

Installation Guide

Sun ONE Meta-Directory

Version 5.1

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About This Guide

The *Sun ONE Meta-Directory Installation Guide* describes how to install Sun ONE Meta-Directory 5.1 and related components. The Sun ONE Meta-Directory 5.1 software is available for

- Microsoft Windows NT Server 4.0 SP6a (Intel Architecture)
- Microsoft Windows 2000 Server
- Microsoft Windows 2000 Advanced Server
- Sun Solaris[tm] 8 Operating Environment (SPARC® Platform Edition)
- Sun Solaris[tm] 9 Operating Environment (SPARC® Platform Edition)

This preface contains the following sections:

- What You Are Expected to Know
- Sun ONE Meta-Directory 5.1 Documentation Set
- Organization Of This Guide
- Documentation Conventions
- Where to Find Additional Information

What You Are Expected to Know

This guide is for system administrators who want to install Sun ONE Meta-Directory 5.1 on a single machine system. It is assumed that the administrator has experience working with directory servers and Lightweight Directory Access Protocol (LDAP) as well as knowledge of either or both of the Windows operating system and Solaris operating environments.

Sun ONE Meta-Directory 5.1 Documentation Set

Read through the documentation set for Sun ONE Meta-Directory 5.1 before installing the software. The set, which is available at the Meta-Directory documentation web site, see

<http://docs.sun.com/prod/s1metadir>

contains the following titles:

- *Sun ONE Meta-Directory Deployment Guide* describes how to plan and implement a Meta-Directory solution to meet the requirements of your organization.
- *Sun ONE Meta-Directory Installation Guide* (this guide) tells how to install Meta-Directory software on machines running either the Windows operating system or the Solaris operating environment.
- *Sun ONE Configuration and Administration Guide* documents how to configure and administer the Meta-Directory system from both the Meta-Directory console and the command-line.
- *Sun ONE Meta-Directory Release Notes* include information about what is new in this release, last minute installation tips, known software limitations, and how to report problems.

In order to use Meta-Directory, a Sun ONE Directory Server 5.1 needs to be installed and configured. Therefore, it is recommended that you read the Sun ONE Directory Server Deployment Guide and Sun ONE Directory Server Installation Guide before beginning the installation process for Meta-Directory. See

Organization Of This Guide

Sun ONE Meta-Directory Installation Guide (this guide) contains instructions on how to install Sun ONE Meta-Directory on servers using either the Windows or the Solaris operating environments. It consists of the following chapters:

- **Chapter 1, “Preparing For Installation”** describes what you need prior to beginning installation.
- **Chapter 2, “Installing Meta-Directory On Solaris Systems”** describes the installation process on a machine using the Solaris operating system.
- **Chapter 3, “Installing Sun ONE Meta-Directory On Windows Systems”** describes the installation process on a machine using the Windows operating system.
- **Chapter 4, “Silent Installation”** describes the process for installing Meta-Directory on multiple machines or from a remote terminal.
- **Chapter 5, “Removing Sun ONE Meta-Directory”** describes the process for removing Meta-Directory software from your system
- **Chapter 6, “Upgrading to Sun ONE Meta-Directory 5.1”** describes the process of upgrading from one version of Meta-Directory to another.

Documentation Conventions

In all Meta-Directory documentation, certain typographic conventions and terminology are used to simplify discussion and to help better understand the material.

Typographic Conventions

This book uses the following typographic conventions:

- *Italic type* is used within text for book titles, new terminology, emphasis, and words used in the literal sense.
- `Monospace font` is used for sample code and code listings, API and language elements (such as function names and class names), filenames, pathnames, directory names, HTML tags, and any text that must be typed on the screen.

- *Italic serif font* is used within code and code fragments to indicate variable placeholders. For example, the following command uses *filename* as a variable placeholder for an argument to the gunzip command:

```
gunzip -d filename .tar.gz
```

Terminology

Below is a list of the general terms that are used in the Meta-Directory documentation set:

- *Meta-Directory* refers to iPlanet Meta-Directory or Sun ONE Meta-Directory and any installed instances of the iPlanet or Sun ONE Meta-Directory software.
- Sun ONE Meta-Directory 5.1 is certified with Sun ONE Directory Server 5.1 (formerly iPlanet Directory Server 5.1)
- *Meta-Directory components* refers to the collective set of Sun ONE Meta-Directory components and software you have installed and running on your system, including the join engine and any external data source connectors.
- *External data source* refers to any user data that originates outside of the core Meta-Directory components, whether the data is coming from another database, directory server, data file, or other source of data.
- *Directory Server* refers to an installed instance of iPlanet or Sun ONE Directory Server.

Sun ONE Meta-Directory can synchronize data using any LDAPv2 and LDAPv3-compliant directory server, as long as the LDAP server supports a change log mechanism similar to the one implemented in Netscape Directory Server 4.1x. The term *Directory Server* refers to the instances of iPlanet Directory Server, Sun ONE Directory Server and Netscape Directory Server that you have installed to work with Sun ONE Meta-Directory.

- Similarly the term *Administration Server* refers to an installed instance of Netscape Administration Server, Sun ONE Administration Server or iPlanet Administration Server, whether it be used with the Meta-Directory components or another Sun ONE server.
- *NETSITE_ROOT* is a variable placeholder for the home directory where you have installed Sun ONE Meta-Directory and any other Sun ONE servers installed into the same server group.

- The term *flow* is used rather loosely to refer to the process of synchronizing data between an external data source and the meta view. You “flow” data through a connector to the connector view and then “flow” it to the meta view. The contrary is also true, you “flow” data from the meta view back to the connector views and out to the external data sources.

Where to Find Additional Information

In addition to Sun ONE Meta-Directory documentation set, you should be familiar with the documentation for products that are used in conjunction with it. Of particular interest are the Sun ONE Console and Sun ONE Directory Server documentation sets. This section lists additional sources of information you may find helpful as you use Sun ONE Meta-Directory.

Sun ONE Console Documentation

You can find the Sun ONE Console documentation at the following site:

<http://docs.sun.com/prod/s1.ipconsole.2>

Sun ONE Directory Server Documentation

You can find the Sun ONE Directory Server documentation at the following site:

<http://docs.sun.com/prod/sldirsrv>

Directory Server Developer Information

In addition to the Directory Server documentation, you can find information on Meta-Directory, LDAP, the Sun ONE Directory Server, and associated technologies at the following Sun ONE developer sites:

<http://www.sun.com/developers>

Other Sun ONE Product Documentation

Documentation for all Sun ONE servers and technologies can be found at the following web site:

<http://docs.sun.com/prod/sunone>

Sun ONE Support

Other Useful Sun ONE information can be found at the following Internet locations:

- Sun ONE Training--- <http://www.sun.com/training>

Where to Find Additional Information

- Sun ONE Support information ---<http://www.sun.com/support>
- Sun ONE Product Information--<http://www.sun.com/products>

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Preparing For Installation

Before beginning the installation process, you should familiarize yourself with the components of the Meta-Directory suite as well as check that your system meets the recommended requirements. This chapter contains the following sections:

- Supported Platforms Overview
- Meta-Directory Components
- System Requirements for Solaris Systems
- System Requirements for Windows Systems
- Installation Privileges
- Required Installation Information
- Standard Deployment Sequence

Supported Platforms Overview

Operating Systems and Platforms

Operating System	Supported
Sun Solaris[tm] 9 Operating Environment (SPARC® Platform Edition)	Yes
Sun Solaris[tm] 8 Operating Environment (SPARC® Platform Edition)	Yes
Sun Solaris[tm] 2.6 Operating Environment (SPARC® Platform Edition)	No
Microsoft Windows NT Server 4.0 SP6a (Intel Architecture)	Yes
Microsoft Windows 2000 (Advanced) Server SP3	Yes
Microsoft Windows 2000 Server SP3	Yes
Microsoft Windows 2000 Professional	No
Microsoft Windows XP	No
Solaris [tm] x86 Platform Edition	No
Sun Linux 5.0 Operating Environment	No
64 bit HP-UX 11 environment	No, however it is possible to install Sun ONE Directory Server 5.1 on the HP-UX 11 environment
IBM AIX 4.3.3 Operating System	No, however it is possible to install Sun ONE Directory Server 5.1 on the IBM AIX 4.3.3 Operating System

Supported Software pre-requisites

The following software must be installed (depending on which connectors you are using) with the Sun ONE Meta-Directory 5.1 software.

- MySQL Connector/J V 2.0.14 JDBC driver for accessing the MySQL database. This is typically distributed as a JAR. This can be downloaded from -
<http://www.mysql.com/downloads/api-jdbc-stable.html> .
- MySQL-Max V3.23.51. This can be downloaded from -
<http://www.mysql.com> or from one of it's mirror sites. A mirror that currently hosts and can be used for downloading the binary is
<http://mysql.mirror.stop.hu/downloads/mysql-3.23.html> .
- The Java runtime environment version 1.4.0_01
- nsPerl version 5.004_04 is a required Perl component used by the join engine and universal connectors.
- nsPerl version 5.005_03 is used by Sun ONE Console and installed automatically.
- Sun ONE Directory Server 5.1. Sun ONE Meta Directory 5.1 is only certified with iPlanet Directory Server 5.1

Supported Connector Platforms

Connector	Solaris 2.6	Solaris 8 Solaris 9	Microsoft Windows NT 4.0, SP6a	Microsoft Windows 2000 (Advanced) Server SP3, Windows 2000 Server SP3	Microsoft Windows 2000 Professional, Windows XP	Comments
Universal Text Parser/Universal Text	No	Yes	Yes	Yes	No	
Microsoft Windows NT Domain	No	No	Yes	No	No	
Oracle Database	No	Yes	Yes	Yes	No	The Oracle Database Connector requires Oracle 8.1.5 or 8.1.7 (server and client). The Oracle client software must be installed on the system running the Join Engine. The server (database) software can exist on a different machine.
Microsoft Windows Active Directory	No	No	Yes	Yes	No	The Active Directory Connector database platforms requires ADSI 2.5 on the system running the Active Directory Connector; it connects to a system hosting the Active Directory (usually running the Windows 2000 platform). We recommend Active Directory only with Windows 2000 operating systems. In future versions of the Meta-directory product, NT4 support for Active Directory will no longer be provided

Connector	Solaris 2.6	Solaris 8 Solaris 9	Microsoft Windows NT 4.0, SP6a	Microsoft Windows 2000 (Advanced) Server SP3, Windows 2000 Server SP3	Microsoft Windows 2000 Professional, Windows XP	Comments
Microsoft Exchange 2000 SP3	No	No	No	Yes	No	
Lotus Notes 5.0.10	No	Yes	No	Yes	No	Lotus Notes 4.x and 5.0.x should work but are not supported The changelog is placed within a database using MySQL. The Lotus Notes 5.0.10 connector synchronizes users and groups between Lotus Notes and CV.
Novell eDirectory 8.6.2	No	Yes	No	Yes	No	The changelog is placed within a database using MySQL

Meta-Directory Components

The Meta-Directory software suite contains, requires, and will install, the following components:

Server Core Components

Sun ONE Server Components are shared files that help Meta-Directory integrate with existing Sun ONE systems. The files include:

- Server Products Common Files
- Core Java Classes
- Java Runtime Environment version 1.4.0_01

Sun ONE Administration Services

Sun ONE Administration Services bundles Sun ONE Administration Server and Sun ONE Console. The Administration Server is the common front-end to all Sun ONE servers. There is at least one Administration Server instance for each server root in which a Sun ONE server is installed. Sun ONE Console allows the administrator to perform functions such as stopping and starting servers, installing server instances, and managing user and group information.

NOTE Sun ONE Console can also be installed as a stand-alone application.

nsPerl

nsPerl is a version of Perl, with enhancements added by Sun ONE, required by Meta-Directory. (The standard version of Perl, available at <http://www.cpan.org/>, is not sufficient.) The following three scripts may be installed:

- nsPerl version 5.004_04 is a required Perl component used by the join engine and universal connectors.
- nsPerl version 5.005-03 is used by Sun ONE Console and installed automatically.

Meta-Directory Join Engine

The join engine is the core service of Meta-Directory. It is the join engine's function to link information from different external data sources (through a connector and connector view) into an LDAP directory server (serving as a meta view). In addition, the join engine is responsible for keeping track of changes to the data and controlling the flow of the information between the connector and meta views.

Meta-Directory Universal Connector

The Universal connector (also known as the Universal Text Connector or UTC) is a generic text parser. It is the building block for a variety of connectors that provide bi-directional flow of data between an external data source and its connector view. The UTC ships with a Perl script and config files that, when manually configured,

work to flow data in three standard file formats: LDAP Data Interchange Format (LDIF), Comma-Separated Values (CSV), and Name/Value Pairs (NVP). The UTC coupled with the Perl script and the config file for one of these file formats is called the Universal Text Parser (UTP).

Meta-Directory Console

The Meta-Directory console provides the user interface for configuring Meta-Directory components and managing the flow of information between the external data source, the connector views and the meta view.

Meta-Directory Windows NT Domain Connector

The Windows NT Domain connector provides two-way flow of user and group data specifically between a Windows database and its connector view.

Meta-Directory Active Directory Connector

The Active Directory connector provides two-way flow of user and group data specifically between the Windows Active Directory and its connector view. The use of the Active Directory connector component specifically requires downloading and installing ADSI 2.5

Meta-Directory Microsoft Exchange Connector

The Microsoft Exchange connector provides two-way flow of user and group data specifically between the Microsoft Exchange Server and its connector view. Note The Windows NT Domain, Active Directory and Microsoft Exchange connectors are not installed components on a machine that uses the Solaris operating environment.

Meta-Directory Database Connector

The Database connector is a direct connector that provides the join engine with two-way SQL access to a relational database. The Database connector currently supports Oracle 8.1.5 and 8.1.7 databases.

Meta-Directory Novell Directory Connector

The Novell Directory Connector provides two-way flow of user and group data specifically between a tree in Novell Directory Server and its Connector View. Default configurations allow you to synchronize Novell Directory Server's "inetOrgPerson" objectclass with iPlanet Directory Server's "inetOrgPerson" objectclass and Novell Directory Server's "groupOfNames" objectclass with iPlanet Directory Server's "groupOfUniqueNames" objectclass. One is however not limited to synchronize entries belonging to only these two object classes. You can extend the schema at either data source end and allow synchronization of entries belonging to any object class.

The Novell Directory Connector currently supports Novell's eDirectory version 8.6.2. It makes use of mySQL version 3.23.51 and mySQL Connector/J version 2.0.14.

Following is the list of dependent components that must be selected along with the "Meta-Directory Novell Directory Connector" during its installation:

- Server Core Components
- Administration Services
- nsPerl
- Meta-Directory Console

If one or more of these are not selected, the installation would abort.

Meta-Directory Lotus Notes Connector

The Lotus Notes Connector provides two-way flow of user and group data specifically Lotus Notes directory (domino directory) and its Connector View. Default configurations allow you to synchronize Lotus Notes directory's "dominoPerson" objectclass with iPlanet Directory Server's "inetOrgPerson" objectclass and Lotus Notes directory's "dominoGroup" objectclass with iPlanet Directory Server's "groupOfUniqueNames" objectclass. One is however not limited to synchronize entries belonging to only these two object classes. You can extend the schema at either data source end and allow synchronization of entries belonging to any object class.

The Lotus Notes Connector currently supports Lotus Notes server 5.0.10. It makes use of MySQL version 3.23.51 and MySQL Connector/J version 2.0.14. Following is the list of dependent components that must be selected along with the "Meta-Directory Lotus Notes Connector" during its installation:

- Server Core Components
- Administration Services
- nsPerl
- Meta-Directory Console

PerLDAP

PerLDAP 1.4.1 is a collection of modules and packages that provides the LDAP interface in PERL.

System Requirements for Solaris Systems

Before installing Meta-Directory on a machine running the Solaris operating system, you should verify that it meets the recommended requirements described in this section.

Hardware Requirements

The basic installation of the join engine and connectors requires 100 MB of disk space; however, optimal operation of these components requires much more. (The disk space allocation for Meta-Directory must allow for users supported on the server, changelogs, and other generated files.) A minimum of 1 GB disk space is highly recommended for any Meta-Directory installation.

The minimum RAM requirements are 256 MB for machines dedicated to running Meta-Directory processes. If you install Sun ONE Directory Server on the same machine as Meta-Directory, 1 GB of RAM is recommended.

Software Requirements

Sun ONE Meta-Directory runs Sun Solaris[tm] 8 Operating Environment (SPARC® Platform Edition) or Sun Solaris[tm] 9 Operating Environment (SPARC® Platform Edition). Successful installation of Meta-Directory requires that a series of patches be installed. For a list of these patches and installation instructions, see “The Solaris Installation Process” on page 28.

System Requirements for Windows Systems

Before installing Meta-Directory on a machine running the Windows operating system, you should verify that it meets the recommended requirements described in this section.

Hardware Requirements

An Intel Pentium II-based computer with a 300Mhz or faster CPU and 100 MB of disk space is recommended for the basic installation of the join engine and connectors; however, optimal operation of these components requires much more. (The disk space allocation for Meta-Directory must allow for users supported on the server, changelogs, and other generated files.) A minimum of 1 GB disk space is highly recommended for any Meta-Directory installation.

The minimum RAM requirements is 256 MB for machines dedicated to running Meta-Directory processes. If you install Sun ONE Directory Server on the same machine as Meta-Directory, 1 GB of RAM is recommended.

Software Requirements

Installation of Sun ONE Meta-Directory 5.1 requires one of:

- Microsoft's Windows NT Server 4.0 operating system, updated with Service Pack 6a.
- Microsoft Windows 2000 Server SP3
- Microsoft Windows 2000 (Advanced) Server SP3

In addition, installation requires administrator or domain administrator privileges. Windows should also be configured to include TCP/IP transport and use DNS, LMHOSTS, or WINS to resolve host names.

Installation Privileges

It is best to install Meta-Directory as root (under Solaris) or Administrator (under Windows).

Required Installation Information

During installation, you will be prompted for the following configuration information:

- Server root
- User and group for allocation of permissions
- Location of the configuration directory
- Port number of the configuration directory
- Administration domain of the configuration directory
- Administration ID and password of the administrator
- Directory Server configuration information

For more information, see your Directory Server documentation.

Standard Deployment Sequence

The standard deployment sequence for Meta-Directory includes the installation of a directory server and the core Meta-Directory components (including one of each type of connector) on a single machine. This sequence is briefly outlined here:

1. Install and configure an LDAP directory server, creating a directory information tree (DIT) structure.

For more information, see your Directory Server documentation.

NOTE Meta-Directory must be configured to work with a Directory Server that has a changelog feature. In Directory Server 5.x this changelog is implemented as a RetroChangeLog plugin that is configured from within the Directory Server console. This plugin is backwards compatible with the changelog implementation in Netscape/iPlanet Directory Server 4.16, both changelogs are supported. After the creation of the retro changelog a restart of directory server is required. The changelog can be queried using

```
ldap://hostname:port/cn=changelog
```

2. Verify that the directory server is responding to LDAP by typing any of the following URLs in your browser location window.

Table 1-1 LDAP Verification URLs

Type This URL:	To Display:
ldap://hostname:port	Information about the LDAP server
ldap://hostname:port/your_suffix	Everything under the given suffix that has anonymous access
ldap://hostname:port/cn=schema	The directory server's schema
ldap://hostname:port/cn=monitor	Directory server statistics

3. Start the administration server, accessing the directory server as Directory Manager.
4. Enable the changelog.

For more information, see your Directory Server documentation.

5. Optimize the directory server configuration for estimated directory tree size and load by adjusting the configuration parameters.

For more information, see your Directory Server documentation.

6. Populate the directory server database with user entries. The most common way to do this is by importing an LDIF file.
7. Install Meta-Directory by executing the `setup` binary from the installation folder.

The `setup` binary will install the necessary components to your system. See **Chapter 2, “Installing Meta-Directory On Solaris Systems”** or **Chapter 3, “Installing Sun ONE Meta-Directory On Windows Systems”** for instructions on your particular system.

8. Register the user name and password of the person designated configuration administrator.

The configuration administrator creates and manages the information stored in the server configuration directory. The user name and password will be entered and authenticated during the installation process.

9. Before starting Sun ONE Meta-Directory 5.1 Admin console the online help requires that:
 - a. If running console on a different machine, or as a different user then the `xhost + command` needs to be executed and the `DISPLAY` environment variable set appropriately.
 - b. The "netscape" executable should be in the `PATH`
 - c. While logging in to the console, the user should make sure that the `URL` field points to the hostname and port where the admin server of Meta Directory is installed.

10. Open Meta-Directory and create an instance of the join engine.

The meta view, where the join engine stores entries, is created during this process. For more information, refer to the *Sun ONE Meta-Directory Configuration and Administration Guide*.

11. Connector instances are created and configured.

Use Meta-Directory console to configure connectors, define connector tasks, and configure connector view setup in the join engine. Procedures depend on the type of connector being installed. For more information, refer to *Sun ONE Meta-Directory Configuration and Administration Guide*.

12. Test the system.

Installing Meta-Directory On Solaris Systems

This chapter describes how to install Meta-Directory on a server using the Sun Solaris[™] 8 Operating Environment (SPARC[®] Platform Edition) and Sun Solaris[™] 9 Operating Environment (SPARC[®] Platform Edition). Note that system patches must be installed before beginning the installation process. This chapter contains the following sections:

- Patch Installation
- The Solaris Installation Process

Patch Installation

If installing Meta-Directory on a server running the Solaris version 8 or version 9 operating systems, you must install the The Recommended Patch Clusters and The Java[™] 2 Standard Edition (J2SE[™]) 1.4.0_01 Localized JRE patch.

The Recommended Patch Cluster for either version can be downloaded from:

<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>

The Java 2 Standard Edition (J2SE) 1.4.0_01 Localized JRE patch set can be downloaded from:

<http://www.sun.com/software/solaris/jre/download.html>

You must be a registered Sun customer to download the J2SE patches. Registration is free and can be completed at the patch download site.

Recommended Patch Cluster Solaris version 8

Consult the latest patch report at <http://www.sunsolve.com>

Recommended Patch Cluster for Solaris 9

Consult the latest patch report at <http://www.sunsolve.com>

Verifying Patch Installation

Entering the command `showrev -p` after patch installation will print a complete list of installed patches to your monitor. A comparison of this list and the patch listing in this documentation can verify that the correct patches have been installed.

The Solaris Installation Process

This section describes the process for installing Meta-Directory on a server running the Solaris operating system.

NOTE It is recommended that you have your Directory Server documentation on hand to help with the installation process. It can be found at

<http://docs.sun.com/db/prod/s1.ipdirs>

1. Log in to your system as superuser (root).
2. Download the Meta-Directory for Solaris binary.

The binary is a file compressed with `gzip`, a compression utility that can be downloaded at <http://www.gzip.org>.
3. Decompress the binary with the following command:

```
# gzip -dc filename.tar.gz | tar xvf -
```
4. Run the setup program using the command `./setup`.

NOTE To alleviate the possibility of sharing violations or file overwrites, it is mandatory to install Meta-Directory into a different directory tree than the one in which your Directory Server resides.

5. Press Return when asked if you'd like to continue with the installation.
6. Read the Software License Agreement, type `y` for Yes and press Return if you accept this agreement and agree to be bound by its terms.
7. Select the default Sun ONE Servers installation and click `Next` to continue.
The Sun ONE Console option can be used to re-install Sun ONE Console.
8. Enter a full path to the location (server root) where you want Meta-Directory to be installed.

The directory location that you enter must be different from the one in which you are running the setup program; it cannot be installed into the same directory into which it is extracted. If the installation directory does not currently exist, the setup program will create it although you may have to verify write access after installation.
9. Press Enter to enable the installation of all Sun ONE or iPlanet Server Product components.

For a list and description of the components, see Chapter 1, "Preparing For Installation."
10. Press Enter to install all server core components, core Java classes and Java runtime environment.
11. Press Enter to install iPlanet Administration Server and Administration Server Console.
12. Press Enter to install nsPerl 5.004_04.
13. Press Enter to install Meta-Directory join engine.
14. Press Enter to install Meta-Directory Universal connector.
15. Press Enter to install Meta-Directory console.
16. Press Enter to install Meta-Directory Database connector.
17. Enter the fully-qualified domain name of the computer on which you are installing Meta-Directory and press Enter.

18. Enter the user and group you want to represent the iPlanet server in the user directory.

Ideally this user should not have privileges in the computer network system. The Administration Server will give this group the permissions to perform server-specific operations.

19. Enter the URL of the Directory Server that will contain the Configuration Directory and the non-secure port address. (The default port address is 389.) Click `Next` to continue.

This function requires the use of Sun ONE Directory Server. Ensure that the Directory Server is currently running so that the setup program can verify the information entered.

20. Enter the domain name (for example, `sunone.com`) to specify the administration domain in the Configuration Directory. Click `Next` to continue.
21. Enter the user ID or distinguished name (DN) and password of the configuration administrator authorized to access the Configuration Directory. The domain name specified above and the configuration administrator specified here will be verified when you click `Next` to continue.

The configuration administrator creates and manages information stored in the Configuration Directory. The user must exist on the server before entering it on this screen.

22. Choose an administration port number and click `Next` to continue.

By default, the setup application chooses an administration port number. If you decide to use the default, make sure that this is a port number that is not already in use. Be sure to record the port number you have chosen.

23. The Meta-Directory files and components are installed to your system.

Installing Sun ONE Meta-Directory On Windows Systems

This chapter describes how to install Meta-Directory on a server running the Windows operating system. The following Versions of Windows are supported:

- Microsoft Windows NT Server 4.0 SP6a (Intel Architecture)
- Microsoft Windows 2000 Server SP3
- Microsoft Windows 2000 Advanced Server SP3

Windows Installation Process

To install Meta-Directory on a computer running the Windows operating system:

1. Log in to Windows as a user with administrator privileges.
2. Download compressed Meta-Directory for Windows binaries to the hard drive of the installation computer:

The compressed binary needs to be decompressed before moving to Step 3. WinZip can be obtained through <http://www.winzip.com>.

3. Double-click the `setup.exe` program.

`setup.exe` is in the folder into which you decompressed the binary.

NOTE To alleviate the possibility of sharing violations or file overwrites, it is mandatory to install Meta-Directory into a different directory tree than the one in which your Directory Server resides.

4. Click `View ReadMe` to check for any last-minute instructions, installation updates or news or click `Next` to continue.
5. Read the Software License Agreement, type `y` for Yes and press Return if you accept this agreement and agree to be bound by its terms.
6. Select installation of the default Sun ONE Servers and click `Next` to continue.
The Sun ONE Console option can be used to re-install Sun ONE Console.

NOTE Even if no component is selected, 5 MB will be used for the installation of `uninst.exe`, `srvcore` and other related files.

7. Click `Next` to choose the installation folder displayed.
You can change the installation folder by clicking `Browse` and navigating to another folder.
8. Select or deselect the components and subcomponents for installation and click `Next` to continue. Note the “Special nsPerl Install Instructions” in Table 3-1.
By default, all Meta-Directory components are selected for installation. You can deselect the components that you do not wish to install. To choose which subcomponents of a particular component to install, select the component and click `Change`. For a list and description of the components, see Chapter 1, “Preparing For Installation.”

Table 3-1 Special nsPerl Install Instructions

nsPerl version 5.004_04 is a required component used by the join engine and connectors. Follow these special instructions to install it on a system running Windows NT:

1. Select nsPerl on the Components To Install screen and click `Change`.
 2. Select nsPerl 5.004_04 on the Subcomponents To Install screen.
 3. Click `Continue` and proceed with the installation.
-

NOTE Certain components have dependencies on other components. If you select a component that has a dependency on a component that you do not select, an error message will appear instructing you to select the required component.

9. Enter the URL of the Directory Server and the non-SSL port address. (The default port address is 389.) Click **Next** to continue.

Sun ONE Meta-Directory 5.1 requires the use of Sun ONE Directory Server 5.1. Ensure that the Directory Server is currently running so that the setup program can verify the information entered.

10. Enter the domain name (for example, `sunone.com`) to specify the administration domain in the server configuration directory. Click **Next** to continue.
11. Enter the user ID or distinguished name (DN) and password of the configuration administrator authorized to access the Configuration Directory. The domain name specified above and the configuration administrator specified here will be verified when you click **Next** to continue.

The configuration administrator creates and manages information stored in the server configuration directory. The user must exist on the server before entering it on this screen.

12. Choose an administration port number and click **Next** to continue.
By default, the setup application chooses an administration port number. If you decide to use the default, make sure that this is a port number that is not already in use. Be sure to record the port number you have chosen.
13. Ensure that the displayed configuration summary information is correct and click **Install**.
14. The Meta-Directory files and components are installed on your system. After installation is successful, you will be prompted to restart Windows.

Silent Installation

Sun ONE Meta-Directory gives the system administrator the option of installing Meta-Directory using a prepared instruction file. This “silent” installation allows the administrator to define the configuration information beforehand and use the file to remotely install the software or duplicate the installation process on a number of machines. This chapter contains the following sections:

- The install.inf File
- Directives
- Creating an install.inf File
- Using the install.inf File
- Examples of install.inf Files

The install.inf File

The `install.inf` file is used for the silent installation of Meta-Directory. It is generated during the initial installation of Meta-Directory and can be modified for use during unattended installations. The basic format of the file is this:

```
[General]
directive= value
directive= value
directive= value
...
[base]
directive= value
directive= value
directive= value
...
[admin]
directive= value
directive= value
directive= value
....
```

The keywords `[General]`, `[base]`, and `[admin]` are required. These keywords identify a specific aspect of the installation process. The directives are more specific specifications of each keyword.

Directives

The directives used in `install.inf` are divided into four types identified by the keywords: `[General]`, `[Base]`, `[admin]` and `[component]`.

General Directives

General installation directives specify information that will be common to all installations performed.

Table 4-1 [General] Installation Directives

Directive	Description
Components	This required directive specifies which of the following components will be installed: <ul style="list-style-type: none"> • <code>svrcore</code>—uninstallation binaries • <code>base</code>—the base installation package • <code>admin</code>—the Administration Server binaries
ServerRoot	This required directive specifies the full path to where the selected Meta-Directory components are installed.
FullMachineName	This directive specifies the fully qualified domain name of the machine on which you are performing the silent installation. If this directive is not present, the Common Install Shell will query the machine for its name.
SuiteSpotUserID	For UNIX [®] only, this directive specifies the name of the user under which Meta-Directory will run. The value is set to <code>nobody</code> on Windows NT systems.
SuiteSpotGroup	For UNIX [®] only, this directive specifies the name of the group to which the <code>SuiteSpotUserID</code> belongs. The value is set to <code>nobody</code> on Windows NT systems.
ConfigDirectoryLdapURL	This required directive specifies the URL of the directory server used to manage the information and data. The URL is specified in the following format: <code>ldap://<machinename>:<port>/<base DN></code>
AdminDomain	This directive specifies the administration domain under which this server will be registered.
ConfigDirectoryAdminID	This required directive specifies the user ID that has permission to access the configuration directory and the specified administration domain.
ConfigDirectoryAdminPwd	This required directive specifies the password for the user that has permission to access the configuration directory and the specified administration domain.
UserDirectoryLdapURL	This directive specifies the URL of the directory server in this installation which requires write access to the user directory.
UserDirectoryAdminID	This directive specifies the user ID of the user that has administration privileges to the user directory.

Table 4-1 [General] Installation Directives (*Continued*)

Directive	Description
UserDirectoryAdminPwd	This directive specifies the password for the user that has administration privileges to the user directory.

Base Directives

The [base] installation directive determines which of the components needed for the iPlanet consoles will be installed.

Table 4-2 [base] Installation Directive

Directive	Description
Components	<p>The values for this directive are one, two or all three of:</p> <ul style="list-style-type: none"> • <code>base</code>—the shared libraries used by the Sun ONE consoles • <code>base-client</code>—the Java runtime environment used by server consoles • <code>base-jre</code>—the Java runtime environment used by all other consoles

Admin Directives

The [admin] installation directives specify information needed by your administration server to manage the instance that is being installed.

Table 4-3 [admin] Installation Directives

Directive	Description
Components	<p>This directive specifies which of the following admin components will be installed:</p> <ul style="list-style-type: none"> • <code>admin</code>—installs the Administration Server. You must install the Administration Server in order to install and use other Sun ONE servers. • <code>admin-client</code>—installs Sun ONE Console. Do not install if you will remotely manage your servers from an instance of Sun ONE Console elsewhere on your network.

Table 4-3 [admin] Installation Directives (*Continued*)

Directive	Description
SysUser	For UNIX [®] only, this directive specifies the user for which the Administration Server will run. For default installations, this user must be root.
Port	This directive specifies the port that the Administration Server will use. Note that the Administration Server's host name is given by FullMachineName, one of the general directives.
ServerAdminID	This directive specifies the administration ID that is used to access the Administration Server when the configuration directory is not responding.
ServerAdminPwd	This directive specifies the password for ServerAdminID.
ServerIPAddress	This directive specifies the IP address that the Administration Server will listen to. Use this directive if you are installing on a system with more than one IP address and you do not want to use the first IP address for your Administration Server.

Component Directives

The [component] installation directives determine which, if any, of Meta-Directory's components will be installed. Each component is its own directive. They can include all or some of the components in Table 4-4. (For an understanding of how component directives are laid out, see "Examples of install.inf Files" on page 42.)

Table 4-4 [*component*] Installation Directives

Directive	Description
<i>Components</i>	<p>These keywords specify the Meta-Directory component to be installed and have a value equal to themselves:</p> <ul style="list-style-type: none"> • [nsperl]nsPerl (value includes a version number) • [join]Join engine • [utc]Universal connector • [metaconsole]Meta-Directory console • [ntdc]Windows NT domain connector • [adc]Active Directory connector • [dbc]Database connector • [exc]Exchange Connector • [nov] Novell Connector • [notes] Lotus Notes Connector
InstallType	This directive specifies the type of installation. The choices are New, Upgrade, Migrate, Extraction or Remove.
InstallUnitAction	This directive specifies the type of installation. The choices are None, Create, Migrate, Repair or Remove.
HaveReached	This directive always has the value True.

NOTE Disregard the `sf.` prefix in front of all component directives.

Creating an install.inf File

In order to create an `install.inf` file on a machine running the Solaris operating system, the installation setup must be executed using the `-k` command-line option:

```
setup -k
```

This installation will create the `install.inf` file which can be found at:

```
<NETSITE_ROOT>/setup/install.inf
```

Creating an install.inf file on Windows

There is only one way to create an `install.inf` file on Windows. You must start with the zipped binary Meta-Directory download. The `install.inf` file can not be created using the executable binary download.

1. Download the zipped version of the software.
2. Decompress the download.
3. Access the Command Prompt window under Start > Programs.
4. Execute the `setup.exe` file by typing `setup -k`.

NOTE Only this procedure will create the `install.inf` file on Windows NT; starting the installation from the bundled executable binaries does not allow you to run `setup -k` in the Command Prompt and thus can not create the file.

Using the install.inf File

In order to use the `install.inf` file to perform installations on a number of machines, you need to make some changes to the file. This section describes these changes and tells you how to use the file for silent installation.

Changes On The install.inf File

1. Change the `FullMachineName` directive to the fully-qualified domain name of the new machine on which Meta-Directory will be installed.

NOTE Be aware that `FullMachineName` will default to the local host name.

2. Enter the path to the local machine in the `ServerIPAddress` directive.

NOTE Sun ONE recommends the use of the `ServerIPAddress` directive only if you are installing Meta-Directory on a machine with multiple IP addresses.

3. Check that the installation path being used on the `ServerRoot` directive is system-appropriate. If you are installing on both Windows and UNIX machines, make sure the correct path delimiter is used. You might need to add or remove the Windows drive letter designation as appropriate.
4. **UNIX Only:** If you are installing more than one instance of Meta-Directory on the same host, check that the `ServerRoot` directive contains a unique value for each instance.
5. If you create your `install.inf` file on a Windows machine, then the `SuiteSpotUserID` and `SuiteSpotGroup` directives should be set to `user nobody`. If you subsequently use this file on a UNIX machine, ensure the user and group names chosen are appropriate for the machine. The `SuiteSpotUserID` and `SuiteSpotGroup` directives determine what user and group Meta-Directory will run under when installed on a UNIX system.

CAUTION Be aware that the `install.inf` files contain server passwords and should be protected.

Installing with the install.inf File

To install using the `install.inf` file, run `setup` with the `-s` and `-f` command line options:

```
setup -sf install.inf
```

Examples of install.inf Files

This section provides examples of the `install.inf` files generated after an installation has been performed, one for Solaris and one for Windows.

Solaris install.inf File Sample

The following is an example of an `install.inf` file generated during installation of Meta-Directory on a computer running the Solaris operating system.

```
[General]
FullMachineName= ash.india.sun.com
SuiteSpotUserID= root
```

```
SuitespotGroup=  other
ConfigDirectoryAdminID=  admin
ConfigDirectoryAdminPwd=  netscape
ServerRoot=  /usr/sunone/servers
AdminDomain=  india.sun.com
MachineName=  ash
InstallTimeStamp=  20030116102730Z
Components=
svrcore,base,admin,nsperl,metaconsole,join,utc,dbc,ndc,notes,per
ldap
ConfigDirectoryLdapURL=  ldap://ash.india.sun.com:3030/
LDAPPort=  3030
LDAPHost=  ash.india.sun.com
AdminGroupDN=  cn=Server Group (2), cn=ash.india.sun.com,
ou=india.sun.com, o=NetscapeRoot

[admin]
SysUser=  root
Port=  3032
ServerIpAddress=
ServerAdminID=  admin
ServerAdminPwd=  netscape
Components=  admin,admin-client

[nsperl]
sf.InstallUnitAction=  Create
sf.HaveReached=  True
sf.InstallType=  New
Components=  nsperl544,nsperl553

[metaconsole]
```

```
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
Components= metaconsole
```

```
[join]
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
Components= join
```

```
[utc]
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
Components= utc
```

```
[dbc]
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
Components= dbc
```

```
[ndc]
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
Components= ndc
```

```
[notes]
sf.InstallUnitAction= Create
```

```

sf.HaveReached=    True
sf.InstallType=    New
Components=        notes

[base]
Components=        base,base-client,base-jre

[perldap]
Components=        perldap

```

Windows install.inf File Sample

The following is an example of an `install.inf` file generated during installation of Meta-Directory on a computer running the Windows operating system.

```

[General]
AdminDomain=       india.sun.com
Components=        base,admin,nsperl,metaconsole,join,utc,ntdc,adc,exc,dbc,ndc,notes,perldap
ServerRoot=        C:\SunONE\Servers
ConfigDirectoryLdapURL=
ldap://ash.india.sun.com:5000/o=NetscapeRoot
ConfigDirectoryAdminID=   uid=admin,ou=Administrators,
ou=TopologyManagement, o=NetscapeRoot
ConfigDirectoryAdminPwd=   netscape
FullMachineName=       talio.India.sun.com
SuiteSpotUserID=       None
SuitespotGroup=        None
SelectedComponents=
base,base-client,base-jre,admin,admin-client,nsperl553,metaconsole,
join,utc,ntdc,adc,exc,dbc,ndc,notes,perldap

```

Examples of install.inf Files

```
MachineName= talio
InstallTimeStamp= 20030116103500Z

[base]
Components= base,base-client,base-jre
Reinstall= TRUE

[admin]
Components= admin,admin-client
Reinstall= TRUE
Port= 5001
SysUser= root
ServerAdminID= uid=admin, ou=Administrators,
ou=TopologyManagement, o=NetscapeRoot
ServerAdminPwd= netscape

[nsperl]
Components= nsperl553
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New

[metaconsole]
Components= metaconsole
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New

[join]
Components= join
```

```
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
```

```
[utc]
```

```
Components= utc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
```

```
[ntdc]
```

```
Components= ntdc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
```

```
[adc]
```

```
Components= adc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New
```

```
[exc]
```

```
Components= exc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
```

```
sf.InstallType= New

[dbc]
Components= dbc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New

[ndc]
Components= ndc
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New

[notes]
Components= notes
Reinstall= TRUE
sf.InstallUnitAction= Create
sf.HaveReached= True
sf.InstallType= New

[perldap]
Components= perldap
Reinstall=TRUE

[base-client]
Reinstall= TRUE

[base-jre]
```

```
Reinstall= TRUE
```

```
[admin-client]
```

```
Reinstall= TRUE
```

```
[nsper1553]
```

```
Reinstall= TRUE
```

Examples of install.inf Files

Removing Sun ONE Meta-Directory

Sun ONE Meta-Directory 5.1 provides a utility that enables you to uninstall the software as a whole or to remove selected components. On Solaris, you use the Uninstall utility and on Windows, you use `uninst.exe`. Note that the silent uninstall option is not supported. This chapter contains the following sections:

- Removal Procedure for Solaris Systems
- Removal Procedure for Windows Systems
- iPlanet Meta-Directory 5.0 Uninstallations

Removal Procedure for Solaris Systems

NOTE Before starting the uninstall process, make sure that the Directory Server holding the Configuration Directory is running.

To uninstall Meta-Directory from a computer running the Solaris operating system:

1. Log in to your system as super user (root).
2. Navigate to the folder where Sun ONE Meta-Directory is installed.
3. Run `./uninstall` from the folder.
4. Select the default `All` to remove all components of Sun ONE Meta-Directory.

Alternately, you may choose to remove individual components by selecting them from the list that appears on the screen:

- Netscape Server Products Core Components
- Administration Server and Management Console

- nsPerl
 - Meta-Directory Join Engine
 - Meta-Directory Universal Connector (includes Universal Text Parser)
 - Meta-Directory Console
 - Meta-Directory Database Connector
 - Meta-Directory Active Directory Connector
 - Meta-Directory Microsoft Exchange Connector
 - Meta-Directory Novell Directory Connector
 - Meta-Directory Lotus Notes Connector
 - PerLDAP
5. Enter the configuration administrator ID and password to authorize removal of the data that has been written to the server.
- The `uninstall` utility will now remove most of the files.
6. Manually remove any remaining files to complete the uninstall process.
- See `/tmp/install.log` for the details of the installation and uninstallation process.

Removal Procedure for Windows Systems

NOTE Before starting the uninstall process, make sure that the Directory Server holding the Configuration Directory is running.

There are two ways to remove Meta-Directory software on a computer running the Windows operating system. You can use either:

- Meta-Directory's `uninstall` utility
- Windows Add/Remove Control Panel

Meta-Directory's Uninstall Utility

To remove Meta-Directory from your Windows system using the `uninstall` utility:

1. Open Windows Explorer, and find the folder where Sun ONE Meta-Directory is installed.
2. Locate and double-click the uninstallation utility, `uninst.exe`.
3. Choose the components you want to remove and click `Uninstall`.

To remove specific components only, individually deselect those you would like to keep, and click `Uninstall`.

To remove specific subcomponents, select the component and click `Sub Component`. This will open a list of subcomponents of the selected component. Select the desired subcomponents and press `Continue`. Press `Uninstall` to continue the removal process.

NOTE Certain components have dependencies on other components and can not be removed without selecting both components. If you select a component that has a dependency on another that was not selected, an error message will appear instructing you to select that component.

4. Enter the configuration administrator ID and password and click `OK` to authorize removal of the data that has been written to the server.
5. Manually remove any remaining Meta-Directory files.

After the uninstall utility is finished, a message is displayed noting that some files have not been removed from your system. You must manually remove these files to complete the removal process. See `c:\Temp\Install.log` for the details of the uninstallation process that has just been run.

Windows Add/Remove Control Panel

To remove Meta Directory using the Windows Add/Remove control panel:

1. Choose `Settings > Control Panel` from the Start menu.
2. Double-click `Add/Remove Programs`.

3. Find and select the Sun ONE product or component you would like to remove.
4. Click **Add/Remove**.
5. Click **Yes** when asked if you are sure you would like to remove this item.

iPlanet Meta-Directory 5.0 Uninstallations

This section describes the procedure to manually remove pre - Meta-Directory 5.1 in case of any problems with the standard uninstall. This includes iPlanet Meta-Directory versions 5.0, 5.0 SP1, 5.0SP1 Patch 1, 5.0SP1 Patch 2. The uninstall of these versions may not work properly in certain cases, which might result in problems with subsequent Sun ONE Meta-Directory 5.1 installation. This section is to help the administrator troubleshoot the uninstall of these versions and to allow a clean install/upgrade to 5.1. Users uninstalling because they wish to upgrade to 5.1 should also consult the next chapter.

1. Before following any of the manual steps, stop all the Meta-Directory servers like Join Engine, UTC etc. Then follow the standard uninstall process of running `uninst.exe` as described in the previous sections. Note that the following steps need to be followed only if you have problems uninstalling your older Meta-Directory 5.0.
2. For windows uninstalls you should check startup problems with normal uninstall. There can be few problems while starting the uninstall process. These are described below along with the solutions.
 - a. When uninstalling iPlanet Meta-Directory 5.0SP1 on NT, the following error message is thrown:

"Uninst is unable to load the c:\temp\uninst\join\join-inst.dll dynamic link library. Uninstall aborted."

This happens because the uninstall program does not find a dependent DLL (`libnspr3.dll`) in the path, while loading `join-inst.dll`.

Solution: Locate `libnspr3.dll` and copy it in the server root directory (or to wherever the path is set for `uninst.exe` to load). Then run the uninstall program as usual.

- b. Uninstall runs and exits without any errors, but no components are removed when the uninstall program is run, it executes and shows that it is uninstalling. It exits quickly without showing uninstall screens for all of the components. None of the registry settings or the installed files/folders are removed. The entry is not removed from the Add/Remove Programs. Again, this can happen if the `uninst.exe` does not find the proper NSPR dlls.

Solution: From the iPlanet Meta-Directory 5.0 unzipped binary, copy all the DLLs in the setup directory to Meta-Directory server root. Run the uninstall program again.

3. You should also check Windows NT Services.

Go to Control Panel, and double-click on Services. This shows a list of Windows NT Services currently registered in the server. If you find any of the Meta-Directory servers like Join Engine, Universal Connector, it means that the uninstall has not removed these entries from the registry and so was not clean. In this case, remove them manually described below using one of the following solutions.

Solution 1: Removing the Windows NT Service entries using `sc.exe`

This is the recommended way to remove the NT services created by the Meta-Directory servers. Take a backup of the server before starting any of the below mentioned steps. Rdisk or NT backup tool can be used to back the server/registry. Make sure that you should be able to restore the machine in case of any problems after editing the registry.

- a. The `sc.exe` utility can be found in the Meta-Directory 5.0 installation at

```
<NETSITE_ROOT>\bin\join50\admin\bin\mswin32\sc.exe
```

You should also be able to download this utility from the Microsoft download site for the Windows NT resources.

- b. Identify the services for each of Meta-Directory servers in the Services from Control Panel.
- c. Delete all services using the "delete" command, as show below.

```
sc delete "iplanet.<instance_name>"
```

The delete command takes the Service Key Name as the argument and for the iPlanet Meta-Directory 5.0 the Service Key Names were of the format `iplanet.<instance_name>` where `<instance_name>` is the name of each of the connectors or the join-engine. The Meta-Directory console also shows

each of the Connectors with these names. For example, the Join Engine has an instance name of "join-engine" and UTC can have an instance name of utc-CV2. Hence to delete these two servers, the corresponding commands would be:

```
c:> sc delete "iPlanet.join-engine"
```

```
c:> sc delete "iPlanet.utc-CV2"
```

- d. Restart the machine.

Solution 2: Removing the registry settings using regedt32.

Only use this method if solution 1 fails. Take a backup of the server before starting any of the below mentioned steps. Rdisk or NT backup tool can be used to back the server/registry. Make sure that you should be able to restore the machine in case of any problems after editing the registry.

- a. Run the Windows NT Registry Editor: regedt32 (click on Start, click on Run, type regedt32 and press OK).
 - b. Go to HKEY_LOCAL_MACHINE root subtree key window.
 - c. Go to (double-click) System. You will typically find three ControlSet keys (for e.g., ControlSet001, ControlSet002, CurrentControlSet). Repeat the next three steps for each of the ControlSet.
 - d. Go to services.
 - e. Find the keys for any of the Meta-Directory services like iplanet.join-engine, iplanet.utc-CV2 etc. and delete them. If only Meta-Directory is installed in the machine (i.e. if Meta-Directory is installed in a separate server root and has a Administration Server of its own), delete the key for the admin server also.
 - f. Also, if Meta-Directory is installed a separate product in a separate server root, you can also remove the product from Add/Remove Programs. For this, go to HKEY_LOCAL_MACHINE\Software, and search for the iPlanet Server Products, and delete the key.
4. You should check the Meta-Directory configuration. You may have to remove all this configuration manually if the standard uninstall fails to remove this configuration.
 - a. Start Directory Server console or any other ldap browser and find the entry

```
ou=Meta-Directory, ou=Global Preferences,  
ou=<ADMIN_DOMAIN>, o=NetscapeRoot
```

and delete it. (replace <ADMIN_DOMAIN> with the administrative domain in which the Meta-Directory is installed).

- b.** Browse to the Server Group in which the configuration for the Meta-Directory server is stored.

```
cn=<SERVER_GROUP>, cn=<MACHINE_NAME>, ou=<ADMIN_DOMAIN>,  
o=NetscapeRoot .
```

(replace <SERVER_GROUP> with the server group in which the machine in which Meta-Directory is installed, <MACHINE_NAME> with the machine name in which Meta-Directory is installed).

Delete all the entries related to Meta-Directory. These entries are "Installable Server Instance Entries" with objectclass "mdsObject". Make sure that you do not delete the entries in any other server group.

- 5.** Checking the Installed files. If Meta-Directory is installed in a separate server root, cleanup the full server root folder.
 - a.** Solaris


```
rm -rf <NETSITE_ROOT>
```
 - b.** Windows. Delete from the <NETSITE_ROOT> folder
- 6.** Once the above steps are followed, the manual uninstall process is completed and you need to restart the machine if you are using Windows. This last step is important and recommended even if the normal uninstall does not prompt for a restart of machine.

Upgrading to Sun ONE Meta-Directory 5.1

Sun ONE Meta-Directory 5.1 provides a utility that enables you to upgrade to Sun ONE Meta-Directory 5.1. This chapter contains the following sections:

- Upgrading to Sun ONE Meta-Directory 5.1
 - Preparing for Upgrade
 - PerLDAP Installation
 - Setting the Environment when Directory Server and Meta-Directory have not been installed on the same machine
 - Setting the Environment when Directory Server and Meta-Directory are installed on the same machine
 - Upgrade usage
 - Step by Step Upgrade Example for Solaris
 - Step by Step Upgrade Example for Windows
- Known Issues

Note: Due to the complexity of the upgrade procedure all of the subsequent sections must be considered before proceeding to execute the upgrade tool itself.

Upgrading to Sun ONE Meta-Directory 5.1

This document describes the usage of the tool to upgrade iPlanet Meta-Directory versions 5.0 and 5.0SP1 (including 5.0SP1 Patch 1 and 5.0SP1 Patch2) to Sun ONE Meta-Directory 5.1. The tool is written in Perl and uses PerLDAP as the Directory Access mechanism. The first section describes the environment settings for the script to run. The next section describes the usage of the tool with different options. It then gives the step by step information for upgrading to 5.1. Finally we describe known issues with the tool.

Preparing for Upgrade

The upgrade tool (`upgrade.pl`) is shipped along with the Sun ONE Meta-Directory 5.1 software. It is available in the same directory as the setup binary wherever you have untared it or on the CD-ROM itself. You may run the tool from the same location or copy it to another convenient location on the machine where the old Meta-Directory was installed. The tool uses nsPerl 5.005_03 or 5.004_04, and PerLDAP 1.4 which is installed along with iPlanet Directory Server 5.1 and also with Meta-Directory 5.1. If Directory Server and Meta-Directory are installed on the same machine, the paths can be set to nsPerl in the Directory Server installation. However If the directory server is not installed on the same machine, PerLDAP 1.4 must be copied on the machine to run the tool.

PerLDAP Installation

When taking the backup during the process of upgrade, PerLDAP packages must be copied into the existing Meta-Directory installation. These packages can be obtained from the Meta-Directory 5.1 CD. You must do this only during the initial step of the upgrade process. Once Meta-Directory 5.1 is installed, PerLDAP is automatically installed. (Follow the same procedure on both Windows and Solaris, and before doing anything it is advised that you take backup of your servers).

1. Unzip the Meta-Directory 5.1 binary.
2. Go to the `perldap` directory and unzip the `perldap14.zip` package. This will produce a directory named "lib".
3. Copy this directory into Meta-Directory `<NETSITE_ROOT>`: Say yes, when asked if you want to overwrite the existing files.

Setting the Environment when Directory Server and Meta-Directory have not been installed on the same machine

Windows Path

```
set path=<NETSITE_ROOT>\lib\nsPerl5.004_04\bin;%path%
```

Solaris Path

On Solaris, when running script you need to give the include path of PerLDAP package directory to nsPerl as an argument. This can be done using the following option:

```
nsperl -I<NETSITE_ROOT>/lib/nsPerl5.004_04/lib/site  
<script_using_perldap>
```

Instead you can alias nsperl to also include the path to this PerLDAP directory (that is, alias nsperl to the above command). The rest of the document assumes this.

For csh:

```
% setenv PATH <NETSITE_ROOT>/lib/nsPerl5.004_04/bin:$PATH  
% setenv LD_LIBRARY_PATH <NETSITE_ROOT>/lib:$LD_LIBRARY_PATH  
% alias nsperl "nsperl -I<NETSITE_ROOT>/lib/nsPerl5.004_04/lib/site"
```

Setting the Environment when Directory Server and Meta-Directory are installed on the same machine

In the case of Directory Server and Meta-Directory servers installed on the same machine, you can also use nsPerl and PerLDAP packages of the Directory Server. This is described below:

Windows Path

```
set
path=<DIR_SERVER_ROOT>\lib\nsPerl5.005_03\bin\MSWin32-x86;%path%
```

Solaris Path

For csh:

```
% setenv PATH <DIR_SERVER_ROOT>/lib/nsPerl5.005_03/bin:$PATH
% setenv LD_LIBRARY_PATH <DIR_SERVER_ROOT>/lib:$LD_LIBRARY_PATH
```

Replace <DIR_SERVER_ROOT> with the actual location where the iPlanet Directory server is installed. Once the above paths are set, you are ready to run the script.

Upgrade usage

The upgrade process involves running the script twice with different options. The first time, the script is run to perform a backup of all the Meta-Directory configuration and the server instances. This is run with -U, which stands for Upgrade. This gets all the Meta-Directory configuration and stores it in LDIF files, and then deletes all the existing configuration. Therefore, once the script is run with this option, Meta-Directory will not run. Then the administrator can go and uninstall the existing Meta-Directory (5.0/5.0SP1) and then re-install Sun ONE Meta-Directory 5.1. The reader should consult the previous chapter, in case of problems with uninstall of older versions.

The script is run again the second time with -R option to recreate all the configuration. This would ensure that original configuration is restored along with the latest fixes and features provided in Sun ONE Meta-Directory 5.1.

Usage :

```
upgrade.pl -<U|R> [-h <directory server hostname>] -p <port> -D
<Directory Manager> -w <password>
```

Where:

U: Upgrade, R:Restore

For example:

```
nsperl upgrade.pl -U -h ldap_host -p 389 -D "cn=Directory Manager"  
-w dmanager
```

Each of the options are now described below:

U: Upgrade

This option is used the first time the script is run for upgrade. This gets all the existing Meta-Directory configuration and stores in a backup directory in the form of LDIF files. It also copies all the server instances in the file systems to the backup directory. Finally the script deletes all the existing Meta-Directory configuration. (The last step is done to ensure that no old data is left in the directory server). Meta-Directory will not work after running the script with this option. Hence this must be used only when upgrading to Meta-Directory 5.1.

R: Restore

This option is used to recreate the original Meta-Directory configuration that was created in the backup process.

Only one of the above options can be specified, when running the script.

Other options:

h: Host name on which the Directory Server storing the configuration is running; optional, defaults to localhost.

p: Port on which the directory server listens, mandatory, no default

D: The Directory Manager DN. (E.g.: cn=Directory Manager), mandatory.

w: Directory Managers password, mandatory.

Note that a part of Meta-Directory configuration is created by the Configuration Admin and hence during the restore operation, the tool also prompts for the Config admin and password. The next section describes the steps involved in a typical upgrade process.

Note also For a Universal Connector instance, if the configuration files like task.cfg, template.pl etc. are located under the config directory (like \$NETSITE_ROOT/utc-CV2/config) of the connector, these files are automatically backed up. However, if they are located anywhere else, the user must manually backup the files and copy them back to exactly the same location after the restore process".

Step by Step Upgrade Example for Solaris

This section describes the steps in a typical upgrade process from an iPlanet Meta-Directory 5.0,5.0SP1,5.0SP1 Patch 1, and 5.0SP1 Patch 2 installation to a Sun ONE Meta-Directory 5.1 installation on a Solaris system.

1. Login as the userid that was used to install original servers (typically 'root' for Solaris).
2. Stop all the Meta-Directory Servers like Join-Engine, UTC etc.
3. Ensure that the configuration Directory Server is running.
4. Installing perLDAP and setting the environment:
 - In the case of Directory Server and Meta-Directory Server installed on the same machine, this step becomes unnecessary as perLDAP can then be obtained from Directory Server and environment variables can be set with respect to DIR_SERVER_ROOT e.g. if you are using "csh" :

```
% setenv PATH <DIR_SERVER_ROOT>/lib/nsPer15.005_03/bin:$PATH
% setenv LD_LIBRARY_PATH <DIR_SERVER_ROOT>/lib:$LD_LIBRARY_PATH
```

However if you decide to install perLDAP from Meta-Directory 5.1 CD, ensure that you set the environment variables appropriately i.e.

```
% alias nsperl "nsperl -I<NETSITE_ROOT>/lib/nsPer15.004_04/lib/site"
% setenv PATH <NETSITE_ROOT>/lib/nsPer15.004_04/bin:$PATH
% setenv LD_LIBRARY_PATH <NETSITE_ROOT>/lib:$LD_LIBRARY_PATH
```

- In the case of Directory Server and Meta-Directory Server installed on different machines, it is mandatory to install perLDAP. It is also recommended to install perLDAP from Meta-Directory 5.1 CD. Set the environment variables with respect to NETSITE_ROOT. For example:

```
% alias nsperl "nsperl -I<NETSITE_ROOT>/lib/nsPer15.004_04/lib/site"
% setenv PATH <NETSITE_ROOT>/lib/nsPer15.004_04/bin:$PATH
% setenv LD_LIBRARY_PATH <NETSITE_ROOT>/lib:$LD_LIBRARY_PATH
```

5. Archive the data by running following command: Move to the directory where your "upgrade.pl" is kept. "upgrade.pl" is provided with Meta-Directory 5.1 CD and will be available from the unzipped installable directory.

```
nsperl upgrade.pl -U -h <FQDN> -p <iDS-PORT> -D <bind-dn> -w
<bind-password>
```

where FQDN stands for Fully Qualified Domain Name of the host, where iPlanet Directory Server is installed.

Running the above script would allow you to modify the backup directory location. Provide a directory where you have write permissions. Press 'Enter' to accept the default location. Default location is provided with respect to the current directory so ensure that you take the backup in a safe location outside the NETSITE_ROOT, which may be deleted once the iPlanet Meta-Directory is uninstalled. The tool backs up all the Meta-Directory configuration in this directory in the form of LDIF files. The archive process detects the servers installed, backs up all configuration data in LDIF files located within the backup directory and also deletes all the existing configuration.

6. Uninstall existing iPlanet Meta-Directory 5.0. If the Directory Server and iPlanet Meta-Directory are installed on the same server root, make sure that you are selecting only the components related to iPlanet Meta-Directory 5.0 and not selecting any of the Directory Server components to be uninstalled. Go through the uninstallation procedure described in the previous chapter on iPlanet Meta-directory 5.0 uninstallations.
7. Customers using Netscape or iPlanet Directory 4.x or 5.0 should now upgrade to iPlanet Directory Server 5.1. Details of this procedure can be found in the iPlanet Directory Server 5.1 Installation Guide. However, the following must to be taken care when upgrading the Directory Server:
 - a. While installing iPlanet Directory Server 5.1, use the same parameters as in the old Directory Server. This includes the same LDAP port number, Administration Domain, Configuration Admin ID, Directory Manager ID.
 - b. Having the same port also means that you cannot have both old and the new Directory Server instances running at the same time. Hence stop the old Directory Server instance before installing Directory Server 5.1 and before running the Migration script.
 - c. Run the migration script as explained in the Directory Server 5.1 installation Guide about how to migrate/upgrade to iPlanet Directory Server 5.1. Once the Directory Server is upgraded, you may proceed with the Sun ONE Meta-Directory upgrade process below
 - d. You may leave the old Directory Server at its original place. However, do not start the old Directory Server or run its uninstall. This would result in permanent loss of configuration and data.
8. Reset LD_LIBRARY_PATH before starting the installation setup for Sun ONE Meta-Directory 5.1 i.e. remove the change made in step 4.

9. Follow the instructions mentioned in the Install and Administration guide for installing Sun ONE Meta-Directory 5.1. Make sure that Sun ONE Meta-Directory 5.1 has not been installed in the same server root as Directory Server. Make sure that you select and install at least the same set of components that were installed in the previous installation.
10. Restore the original configuration by running the script again with -R option i.e.
 - a. Set the environment variable LD_LIBRARY_PATH back to the same as explained in the section "Preparing for Upgrade" with the new NETSITE_ROOT (if you are using nsperl from the iDS then set the LD_LIBRARY_PATH with respect to the DIR_SERVER_ROOT instead of NETSITE_ROOT). Ensure that other environment variables also comply as mentioned in "Preparing for Upgrade" section.
 - b. Type the following command:

```
nsperl upgrade.pl -R -h <FQDN> -p <iDS-PORT> -D <bind-dn> -w  
<bind-password>
```

where FQDN stands for Fully Qualified Domain Name of the host, where iPlanet Directory Server is installed.

- c. Provide the backup directory location as specified in step 5 where you have the write permissions too. The tool creates new configuration files in the backup directory, with each file prefixed with "new_". Hence for a join-engine (join-engine.ldif) new_join-engine.ldif is created. These LDIF files are used to reinstall as the new configuration.
- d. Give the configuration admin Id when prompted or press Enter to accept the default. Also enter the password.
- e. The tool restores the Meta-Directory configuration and all the server instances.

Once the above steps are successfully followed, the upgrade process is complete. To verify a successful upgrade process you should be able to start all server instances from the meta-directory console and flow sample data appropriately.

Example Solaris Upgrade illustration

The following commands illustrate the case where iPlanet Meta-Directory 5.0 was upgraded to Sun ONE Meta-Directory 5.1 on the same Solaris machine assuming Directory Server has already migrated to Directory Server Version 5.1. This also assumes that the old Directory Server and Meta-Directory 5.0 were installed on separate directories. The following default setup is assumed:

- Directory Server DIR_SERVER_ROOT = /space/uptool/dsins
- iPlanet Meta-Directory SP1 Patch 2 NETSITE_ROOT = /space/uptool/meta5.0ins
- Sun ONE Meta-Directory Unzipped Binaries Location= /space/S1MDBinary
- Sun ONE Meta-Directory NETSITE_ROOT = /space/uptool/meta5.1ins
- Default library path before upgrade commences. This can be any path e.g. /oracle/OraHome1/lib

```
# telnet tempHostName
SunOS 5.8
login: root
Password:
# cd /space/uptool/meta5.0ins
# ./startconsole &
# cd ../dsins/slaped-tempHostName
# ./start-slaped
## User action: Stop Join Engine, any iPlanet meta-Directory
## Servers and UTCs via the console
# setenv PATH /space/uptool/dsins/lib/nsPerl5.005_03/bin:$PATH
# echo $LD_LIBRARY_PATH
/oracle/OraHome1/lib
# setenv LD_LIBRARY_PATH
/space/uptool/dsins/lib:$LD_LIBRARY_PATH
# echo $LD_LIBRARY_PATH
/space/uptool/dsins/lib:/oracle/OraHome1/lib
# cd /space/S1MDBinary
# nsperl upgrade.pl -U -h tempHostName.tempDomainName -p 4389 -D
```

```
"cn=directory manager" -w dirmanager
Admin domain : ou=tempDomainName, o=NetscapeRoot
Backup location to be created [/space/S1MDBinary/meta-config]:
/space/uptool/meta-config
# cd /space/uptool/meta5.0ins
# setenv LD_LIBRARY_PATH /oracle/OraHome1/lib
# ./uninstall
# cd ..
# rm -rf meta5.0ins
## User Action: Install Meta-Directory 5.1 in the
## directory /space/uptool/meta5.1ins
# cd /space/S1MDBinary
# setenv LD_LIBRARY_PATH
/space/uptool/dsins/lib:$LD_LIBRARY_PATH
# nsperl upgrade.pl -R -h tempHostName.tempDomainName -p 4389 -D
"cn=directory manager" -w dirmanager
Enter the full path path of the backup directory
[/space/S1MDBinary/meta-config]: /space/uptool/meta-config
Configuration Admin Id or DN: [admin]:
password: admin
# cd /space/uptool/meta5.1ins
# ./startconsole &
```

Step by Step Upgrade Example for Windows

This section describes the steps in a typical upgrade process from an iPlanet Meta-Directory 5.0,5.0SP1,5.0SP1 Patch 1, and 5.0SP1 Patch 2 installation to a Sun ONE Meta-Directory 5.1 installation on Windows OS when Directory Server and Meta-Directory servers are installed on the same machine.

1. Login as the userid that was used to install original servers (typically 'administrator' for Windows).
2. Stop all the Meta-Directory Servers like Join-Engine, UTC etc.

3. Ensure that the configuration Directory Server is running.
4. Installing perLDAP and setting the environment:
 - In the case of Directory Server and Meta-Directory Server installed on the same machine, this step becomes optional as perLDAP can then be obtained from Directory Server and environment variables can be set with respect to DIR_SERVER_ROOT i.e.

```
set
path=<DIR_SERVER_ROOT>\lib\nsPerl5.005_03\bin\MSWin32-x86;%path%
```

However if you still decide to install perLDAP from Meta-Directory 5.1 CD, ensure that you set the environment variables appropriately i.e.

```
set path=<NETSITE_ROOT>\lib\nsPerl5.004_04\bin;%path%
```

- In the case of Directory Server and Meta-Directory Server installed on different machines, it's must to install perLDAP. It's recommended to install perLDAP from Meta-Directory 5.1 CD. Set the environment variables with respect to NETSITE_ROOT

```
set path=<NETSITE_ROOT>\lib\nsPerl5.004_04\bin;%path%
```

5. Archive the data. Move to the directory where your "upgrade.pl" is kept. "upgrade.pl" is provided with Meta-Directory 5.1 CD and will be available from the unzipped installable directory. Run the following command:

```
nsperl upgrade.pl -U -h <FQDN> -p <iDS-PORT> -D <bind-dn> -w
<bind-password>
```

where FQDN stands for Fully Qualified Domain Name of the host, where iPlanet Directory Server is installed.

Running the above script would require you to provide the backup directory location. Provide a directory where you have write permissions. Press 'Enter' to accept the default location. Default location is provided with respect to the current directory so ensure that you take the backup in a safe location outside the NETSITE_ROOT, which may be deleted once the iPlanet Meta-Directory is uninstalled. The tool backs up all the Meta-Directory configuration in this directory in the form of LDIF files. The archive process detects the servers installed, backs up all configuration data in LDIF files located within the backup directory and also deletes all the existing configuration.

6. Uninstall existing iPlanet Meta-Directory 5.0. If the Directory Server and iPlanet Meta-Directory are installed on the same server root, make sure that you are selecting only the components related to iPlanet Meta-Directory 5.0 to be uninstalled and not any of the Directory Server components. Go through the uninstallation procedure described in the previous chapter on Meta-directory 5.0 uninstalls. Following is the sequence of components not to be uninstalled i.e. to be deselected:
 - Server Core Components
 - Administration Services
 - iPlanet Directory Suite
 - nsperl
 - PerLDAP
7. Restart the machine once iPlanet Meta-Directory 5.0 uninstallation is done.
8. Customers using Netscape or iPlanet Directory 4.x or 5.0 should now upgrade to iPlanet Directory Server 5.1. Details of this procedure can be found in the iPlanet Directory Server 5.1 Installation Guide. However, the following must to be taken care when upgrading the Directory Server:
 - a. While installing iPlanet Directory Server 5.1, use the same parameters as in the old Directory Server. This includes the same LDAP port number, Administration Domain, Configuration Admin ID, Directory Manager ID.
 - b. Having the same port also means that you cannot have both old and the new Directory Server instances running at the same time. Hence stop the old Directory Server instance before installing Directory Server 5.1 and before running the Migration script.
 - c. Run the migration script as explained in the in the Directory Server installation Guide about migrate/upgrade to iPlanet Directory Server 5.1. Once the Directory Server is upgraded, you may proceed with the Sun ONE Meta-Directory upgrade process below
 - d. You may leave the old Directory Server at its original place. However, do not start the old Directory Server or run the old uninstall. This could result in permanent loss of configuration and data.
 - e. Disable the NT Services for the old Directory Server instance and Administration Server to make sure that they do not get started whenever the machine is restarted.

9. Install Sun ONE Meta-Directory 5.1. Follow the instructions mentioned in the Install and Administration guide for installing Sun ONE Meta-Directory 5.1. Make sure that Sun ONE Meta-Directory 5.1 has not been installed in the same server root as Directory Server. Ensure that you select and install at least the same set of components that were installed in the previous installation.
10. Restore the original configuration :
 - a. Run the following command with appropriate arguments:


```
nasperl upgrade.pl -R -h <FQDN> -p <iDS-PORT> -D <bind-dn> -w <bind-password>
```

where FQDN stands for Fully Qualified Domain Name of the host, where iPlanet Directory Server is installed.
 - b. Running the above script would require you to provide the backup directory location same as specified in step 5 where you have the write permissions too. The tool creates new configuration files in the backup directory, with each file prefixed with "new_". Hence for a join-engine (join-engine.ldif) new_join-engine.ldif is created. These LDIF files are used to reinstate the old configuration.
 - c. Give the configuration admin Id when prompted or press Enter to accept the default. Also enter the password.
 - d. The tool restores the Meta-Directory configuration and all the servers instances.

Once the above steps are successfully followed, the upgrade process is complete. To verify a successful upgrade process you should be able to start all server instances from the meta-directory console and flow sample data appropriately.

Example Windows Upgrade Illustration

The following commands illustrate the case where iPlanet Meta-Directory 5.0 SP1 Patch 2 was upgraded to Sun ONE Meta-Directory 5.1 on the same Windows machine assuming Directory Server has already migrated to Directory Server Version 5.1. The following defaults are assumed:

- Directory Server DIR_SERVER_ROOT = D:\iplanet\Servers
- iPlanet Meta-Directory 5.0 SP1 Patch 2 NETSITE_ROOT = D:\iplanet\Servers (same as DIR_SERVER_ROOT),

- Before upgrade this was containing 1 instance of ADC, 2 instances of UTC and the Join-Engine.
- Sun ONE Meta-Directory Unzipped Binaries Location : D:\S1MDBinary
- Sun ONE Meta-Directory NETSITE_ROOT = D:\iplanet\S1MD

```
D:\iplanet\Servers>echo %username%
Administrator
D:\iplanet\Servers>cd slapd-hostname
D:\iplanet\Servers\slapd-hostname>start-slapd
D:\iplanet\Servers\slapd-hostname>net start slapd-hostname
The requested service has already been started.
More help is available by typing NET HELPMSG 2182.
D:\iplanet\Servers\slapd-hostname>set
path=D:\iplanet\Servers\lib\nsPerl5.005_03\bin\MSWin32-x86;%path%
D:\iplanet\Servers\slapd-hostname>echo %path%
D:\iplanet\Servers\lib\nsPerl5.005_03\bin\MSWin32-x86;D:\iplanet\Servers\lib\nsPerl5.005_03\bin\MSWin32-x86;D:\winserver\Oracle\Ora81\bin;D:\Program Files\Oracle\jre\1.1.7\bin;D:\WINNT\system32;D:\WINNT;D:\WINNT\System32\Wbem;
D:\iplanet\Servers\slapd-hostname> cd D:\S1MDBinary
D:\S1MDBinary>nsperl upgrade.pl -U -h hostname.fulldomainname -p 389 -D "cn=directory manager" -w dirmanager
Admin domain : ou=fulldomainname, o=NetscapeRoot
Backup location to be created [D:/S1MDBinary/meta-config]:
D:\meta-config
Backing up Meta-Directory configuration... Done.
Following Meta-Directory servers were found:
    join-engine
    utc-CV2
    adc-CV3
    utc-CV4
Performing backup for join-engine...1 File(s) copied
```

```

Done.
Performing backup for utc-CV2...1 File(s) copied
Done.
Performing backup for adc-CV3...5 File(s) copied
Done.
Performing backup for utc-CV4...1 File(s) copied
Done.
Deleting existing Meta-Directory configuration...Done.
D:\S1MDBinary>echo "iMD5.0SP1P2 should be uninstalled at this
point"
"iMD5.0SP1P2 should be uninstalled at this point"
D:\S1MDBinary>echo " When uninstall complete Restart the system
and that is now..."
" When uninstall complete Restart the system and that is now..."
D:\S1MDBinary>echo "Once the system is restarted after
iMD5.0SP1P2 uninstallation, install S1MD51 and restart the system
once again, which should be done now..."
"Once the system is restarted after iMD5.0SP1P2 uninstallation,
install S1MD51 and restart the system once again, which should be
done now..."
-----
D:\S1MDBinary>echo "So now we have S1MD51..."
"So now we have S1MD51..."
D:\S1MDBinary>set
path=d:\iplanet\Servers\lib\nsPerl5.005_03\bin\MSWin32-x86;%path%
%
D:\S1MDBinary>echo %path%
D:\iplanet\Servers\lib\nsPerl5.005_03\bin\MSWin32-x86;D:\winserv
er\Oracle\Ora81\bin;D:\Program
Files\Oracle\jre\1.1.7\bin;D:\WINNT\system32;D:\WINNT;D:\WINNT\S
ystem32\Wbem;
D:\S1MDBinary>nsperl upgrade.pl -R -h hostname.fulldomainname -p
389 -D "cn=directory manager" -w dirmanager
Enter the full path path of the backup directory
[D:/S1MDBinary/meta-config]: D:\meta-config

```

```
Creating new config ldifs ...Done.
Configuration Admin Id or DN: [admin]:
password: admin
Creating Meta-Directory configuration and the servers
instances...
5 File(s) copied
Creating Windows NT service for .. adc-CV3
[SC] CreateService SUCCESS
1 File(s) copied
Creating Windows NT service for .. join-engine
[SC] CreateService SUCCESS
1 File(s) copied
Creating Windows NT service for .. utc-CV2
[SC] CreateService SUCCESS
1 File(s) copied
Creating Windows NT service for .. utc-CV4
[SC] CreateService SUCCESS
D:\S1MDBinary>cd d:\iplanet\S1MD
D:\iplanet\S1MD>startconsole
D:\iplanet\S1MD>
```

Known Issues

1. The upgrade tool does not support migrations across platforms.
2. The upgrade tool does not help in migrating the Meta directory configurations across different directory server installations or one machine to another machine
3. Customers using Netscape Directory Server 4.x should upgrade to iPlanet Directory Server 5.1. You may leave the old Directory Server at its original place.
4. During the restore process, new ldifs are created. For any reason, if you have to repeat the restore process, you must sure you delete all the new files created (starting with new_) in the backup directory before starting a new restore.
5. No server instance in the Meta-Directory can have the View Name starting with new_.

Known Issues

Backup and Restore

Meta-Directory uses the Directory Server to store most of its configuration and the data that flows between different components. Hence the backup process for Meta-Directory requires backup of Directory Server as well. A typical deployment might contain many directory servers associated to a single Meta-Directory installation, containing configuration, data: the connector views for each of the connectors and so on. A backup of the complete Meta-Directory, thus involves backup of each of these Directory Servers. So it is assumed that when the "Directory Server" is mentioned, it means perform the same operation on all the associated Directory Servers.

The following sections are discussed

- Backup
 - Usage of `upgrade.pl` for backup of Meta-Directory configuration only
- Restore

Backup

The backup of Meta-Directory and Directory server involves taking a backup of all related files and directories, any external configuration files and external data sources.

1. Make sure no data is flowing between the external data sources, Connector Views and Meta View. Also make sure no data is being changed in the Directory Server.
2. Copy the server roots of Meta-Directory (NETSITE_ROOT) and Directory Server (location where these products are installed) to a backup location. This backup location can also be a tape drive or any mass storage system.

This ensures that all the configuration, data and the binaries are backed up at once.

Note: In the case of Universal Connector, the configuration files like `template.pl`, `task.cfg` are provided by the administrator and hence can be located external to NETSITE_ROOT. In such a case where these files are not automatically copied, you must take a backup of these files separately.

3. External Data sources like Oracle, Active Directory, Novell eDirectory etc should also be backed up to be in a consistent state when Meta-Directory is restored. Please refer to the individual products' documentation for information on backup and restore.

Note the following points:

1. When an Oracle database connector instance is created, a SQL script is generated which is run on the Oracle database to create the required set of the tablespaces, triggers etc. Take a backup of this SQL script. This could be helpful to the DBA to understand the changes on the database made for the connector to run, and to troubleshoot in case of any problems.

2. The Novell Directory Connector and the Lotus Notes Connector make use of an intermediate changelog database in MySQL for change-detection with respect to data in external data source. Each connector instance stores its changelog data in a separate/different "database". Hence, to backup the complete Meta-Directory, you also need to backup each such database (in MySQL) separately (and restore them separately).
3. For more specific details on backup and recovery of databases in MySQL, please refer to the section: "Disaster Prevention and Recovery" in MySQL documentation

Usage of upgrade.pl for backup of Meta-Directory configuration only

The upgrade.pl (refer to the previous chapter) also provides an option, -B, to backup the Meta-Directory configuration in the Directory Server. This tool captures the Meta-Directory configuration and the server instances from the Directory and stores in the form of LDIF files in the backup location provided. This tool also copies the config directories for each of the Meta-Directory server instances to the backup location. This option is mainly for diagnostic purposes.

The script is run using the -B option to backup all the configuration.

Usage :

```
upgrade.pl -<B> [-h <directory server hostname>] -p <port> -D
<Directory Manager> -w <password>
```

Where:

B: Backup

For example:

```
nsperl upgrade.pl -B -h ldap_host -p 389 -D "cn=Directory Manager"
-w dmanager
```

Restore

Upgrade tool in combination with option -R should not be used for a complete restore of Sun ONE Meta-Directory since this option can only be applied when the directory configuration is in a particular state, as was the case in the previous chapter. However, if your Meta-Directory configuration or the data is corrupted, you can restore from a previously generated complete backup, as described in the previous section, using the steps below.

1. Stop all the Meta-Directory servers and the Directory Servers (including the Admin Servers).
2. Move the existing NETSITE_ROOT and Directory Server Root directories from their existing location to a different place. You may delete these directories/files once the restore of a previous backup is successful and if no longer need them.
3. Restore the files and directories of Meta-Directory and Directory from the previously created backup location, (possibly a tape drive). Make sure you copy them to the same location where they were original backed up.

Note: For a Universal Connector instance if the configuration files like template.pl, task.cfg etc. were backedup separately, you must restore these files also, to their original location.

4. Restore the external data sources
5. Restore the MySQL database that contains the changelog for Lotus Notes and Novell Directory Connectors.
6. Start all the servers

