file at /var/opt/SUNWdsee7/dscc7.war.
DSCC Registry location	The dsccsetup command creates the DSCC registry under /var/opt/SUNWdsee7/dcc/ads and sets its owner to noaccess.
DSCC Registry startup	DSCC Registry must be started as root. The registry runs as noaccess.

Key Difference	Summary
Application Server Hosting DSCC	Application Server must have read-write access to the DSCC registry instance, that is, /var/opt/SUNWdsee7/dcc/ads. The easiest is to run the Application Server as noaccess too.
DSCC Agent	The dsccsetup command plugs the DSCC Agent into the Common Agent Container framework available on Solaris. Type man –s 5 cacao.

See "Pre-Configuring the Directory Server Enterprise Edition Installation" on page 29 and "Checking Your Directory Server Enterprise Edition Installation" on page 31.

Uninstalling Directory Server Enterprise Edition

The following procedure removes only the Directory Server Enterprise Edition 7.0 software. Any prior version of Directory Server Enterprise Edition that is installed remains intact.

▼ To Remove Directory Server Enterprise Edition

1 Remove the server instances that depend on the software to be removed.

For more information, see "Removing Server Instance" on page 41.

2 Remove DSCC.

For more information, see "To Unconfigure Directory Service Control Center " on page 44.

3 Remove the Directory Server Enterprise Edition software.

a. If you are using the Solaris 9 operating system, remove the SUNWdsee7-config **package.**

```
# pkgrm SUNWdsee7-config
```

b. Remove the following packages in the given sequence to remove Directory Server Enterprise Edition software from your computer.

```
# pkgrm SUNWdsee7-var
# pkgrm SUNWdsee7-man
# pkgrm SUNWdsee7
```

Preparing Your System for Directory Server Enterprise Edition Installation

To prepare your system for the Directory Server Enterprise Edition installation, you must install the shared components mentioned in this section. You must install the shared components in the sequence specified in the tables below:

▼ To Install Shared Components

1   Install the packages in the "List of Packages Required Before Installing Directory Server Enterprise Edition" on page 49.

Based on your operating system and system architecture, see an appropriate table. For example, if you are working on a Solaris 10 SPARC system, see Table 4–1. Each component has one or more related packages. Each package has the minimum version required to be installed on your system. If the required package is not installed on your system, install the package or if the minimum required version of the package is not installed, install the corresponding patch that is mentioned in the PatchId column.

2   For each package, retrieve the current version of the package installed.

For the complete list of packages, refer to "List of Packages Required Before Installing Directory Server Enterprise Edition" on page 49.

```
# pkgparam -v pkgname VERSION PATCHLIST
```

- If *pkgname* is not installed, refer to "Location of Packages and Patches Required to Install Directory Server Enterprise Edition" on page 53 to locate the directory to find the package *pkglocation*.

  Type the following command to install packages:

  ```
  # pkgadd -d  pkglocation pkgname
  ```

- If one of the packages has no value for PATCHLIST or a revision lower than the required version number, install the required patch. Refer to "Location of Packages and Patches Required to Install Directory Server Enterprise Edition" on page 53 to locate the directory to find the patch *patchlocation*.

  Type the following command to install patches:

  ```
  # cd patchlocation
  # patchadd PATCHID
  ```

Troubleshooting   After upgrading shared components, if you face any difficulty in working with your Java ES 4.0 installation, refer to the README.119212–20 file. The compatibility issue mentioned in the file could be reason of the failure.

Note – To use AES_256 with Java(tm) based applications and utilities, you must download the JCE Unlimited Strength Jurisdiction Policy Files from http://java.sun.com/javase/downloads/index.jsp and install them.

List of Packages Required Before Installing Directory Server Enterprise Edition

Based on your operating system architecture, you must install the following packages on your system before installing Directory Server Enterprise Edition.

Note – The earlier versions of Directory Server Enterprise Edition install the `Network Security Services/Netscape Portable Runtime (NSS/NSPR)` component as a part of the Java Enterprise System distribution or as a Directory Server Enterprise Edition standalone delivery. Based on this difference, there are two different patches to patch the installed `Network Security Services/Netscape Portable Runtime (NSS/NSPR))` component.

You must check the version of `SUNWpr`, `SUNWtls`, and `SUNWtlsu` packages installed on your computer and choose the appropriate patch to install on your system.

The `SUNWj6rtx` patch is required only if you want to run JRE in the 64–bit mode.

The following tables list all the shared components that Directory Server Enterprise Edition relies on. The tables do not intend to list all the packages that a patch updates but list the packages that impact Directory Server Enterprise Edition.

TABLE 4–1   Solaris 10 SPARC System

Components	Package Name	Version	Patch Id
SASL	SUNWsasl	2.17,REV=2004.04.06.15.24	119345-07
Network Security Services/Netscape Portable Runtime (NSS/NSPR))	SUNWpr SUNWtls SUNWtlsu	4.5.1,REV=2004.11.05.02.30 3.9.5,REV=2005.01.14.17.27 3.9.5,REV=2005.01.14.17.27	119213-20
	SUNWpr SUNWtls SUNWtlsu	4.6.4,REV=2006.11.16.20.40 3.11.4,REV=2006.11.16.20.40 3.11.4,REV=2006.11.16.20.40	125358-09
International Components for Unicode (ICU)	SUNWicu	1.2,REV=2005.01.06.14.13	119810-05

TABLE 4–1   Solaris 10 SPARC System   *(Continued)*

Components	Package Name	Version	Patch Id
Java Development Kit 1.6	SUNWj6rt	1.6.0,REV=2006.11.29.05.57	125136-17
	SUNWj6rtx	1.6.0,REV=2006.11.29.04.58	125137-17
Java Dynamic Management™ Kit Runtime	SUNWjdmk-runtime SUNWjdmk-runtime-jmx	5.1,REV=34	119044-03
Common Agent Container Runtime	SUNWcacaort	2.0,REV=15	123893-15
Sun Java Monitoring Framework (MFWK)	SUNWmfwk-rt	2.0,REV=2006.11.24	125444-13
LDAP C SDK	SUNWldapcsdk-libs SUNWldapcsdk-tools	VERSION=6.00,REV=2006.12.11.00.08	136798-02
	SUNWldapcsdk-dev	VERSION=6.00,REV=2006.12.11.00.08	N/A
LDAP Java SDK	SUNWljdk	1.0,REV=2004.10.11.06.02	119725-06

TABLE 4–2   Solaris 9 SPARC System

Components	Package Name	Version	Patch Id
SASL	SUNWsasl SUNWsaslx	2.17,REV=2002.10.18.11.13	115342-08
Network Security Services/Netscape Portable Runtime (NSS/NSPR))	SUNWpr SUNWprx SUNWtls SUNWtlsx SUNWtlsu	4.1.2,REV=2002.09.03.00.17 4.1.2,REV=2002.09.03.00.17 3.3.2,REV=2002.09.18.12.49 3.3.2,REV=2002.09.18.12.49 3.3.7,REV=2003.12.01.12.23	119211-21
	SUNWpr SUNWtls SUNWtlsu	4.6.4,REV=2006.11.16.20.40 3.11.4,REV=2006.11.16.20.40 3.11.4,REV=2006.11.16.20.40	125358-09
International Components for Unicode (ICU)	SUNWicu SUNWicux	1.1,REV=2002.08.14.12.32	114677-15
Java Development Kit 1.6	SUNWj6rt	1.6.0,REV=2006.11.29.05.57	125136-17
	SUNWj6rtx	1.6.0,REV=2006.11.29.04.58	125137-17

TABLE 4–2 Solaris 9 SPARC System *(Continued)*

Components	Package Name	Version	Patch Id
Java Dynamic Management Kit Runtime	SUNWjdmk-runtime SUNWjdmk-runtime-jmx	5.1,REV=34	119044-03
Common Agent Container Runtime	SUNWcacaort	2.0,REV=15	123893-15
Sun Java Monitoring Framework (MFWK)	SUNWmfwk-rt	2.0,REV=2006.11.24	125444-13
LDAP C SDK	SUNWldapcsdk-libs SUNWldapcsdk-tools	6.00,REV=2006.12.11.00.08	136798-02
	SUNWldapcsdk-dev	6.00,REV=2006.12.11.00.08	N/A
LDAP Java SDK	SUNWljdk	1.0,REV=2004.10.11.06.02	119725-06

TABLE 4–3 Solaris 10 x86 or Solaris 10 x64 System

Components	Package Name	Version	Patch Id
SASL	SUNWsasl	2.17,REV=2003.07.18.13.13	119346-07
Network Security Services/Netscape Portable Runtime (NSS/NSPR))	SUNWpr SUNWtls SUNWtlsu	4.6.4,REV=2006.11.16.21.41 3.11.4,REV=2006.11.16.21.41 3.11.4,REV=2006.11.16.21.41	125359-09
	SUNWpr SUNWtls SUNWtlsu	4.5.1,REV=2004.11.05.03.44 3.9.5,REV=2005.01.14.19.03 3.9.5,REV=2005.01.14.19.03	119214-20
International Components for Unicode (ICU)	SUNWicu	1.2,REV=2005.01.06.14.13	119811-05
Java Development Kit 1.6	SUNWj6rt	1.6.0,REV=2006.11.29.05.03	125138-17
	SUNWj6rtx	1.6.0,REV=2006.11.29.02.51	125139-17
Java Dynamic Management Kit Runtime	SUNWjdmk-runtime SUNWjdmk-runtime-jmx	5.1,REV=34	119044-03
Common Agent Container Runtime	SUNWcacaort	2.0,REV=15	123896-15

TABLE 4–3   Solaris 10 x86 or Solaris 10 x64 System   *(Continued)*

Components	Package Name	Version	Patch Id
Sun Java Monitoring Framework (MFWK)	SUNWmfwk-rt	2.0,REV=2006.11.24	125446-13
LDAP C SDK	SUNWldapcsdk-libs SUNWldapcsdk-tools	6.00,REV=2006.12.11.00.35	136800-02
	SUNWldapcsdk-dev	6.00,REV=2006.12.11.00.35	N/A
LDAP Java SDK	SUNWljdk	1.0,REV=2004.10.11.06.02	119725-06

TABLE 4–4   Solaris 9 x86 System

Components	Package Name	Version	Patch Id
SASL	SUNWsasl	2.17,REV=2003.07.18.13.13	115343-08
Network Security Services/Netscape Portable Runtime (NSS/NSPR))	SUNWpr SUNWtls SUNWtlsu	4.6.4,REV=2006.11.16.21.41 3.11.4,REV=2006.11.16.21.41 3.11.4,REV=2006.11.16.21.41	125359-09
	SUNWpr SUNWtls SUNWtlsu	4.1.3,REV=2003.01.09.13.59 3.3.3,REV=2003.01.09.17.07 3.3.7,REV=2003.12.01.12.23	119212-21
International Components for Unicode (ICU)	SUNWicu	1.1,REV=2002.08.14.12.33	114678-15
Java Development Kit 1.6	SUNWj6rt	1.6.0,REV=2006.11.29.05.03	125138-17
Java Dynamic Management Kit Runtime	SUNWjdmk-runtime SUNWjdmk-runtime-jmx	5.1,REV=34	119044-03
Common Agent Container Runtime	SUNWcacaort	2.0,REV=15	123896-15
Sun Java Monitoring Framework (MFWK)	SUNWmfwk-rt	2.0,REV=2006.11.24	125445-13

TABLE 4–4 Solaris 9 x86 System *(Continued)*

Components	Package Name	Version	Patch Id
LDAP C SDK	SUNWldapcsdk-libs SUNWldapcsdk-tools	6.00,REV=2006.12.11.00.35	136799-02
	SUNWldapcsdk-dev	6.00,REV=2006.12.11.00.35	N/A
LDAP Java SDK	SUNWljdk	1.0,REV=2004.10.11.06.02	119725-06

Location of Packages and Patches Required to Install Directory Server Enterprise Edition

Based on the operating system and system architecture, the following lists describe the location of the packages or patches in the DSEE_PKG_Distribution directory. These packages and patches are required to install all the shared components and Directory Server Enterprise Edition binaries on your system.

Install the following packages and patches on your system:

Solaris SPARC System

```
SUNWdsee7
SUNWdsee7-var
SUNWdsee7-man
SUNWjdmk-runtime
SUNWjdmk-runtime-jmx
SUNWcacaort
SUNWmfwk-rt
SUNWldapcsdk-libs
SUNWldapcsdk-tools
SUNWldapcsdk-dev
SUNWj6rt
SUNWj6rtx
SUNWljdk
SunOS5.9:
    SUNWdsee7-config
    SUNWtls
    SUNWtlsx
    SUNWtlsu
    SUNWpr
    SUNWprx
    SUNWsasl
    SUNWsaslx
SunOS5.10:
    SUNWsasl
```

```
patches:
      125358-09
      119044-03
      123893-15
      136798-02
      125136-17
      125137-17
      125444-13
      119725-06
      SunOS5.9
            119211-21
            114677-15
            115342-08
      SunOS5.10
            119213-20
            119810-05
            119345-07
```

Solaris 10 x86 or Solaris 10 x64 System

```
SUNWdsee7
SUNWdsee7-var
SUNWdsee7-man
SUNWjdmk-runtime
SUNWjdmk-runtime-jmx
SUNWcacaort
SUNWmfwk-rt
SUNWldapcsdk-libs
SUNWldapcsdk-tools
SUNWldapcsdk-dev
SUNWsasl
SUNWj6rt
SUNWj6rtx
SUNWljdk
patches:
      119044-03
      123896-15
      136800-02
      125138-17
      125139-17
      125359-09
      119214-20
      119346-07
      119811-05
      125446-13
      119725-06
```

Solaris 9 x86 System

```
SUNWdsee7
SUNWdsee7-var
SUNWdsee7-man
SUNWjdmk-runtime
SUNWjdmk-runtime-jmx
SUNWcacaort
SUNWmfwk-rt
SUNWldapcsdk-libs
SUNWldapcsdk-tools
SUNWldapcsdk-dev
SUNWdsee7-config
SUNWtls
SUNWtlsu
SUNWpr
SUNWsasl
SUNWj6rt
SUNWljdk
patches
      119044-03
      123896-15
      136799-02
      125138-17
      119212-21
      125359-09
      119343-08
      114678-15
      125445-13
      119725-06
```

All the packages that are not listed in this section should be retrieved from the Solaris OS distribution or from http://sunsolve.sun.com.

PART II

Appendixes

This part contains the following appendixes:

-
-

A

Deploying DSCC WAR File With Supported Application Servers

To access and manage the server instances using web-based interface, you must deploy the WAR file, supplied with the Directory Server Enterprise Edition software, with any of the supported application servers.

All the supported application servers must comply to the following requirements:

- All Java permissions should be granted to the DSCC application.

  By default, all the supported application servers except Sun Java System Application Server grant such permissions to the DSCC application.

- The tag pooling feature of your application server should be disabled.

  By default, this feature is disabled in all the supported application servers except Tomcat.

For more information about the list of supported application servers, refer to "Supported Application Servers for Directory Service Control Center" in *Sun Directory Server Enterprise Edition 7.0 Release Notes*.

The following procedures help you in deploying your war file with an application server. These procedures do not intend to cover all the methods to deploy the war file in your application server. Refer to the respective application server documentation for more information.

Note – The http port numbers, used to connect to the console, mentioned in the following sections are the default port numbers for each application server. The port numbers may differ if the default port numbers are already in use.

Deploying WAR File With Sun Java System Application Server

After you install Directory Server Enterprise Edition, you can deploy the WAR file to access DSCC. The following procedure contains the deployment instructions to deploy the WAR file:

▼ To Deploy WAR File With Sun Java System Application Server

1 Create the WAR file for DSCC.

```
$ install-path/bin/dsccsetup war-file-create
```

For native packages installation, the WAR file is created in the `/var/opt/SUNWdsee7/` directory.

For zip distribution installation, the WAR file is created in the *install-path*/`var` directory.

2 Initialize the DSCC registry.

```
$ install-path/bin/dsccsetup ads-create
Choose password for Directory Service Manager:
Confirm password for Directory Service Manager:
Creating DSCC registry...
DSCC Registry has been created successfully
```

3 To create server instances on the same host where DSCC is deployed, register the DSCC agent in Common Agent Container.

```
$install-path/bin/dsccsetup cacao-reg
```

Type the following command to check the location and other statistics of your WAR file and DSCC registry:

```
$ install-path/bin/dsccsetup status
```

4 Create an application server instance.

```
$ mkdir /local/domainroot
$ cd app-server-install-path/bin
$ asadmin create-domain --domaindir /local/domainroot --adminport 3737 \
--user admin dscc7
```

5 Edit the `server.policy` **file.**

a. Open the `server.policy` file**.**

```
$ vi /local/domainroot/dscc7/config/server.policy
```

b. Add the following statements to the end of the file:

```
// Permissions for Directory Service Control Center
grant codeBase "file:${com.sun.aas.instanceRoot}/applications/j2ee-modules/dscc7/-"
{
    permission java.security.AllPermission;
};
```

The addition configures the application server to grant all the Java permissions to the DSCC application.

6   Deploy the WAR file in your application server instance.

```
$ asadmin start-domain --domaindir /local/domainroot --user admin dscc7
$ cp install-path/var/dscc7.war /local/domainroot/dscc7/autodeploy
```

For more information about creating and configuring application server instances and deploying the WAR file, refer to the *Sun Java System Application Server Online Help*.

7   Open DSCC.

Use `http://`*hostname*`:8080/dscc7` or `https://`*hostname*`:8181/dscc7` based on the configuration of your application server.

The Directory Service Manager Login page displays.

Deploying WAR File With Tomcat

After you install Directory Server Enterprise Edition, you can deploy the WAR file to access DSCC. Refer to the following procedure for deployment instructions:

▼ To Deploy WAR File With Tomcat

The following example shows how to install DSCC in Tomcat on a Solaris 10 system.

1   Create the WAR file for DSCC.

```
$ install-path/bin/dsccsetup war-file-create
```

For native packages installation, the WAR file is created in the `/var/opt/SUNWdsee7/` directory.

For zip distribution installation, the WAR file is created in the *install-path*`/var` directory.

2   Initialize the DSCC registry.

```
$ install-path/bin/dsccsetup ads-create
Choose password for Directory Service Manager:
Confirm password for Directory Service Manager:
Creating DSCC registry...
DSCC Registry has been created successfully
```

3 To create server instances on the same host where DSCC is deployed, register the DSCC agent in Common Agent Container.

$*install-path*/bin/dsccsetup `cacao-reg`

Type the following command to check the location and other statistics of your war file and DSCC registry:

$ *install-path*/bin/dsccsetup `status`

4 Install Tomcat and create an instance.

5 Identify your Tomcat installation and instance.

```
$ export CATALINA_HOME=tomcat-install-path
$ export CATALINA_BASE=tomcat-instance-path
$ export JAVA_HOME=jdk-home-dir
```

For installing Tomcat and creating instances, refer to the Tomcat documentation.

6 Enable replication topology rendering.

```
${CATALINA_HOME}/bin/shutdown.sh
export CATALINA_OPTS="-Djava.awt.headless=true"
${CATALINA_HOME}/bin/startup.sh
```

7 Deploy the WAR file.

```
$ mkdir ${CATALINA_BASE}/webapps/dscc7
$ unzip -d ${CATALINA_BASE}/webapps/dscc7 install-path/var/dscc7.war
```

Note – You must disable the tag pooling on your Tomcat server instance by setting the `enablePooling` parameter value to `false` in `${CATALINA_BASE}/conf/web.xml`. Add the following code in the `web.xml` file:

```
<init-param>
    <param-name>enablePooling</param-name>
    <param-value>false</param-value>
</init-param>
```

Verify the permissions of `startup.sh` for Solaris operating system (`tomcat5.exe` or `tomcat6.exe` on Windows) and type the following command:

```
$ ${CATALINA_HOME}/bin/startup.sh
```

8 Use `http://`*hostname*`:8080/dscc7` **to connect to DSCC.**

The Directory Service Manager Login page displays.

Deploying WAR File With BEA WebLogic Server

After you install Directory Server Enterprise Edition, you can deploy the WAR file to access DSCC. Refer to the following procedure for deployment instructions:

▼ To Deploy WAR File With BEA WebLogic Server

The following example shows how to install DSCC in BEA WebLogic Server on a Solaris 10 system.

1   Create the WAR file for DSCC.

```
$ install-path/bin/dsccsetup war-file-create
```

For native packages installation, the WAR file is created in the `/var/opt/SUNWdsee7/` directory.

For zip distribution installation, the WAR file is created in the *install-path*/`var` directory.

2   Initialize the DSCC registry.

```
$ install-path/bin/dsccsetup ads-create
Choose password for Directory Service Manager:
Confirm password for Directory Service Manager:
Creating DSCC registry...
DSCC Registry has been created successfully
```

3   To create server instances on the same host where DSCC is deployed, register the DSCC agent in Common Agent Container.

```
$install-path/bin/dsccsetup cacao-reg
```

Type the following command to check the location and other statistics of your war file and DSCC registry:

```
$ install-path/bin/dsccsetup status
```

4   Deploy the WAR file.

a.   Browse the WebLogic console using `http://localhost:7001/console`**.**

b.   Goto `base_domain/Deployments`**.**

c.   Click Lock and Edit.

d.   Click Install.

e.   Click Upload your file(s).

      f.   **In** `Deployment Archive`**, select** *install-path*`/var/dscc7.war`**.**

      g.   **Click Next.**

      h.   **Select** `dscc7.war` **and click Next a few times and Finish.**

      i.   **Click Activate Changes in the top left corner.**

The `dscc7` deployment must be in the `active` state.

> **Note –** The above steps are an example of how `dscc7.war` file is deployed into BEA WebLogic Server. The BEA WebLogic Server documentation is the only trustable source of information for deploying WAR files.

5   **Use** `http://`*hostname*`:`*port*`/dscc7` **to connect to DSCC.**

The default port number for BEA WebLogic Server is `7001`.

The Directory Service Manager Login page displays.

Deploying WAR File With Sun Java System Web Server

After you install Directory Server Enterprise Edition, you can deploy the WAR file to access DSCC. Refer to the following procedure for deployment instructions:

▼ To Deploy WAR File With Sun Java System Web Server

The following example shows how to install DSCC in Sun Java System Web Server on a Solaris 10 system.

> **Caution –** If you install Sun Java System Web Server as `root`, web server daemons run as a `webservd` user. In that case, the easiest way to make your deployment work successfully is to install Directory Server Enterprise Edition and pre-configure DSCC as a `webservd` user.

1   **Create the WAR file for DSCC.**

```
$ install-path/bin/dsccsetup war-file-create
```

For native packages installation, the WAR file is created in the `/var/opt/SUNWdsee7/` directory.

For zip distribution installation, the WAR file is created in the *install-path*/`var` directory.

2   **Initialize the DSCC registry.**

```
$ install-path/bin/dsccsetup ads-create
Choose password for Directory Service Manager:
```

```
Confirm password for Directory Service Manager:
Creating DSCC registry...
DSCC Registry has been created successfully
```

3   To create server instances on the same host where DSCC is deployed, register the DSCC agent in Common Agent Container.

$*install-path*/bin/dsccsetup cacao-reg

Type the following command to check the location and other statistics of your war file and DSCC registry:

$ *install-path*/bin/dsccsetup status

4   Deploy the war file.

a.   Browse the Sun Java System Web Server console using https://hostname:8989**.**

b.   Under the Common Tasks tab, click Add Web Application in the Virtual Server Tasks section.

c.   In the Add Web Application form, provide the following values and click OK.

- Web Application Location: *install-path*/var/dscc7.var
- URI: /dscc7

5   Enable server-side HTML

a.   Click the Content Handling tab of the virtual server.

b.   In the Parsed HTML/SSI section, click New and then OK.

c.   In the main window, click Deployment Pending link located in the top right corner and complete deployment by following the wizard.

d.   Edit the magnus.conf **file of the virtual server:**

vi *web-server-install-path*/*admin-server*/config/magnus.conf

Add the following line:

type=magnus-internal/parsed-html exts=shtml

e.   Under the Configurations tab, click the Refresh button.

f.   Click Instance Configuration Modified in the top right corner and click Pull and deploy configuration from *virtual-server* **and click OK.**

For the detailed information about enabling server-side HTML, see "Enabling Server-side HTML" in *Sun Java System Web Server 7.0 Developer's Guide*.

6   Under the Configurations tab, select the configuration that you have created and click Start.

7   Use `http://`*hostname*`:8080/dscc7` **to connect to DSCC.**

The Directory Service Manager Login page displays.

Working With Sun Cryptographic Framework on Solaris 10 Systems

This appendix briefly explains how to use the Sun Crypto Accelerator cards through the Sun cryptographic framework on Solaris 10 systems with Directory Server and Directory Proxy Server. For more information about the framework, see the respective documentation.

- "Using Directory Server With Cryptographic Hardware on a Solaris 10 System" on page 67
- "Using Directory Proxy Server With Cryptographic Hardware on a Solaris 10 System" on page 69

Using Directory Server With Cryptographic Hardware on a Solaris 10 System

This procedure is designed for use with Sun Crypto Accelerator hardware. Perform the following procedure as the same user who runs the Directory Server instance.

▼ To Use Directory Server With Cryptographic Hardware on a Solaris 10 System

1 **Set the PIN used to access the cryptographic framework by typing the** `pktool setpin` **command.**

Set the PIN as the same user as the one running Directory Server.

2 **Export the current Directory Server certificate to a PKCS#12 file.**

The following command shows how to perform this step if the Directory Server instance is located under `/local/ds/`.

```
$ dsadm export-cert -o cert-file /local/ds defaultCert
```

3 Configure Directory Server to use the appropriate token when accessing the key material.

Typically, the token is Sun Metaslot.

```
$ dsconf set-server-prop 'ssl-rsa-security-device:Sun Metaslot'
```

4 Stop Directory Server.

```
$ dsadm stop /local/ds
```

5 (Optional) If you have no other certificates in the existing certificate database for the Directory Server instance, remove the certificate database.

```
$ rm -f /local/ds/alias/*.db
```

This optional step ensures that no certificates are stored in the software database.

6 Create a new certificate database backed by the Solaris cryptographic framework.

If you have not removed the certificate database, you do not need to run the modutil -create line in this example.

```
$ /usr/sfw/bin/64/modutil -create -dbdir /local/ds/alias -dbprefix slapd-
$ /usr/sfw/bin/64/modutil -add "Solaris Kernel Crypto Driver" -libfile \
 /usr/lib/64/libpkcs11.so -dbdir /local/ds/alias -dbprefix slapd-
$ /usr/sfw/bin/64/modutil -enable "Solaris Kernel Crypto Driver" \
 -dbdir /local/ds/alias -dbprefix slapd-
```

7 Import the PKCS#12 certificate that you exported.

```
$ /usr/sfw/bin/64/pk12util -i cert-file \
 -d /local/ds/alias -P slapd- -h "Sun Metaslot"
$ /usr/sfw/bin/64/certutil -M -n "Sun Metaslot:defaultCert" -t CTu \
 -d /local/ds/alias -P slapd-
```

If your accelerator board has a FIPS 140-2 keystore, for added security, make sure that the private key is stored on the device. Sun Crypto Accelerator 4000 and 6000 boards have FIPS 140-2 keystores, for example. The exact process depends on the board.

Note – Make sure that the cryptographic hardware supports the cipher suites that you want to use. Not all the hardwares support all cipher suites. As a workaround, you can use dsconf ssl-cipher-family to set specific suites.

---

8 Create a password file that contains the PIN needed to access the cryptographic framework.

This file is required only when the password is changed in step 1.

```
$ echo "Sun Metaslot:password" > /local/dsInst/alias/slapd-pin.txt
```

If the password has been changed in step 1, *password* is the new password, otherwise it is the one currently in use.

9   Start Directory Server.

```
$ dsadm start /local/ds
```

Using Directory Proxy Server With Cryptographic Hardware on a Solaris 10 System

This procedure is designed for use with Sun Crypto Accelerator hardware. Perform the following procedure as the same user who runs the Directory Proxy Server instance.

▼ To Use Directory Proxy Server With Cryptographic Hardware on a Solaris 10 System

1   Stop Directory Proxy Server.

```
$ dpadm stop /local/dps
```

2   Turn off the certificate database password storage.

```
$ dpadm set-flags /local/dps cert-pwd-prompt=on
Choose the certificate database password:
Confirm the certificate database password:
```

3   Set the PIN used to access the cryptographic framework by typing the pktool setpin **command.**

Use the same password that you typedwhen turning off the certificate database password storage.

4   Generate a key pair by using the cryptographic framework as the key store.

```
$ keytool -genkeypair -alias defaultDPScert
 -dname "ou=dps server,dc=example,dc=com" -keyalg RSA -sigalg MD5withRSA
 -validity 3652 -storetype PKCS11 -keystore NONE -storepass pin-password
```

pin-password is the password that you set as the PIN with the pktool setpin command.

5   Edit the Directory Proxy Server configuration file, adding the following attributes to the base entry, cn=config**.**

```
serverCertificateNickName: defaultDPScert
certificateKeyStore: NONE
certificateKeyStoreType: PKCS11
```

6   Start Directory Proxy Server.

```
$ dpadm start /local/dps
```

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