

Migration Tool Administration Guide

Novell® Open Enterprise Server

2 SP1

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About This Guide

This guide describes the functionality and usage of the Novell® Open Enterprise Server 2 (OES 2) SP1 migration tool. It covers the following topics:

- ♦ Chapter 1, “Overview of the Migration Tools,” on page 15
- ♦ Chapter 2, “Overview of the Migration GUI,” on page 21
- ♦ Chapter 3, “What’s New,” on page 33
- ♦ Chapter 4, “Planning for Migration,” on page 37
- ♦ Chapter 5, “Using the Migration Tool GUI,” on page 39
- ♦ Chapter 6, “Preparing for Server Consolidation,” on page 45
- ♦ Chapter 7, “Using the Migration GUI Tool for Consolidation,” on page 47
- ♦ Chapter 8, “Preparing for Transfer ID,” on page 53
- ♦ Chapter 9, “Using the Migration GUI Tool for Transfer ID,” on page 55
- ♦ Chapter 10, “Using Migration Commands for Transfer ID,” on page 65
- ♦ Chapter 12, “Security Considerations for Data Migration,” on page 75
- ♦ Chapter 13, “Migrating Data from Windows to OES 2 SP1 Linux,” on page 81
- ♦ Chapter 14, “Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP1 Linux,” on page 93
- ♦ Chapter 15, “Migrating eDirectory to OES 2 SP1 Linux,” on page 135
- ♦ Chapter 16, “Migrating AFP from NetWare to OES 2 SP1 Linux,” on page 139
- ♦ Chapter 17, “Migrating Novell Archive and Version Services from OES 1 NetWare to OES 2 SP1 Linux,” on page 143
- ♦ Chapter 18, “Migrating CIFS from NetWare to OES 2 SP1 Linux,” on page 149
- ♦ Chapter 19, “Migrating DHCP from NetWare to OES 2 SP1 Linux,” on page 161
- ♦ Chapter 20, “Migrating DNS from NetWare to OES 2 SP1 Linux,” on page 175
- ♦ Chapter 21, “Migrating FTP from NetWare to OES 2 SP1 Linux,” on page 179
- ♦ Chapter 22, “Novell iFolder Upgrade, Migration, and Coexistence,” on page 183
- ♦ Chapter 23, “Migrating iPrint from NetWare to OES 2 SP1 Linux,” on page 199
- ♦ Chapter 24, “Migrating Timesync/NTP from NetWare to NTP on OES 2 SP1 Linux,” on page 215

Audience

This guide is intended for network administrators, installers, and consultants who are involved in migrating data and services to OES 2 SP1 Linux.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the *OES 2: Migration Tools Administration Guide*, visit the [OES 2 Web site \(http://www.novell.com/documentation/oes2\)](http://www.novell.com/documentation/oes2).

Additional Documentation

For additional information on OES 2 migrations, see the [OES Migration Web site \(http://www.novell.com/products/openenterpriseserver/migrate.html\)](http://www.novell.com/products/openenterpriseserver/migrate.html).

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In Novell documentation, a greater-than symbol (>) is used to separate actions within a step and items in a cross-reference path.

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When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux* or UNIX* , should use forward slashes as required by your software.

Overview

- ♦ Chapter 1, “Overview of the Migration Tools,” on page 15
- ♦ Chapter 2, “Overview of the Migration GUI,” on page 21
- ♦ Chapter 3, “What’s New,” on page 33

Overview of the Migration Tools

1

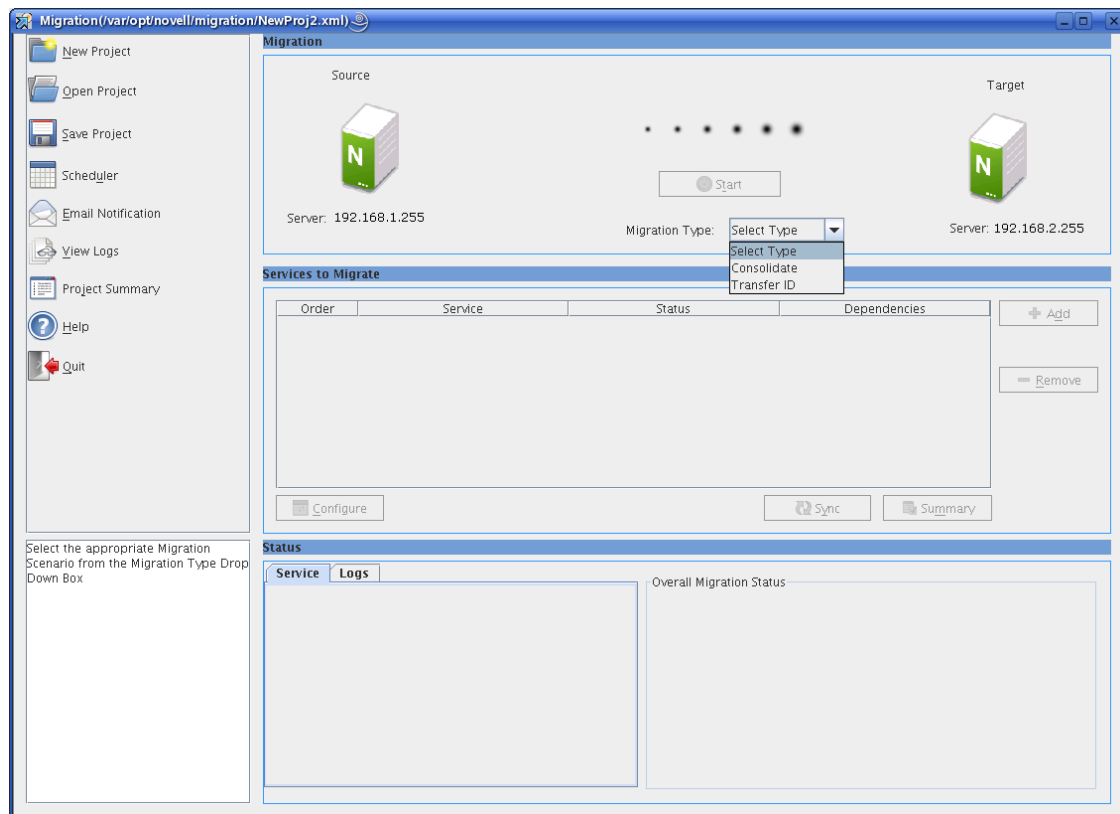
Migration is the process of migrating the services, file system data, and eDirectory™ information from an existing NetWare® 5.1, NetWare 6.0, NetWare 6.5, Open Enterprise Server (OES) 1 Linux, or OES 2 Linux server to an OES 2 SP1 Linux server. The OES 2 SP1 Migration Toolkit is designed to meet most of your OES migration needs.

In this document, NetWare, OES 1 Linux, and OES 2 Linux servers are referred as the source server, and the OES 2 SP1 Linux server is referred to as the target server.

The various activities you can do in the Migration Tool graphical user interface (GUI) are explained below:

- ♦ Supports Consolidate and Transfer ID scenario.
- ♦ Configure multiple services for migration.
- ♦ View migration status for a single service, overall migration, service-specific logs, and overall migration logs.
- ♦ Schedule migration at your convenience.
- ♦ View a project summary of the migration options configured.

Figure 1-1 Migration Tool GUI



The following topics are discussed in this section:

- ♦ [Section 1.1, “Enhancements for OES 2 SP1,” on page 16](#)
- ♦ [Section 1.2, “Different Migration Tools,” on page 16](#)
- ♦ [Section 1.3, “Migration Scenarios,” on page 17](#)
- ♦ [Section 1.4, “Supported Service Migration,” on page 19](#)

1.1 Enhancements for OES 2 SP1

The Migration Tool has an enhanced graphical user interface (GUI). All the services are migrated from a single source server to the target server. The Migration Tool uses a plug-in architecture and is made up of Linux command line utilities with a GUI wrapper.

Enhancements in this version enable you to do the following actions during a migration:

- ♦ Transfer ID scenario to migrate server identity.
- ♦ Create a migration project to migrate multiple services.
- ♦ Schedule and run the migration at your convenience.
- ♦ Receive an e-mail indicating the success or failure of the migration process.
- ♦ Display the status of the migrating service and the service-specific logs.
- ♦ Display the overall progress of migration and logs.
- ♦ View a summary of the options configured for each service and for the entire migration project.

1.2 Different Migration Tools

The following table lists the tool to use for migrating the services, depending on the source platform and target platform.

Table 1-1 *Migration Tools Matrix*

Source Platforms	Target Platforms	Migration Tool	For Information
From any of these physical servers: <ul style="list-style-type: none">♦ OES 2 Linux♦ OES 1 SP2 Linux♦ NetWare 5.1 SP8♦ NetWare 6.0 SP5♦ NetWare 6.5 SP7	To this physical or virtualized server: <ul style="list-style-type: none">♦ OES 2 SP1 Linux	Migration Tool with OES 2 SP1	Chapter 2, “Overview of the Migration GUI,” on page 21
From any of these physical servers: <ul style="list-style-type: none">♦ NetWare 5.1 SP8 or later	To this physical or virtualized server: <ul style="list-style-type: none">♦ NetWare 6.5 SP8	Server Consolidation Migration Toolkit 1.2	OES 2 SP1: Novell Server Consolidation and Migration Toolkit Administration Guide

Source Platforms	Target Platforms	Migration Tool	For Information
From Windows server	To this physical or virtualized server: ♦ OES 2 SP1 Linux	Migrate Windows Share Utility	Appendix 13, "Migrating Data from Windows to OES 2 SP1 Linux," on page 81

1.3 Migration Scenarios

The Migration Tool supports the following scenarios:

- ♦ [Section 1.3.1, "Consolidate," on page 17](#)
- ♦ [Section 1.3.2, "Transfer ID," on page 19](#)

1.3.1 Consolidate

The Consolidate scenario helps you reorganize your network by copying the service configuration and data from any number of source servers to the target server. By consolidating data onto newer, more powerful servers, you can simplify your network administration processes and lower your IT costs.

This section describes example scenarios of how to consolidate your data.

- ♦ ["NetWare-to-OES 2 SP1 Linux Consolidations" on page 17](#)
- ♦ ["Example Consolidation Scenarios" on page 17](#)
- ♦ ["Cross-Platform Data Consolidations" on page 18](#)

NetWare-to-OES 2 SP1 Linux Consolidations

For NetWare-to-OES 2 SP1 Linux consolidations, the service configuration and data from the source servers is copied to the target server.

Example Consolidation Scenarios

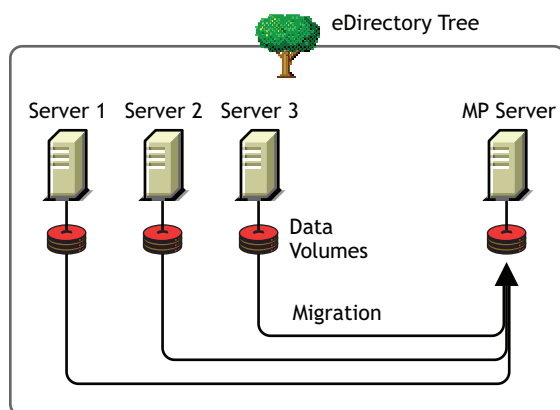
The benefits of the Migration Tool can be better understood through examining some sample consolidation scenarios.

- ♦ ["Basic Server Consolidation: Many-to-One" on page 17](#)
- ♦ ["Consolidating Data from Multiple Servers onto a Two-Node Cluster" on page 18](#)

Basic Server Consolidation: Many-to-One

In the first scenario (see [Figure 1-2](#)), suppose you have three existing NetWare servers. You recently purchased a multiprocessor server and installed OES 2 SP1 Linux. You want to copy the data from each of the three servers to the single OES 2 SP1 server. Rather than manually moving all the data, or backing up the data on each of the three servers and then restoring it to the OES 2 SP1 Linux server, you can use the Migration Tool to automate the process.

Figure 1-2 *Many-to-One Server Consolidation*

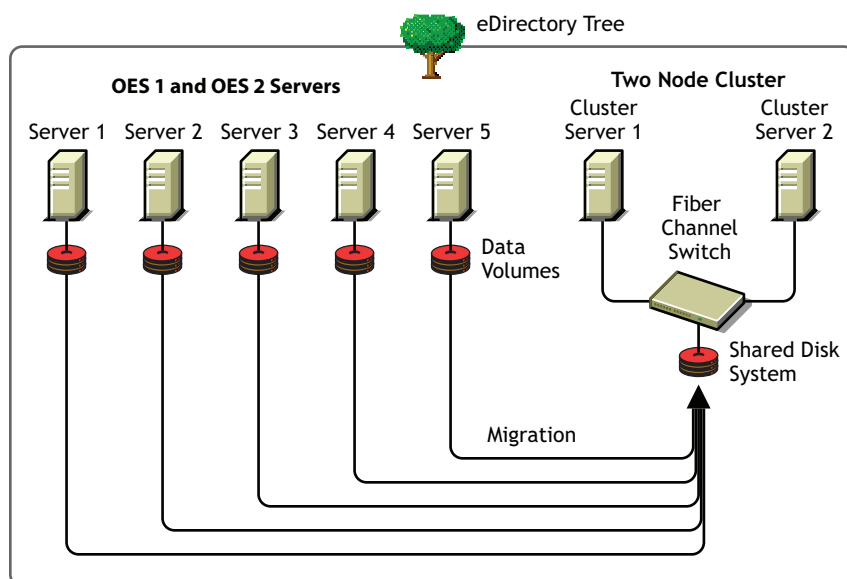


The **Figure 1-2** shows the servers all in the same eDirectory tree, you can also perform tree-to-tree consolidations as well.

Consolidating Data from Multiple Servers onto a Two-Node Cluster

In the second scenario (see **Figure 1-3**), suppose you have five existing OES servers. You recently purchased two multiprocessor servers and the necessary hardware to create a two-node cluster complete with an attached Storage Area Network (SAN). You have decided to install OES 2 SP1 on the two-node cluster. You want to copy the data from each of the five servers to the SAN on the two-node cluster. Rather than manually moving all the data and Printer Agents or backing up the data and restoring it to the SAN, you can use the Migration Tool, which automates the data migration process.

Figure 1-3 *Cluster Server Consolidation*



Cross-Platform Data Consolidations

The OES 2 SP1 Migration Tool supports cross-platform data consolidations from NetWare, OES 1 or OES 2 servers to OES 2 SP1 Linux server.

You must use the Migrate Windows Share Utility to copy data from Windows servers in a Windows* NT* domain or Windows 2000/2003 mixed mode domain to OES 2 SP1 servers.

1.3.2 Transfer ID

Transfer ID is a migration scenario for transferring the server identity of the source server to the target server. The identity of the server is made up of its IP address, hostname, eDirectory identity, NICI keys, and the certificates from the source server.

On successful completion of the Transfer ID migration, the target server functions with the identity of the source server and source server goes offline.

1.4 Supported Service Migration

Table 1-2 lists the supported scenarios for migrating the OES 2 SP1 services and **Table 1-3** lists the support for the source platforms for OES 2 SP1 services.

The representation of the symbols used in the **Table 1-2** are:

- ✓ Supported Scenario
- ✗ Unsupported Scenario

Table 1-2 Migration Scenario Support for OES 2 SP1 Services

Services	Consolidate		Transfer ID
	Same Tree	Different Tree	Same Tree
AFP	✓	✗	✓
Archive and Version Services	✓	✗	✓
CIFS	✓	✗	✓
DHCP	✓	✓	✓
File System	✓	✓	✓
FTP	✓	✓	✓
iFolder®	✓	✓	✓
iPrint	✓	✓	✓
NTP	✓	✓	✓

The representation of the symbols used in the **Table 1-3** are:

- ✓ Supported source platform

x Unsupported or unavailable source platform

Table 1-3 *Source Platform Support for OES Services*

Services	NW 5.1	NW 6.0	NW 6.5	OES 1.0	OES 2.0
	SP8	SP5	SP7	SP2	
AFP	✓	x	✓	x	x
Archive and Version Services	x	x	✓	x	x
CIFS	x	x	✓	x	x
DHCP	✓	✓	✓	x	x
FTP	✓	✓	✓	x	x
iFolder	x	x	iFolder 2	iFolder 2 iFolder 3.2	x
iPrint	✓	✓	✓	✓	✓
NTP	✓	✓	✓	x	x
NCP	x	x	x	✓	✓
NSS	✓	✓	✓	✓	✓
NetWare Traditional	✓	✓	✓	x	x

NOTE: Details to configure and migrate the above services are documented in **Part VII, “Service Migration,”** on page 133 of this guide.

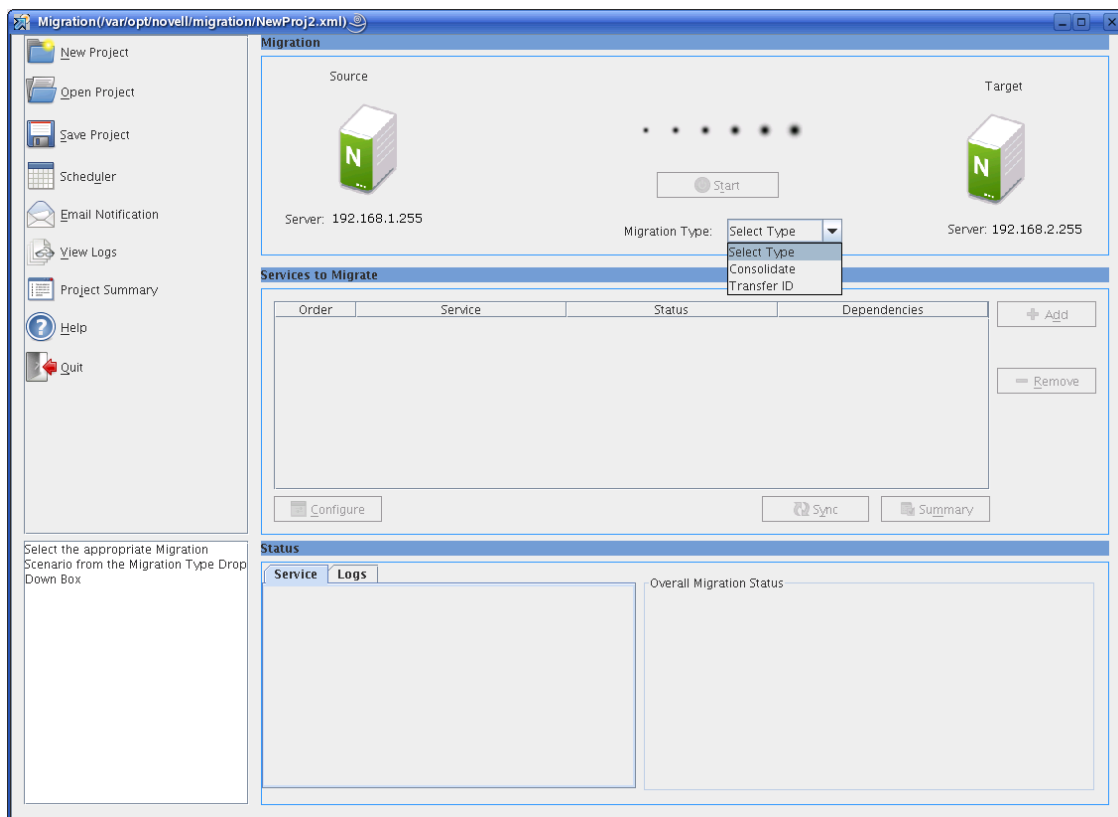
Overview of the Migration GUI

2

The section describes the different panes in the Migration Tool GUI.

- ◆ [Section 2.1, “Project Pane,”](#) on page 21
- ◆ [Section 2.2, “Migration Pane,”](#) on page 25
- ◆ [Section 2.3, “Services to Migrate Pane,”](#) on page 27
- ◆ [Section 2.4, “Service Migration Status,”](#) on page 29
- ◆ [Section 2.5, “Overall Migration Status,”](#) on page 30

Figure 2-1 Migration Tool GUI



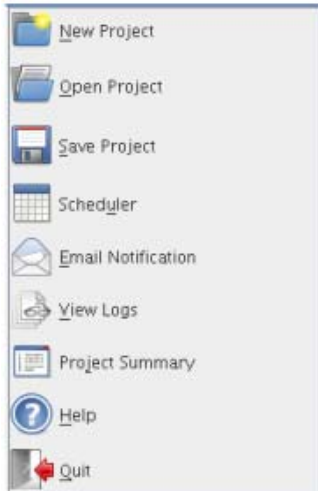
2.1 Project Pane

This is the left pane. You use it to access common project options:

- ◆ [Section 2.1.1, “Create Project,”](#) on page 22
- ◆ [Section 2.1.2, “Schedule Service,”](#) on page 23
- ◆ [Section 2.1.3, “Mail Notification,”](#) on page 23
- ◆ [Section 2.1.4, “Log Files,”](#) on page 24
- ◆ [Section 2.1.5, “Project Summary,”](#) on page 24

- ♦ Section 2.1.6, “Help,” on page 25
- ♦ Section 2.1.7, “Quit,” on page 25
- ♦ Section 2.1.8, “Whiteboard,” on page 25

Figure 2-2 *Project Pane*



2.1.1 Create Project

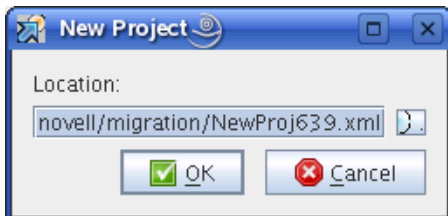
You can create, load or save the migration project.

- ♦ “New Project” on page 22
- ♦ “Load Project” on page 22
- ♦ “Save Project” on page 22

New Project

To create a new project, click *New Project*. Specify the path or browse to the location to create a new project.

Figure 2-3 *New Project*



Load Project

To open an existing migration project, click *Open Project*.

Save Project

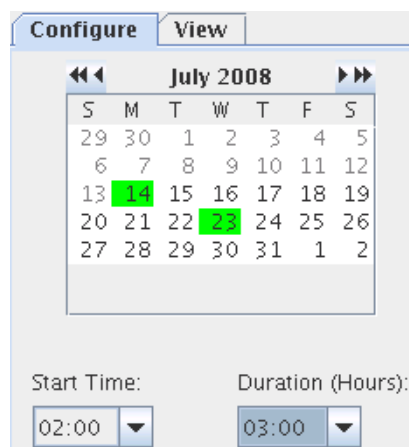
To save a migration project, click *Save Project*, then specify the filename and location.

For example, /var/opt/novell/migration/NewProj1.xml. The migration project file NewProj1.xml is saved to the default location.

2.1.2 Schedule Service

You can schedule and run the migration project at any time at your convenience.

Figure 2-4 Scheduler



You use the scheduler to perform the following tasks:

- ♦ “Configure” on page 23
- ♦ “View” on page 23

Configure

Schedule the migration project to run on multiple days.

- 1 Select the date in the calendar.
- 2 Specify the *Start Time* to run the project.
- 3 Specify the *Duration* to run the project.
- 4 Click *OK* to save the schedule

The migration project runs on the scheduled date and time.

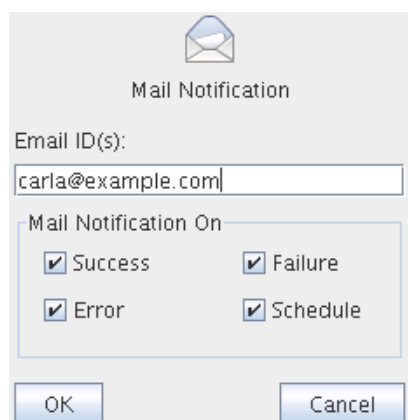
View

Use this tab to see the week-wise view of the scheduled project.

2.1.3 Mail Notification

You can set e-mail notifications for receiving the status of migration.

Figure 2-5 Notification



The image shows a 'Mail Notification' dialog box. At the top is an envelope icon and the title 'Mail Notification'. Below the title is a label 'Email ID(s):' followed by a text input field containing 'carla@example.com'. Underneath is a section titled 'Mail Notification On' containing four checkboxes: 'Success', 'Failure', 'Error', and 'Schedule'. All four checkboxes are checked. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

- ♦ “E-Mail” on page 24
- ♦ “Configure” on page 24

E-Mail

- 1 In the *Email Ids* field, enter the e-mail id of a individual or group ids to receive notifications. You can include multiple e-mail addresses separated by a comma.
- 2 In the *Mail Notification On* field, select the option to generate a mail.
- 3 Click *OK* to save the settings.

Configure

- 1 In the *Server* field, specify the hostname or IP address of the recipient's inbound mail queue.
- 2 Specify the port for the recipient's mail server. In non-secure mode the default port is 25.
- 3 To send e-mail through a secure SMTP connection, select *StartTLS*.
For example, to send an e-mail to a gmail account, the IP address is *gmail-smtp-in.l.google.com* and the port is 26.
- 4 Click *OK* to save the settings.

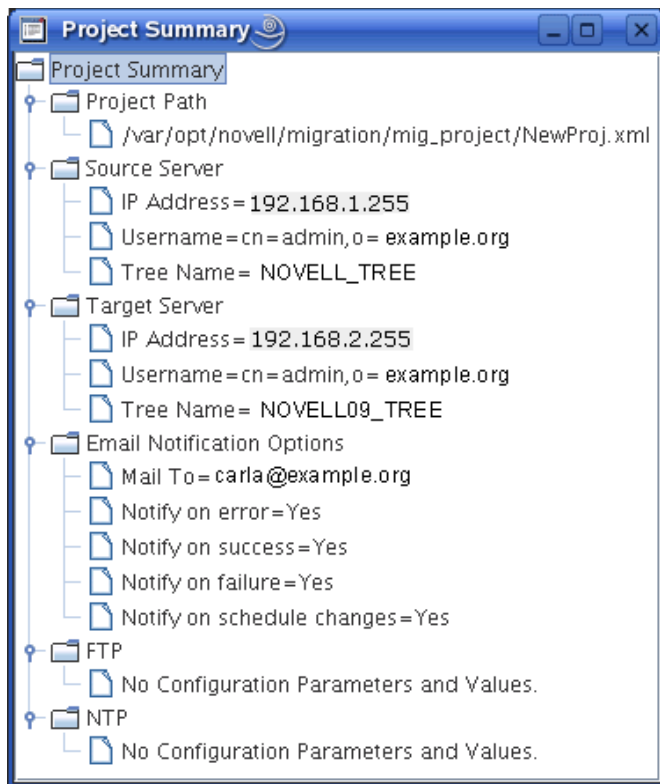
2.1.4 Log Files

The progress of migrating services is displayed in the logs. A log directory is created in the same folder as the migration project. By default, the progress of overall migration is recorded in the *migration.log*. For example, */var/opt/novell/migration/NewProj1/log/migration.log*.

2.1.5 Project Summary

Displays a tree view display of the options configured for all the services selected for migration.

Figure 2-6 *Project Summary*



2.1.6 Help

Displays the help for the Migration Tool.

2.1.7 Quit

Closes the migration window and stops the migration process. If the migration project is not saved, it prompts you to save the project.

2.1.8 Whiteboard

Displays instructions and tips to perform a successful migration.

2.2 Migration Pane

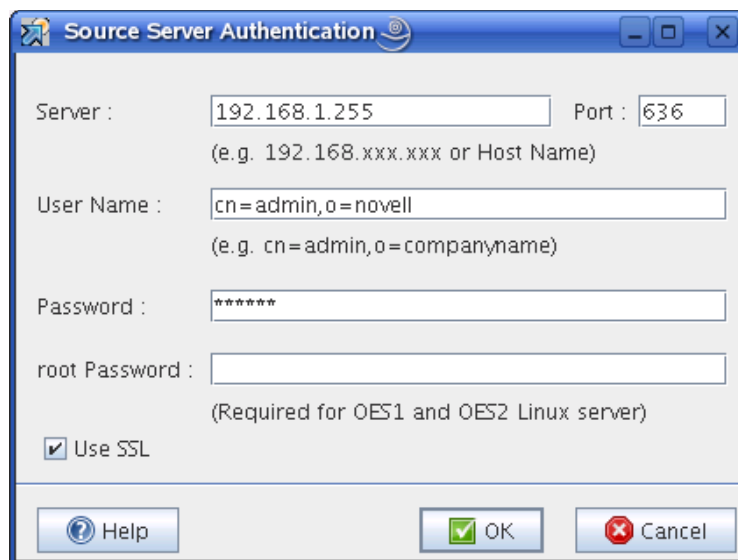
This is the top pane. You use it to perform the following tasks:

- ♦ Authenticate the source server and target server credentials.
- ♦ Select the type of migration as Consolidate or Transfer ID.

2.2.1 Authenticate Source Server and Target Server

Specify the credentials to authenticate the source server and target server.

Figure 2-7 Source Server Authentication Screen



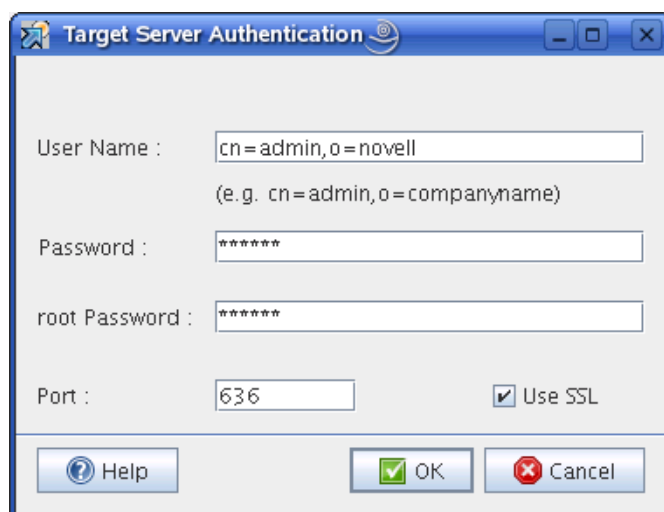
The 'Source Server Authentication' dialog box contains the following fields and controls:

- Server :** Text field with '192.168.1.255' entered. Below it is a hint: '(e.g. 192.168.xxx.xxx or Host Name)'. To the right is a **Port :** text field with '636' entered.
- User Name :** Text field with 'cn=admin,o=novell' entered. Below it is a hint: '(e.g. cn=admin,o=companyname)'.
- Password :** Password field with '*****' entered.
- root Password :** Password field. Below it is a hint: '(Required for OES1 and OES2 Linux server)'.
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

- 1 Specify the IP address, port, and credentials of the administrator of the source server.
- 2 (Optional) In the *Root Password* field, specify the password, if the server is OES 1 or OES 2 Linux server.
- 3 (Optional) To use a secure connection for LDAP authentication, select *Use SSL*.
- 4 Click OK.

In the *Target Server Authentication* screen there is no field available to input the IP address or the hostname because the Migration Tool is launched from the Target server.

Figure 2-8 Target Server Authentication Screen



The 'Target Server Authentication' dialog box contains the following fields and controls:

- User Name :** Text field with 'cn=admin,o=novell' entered. Below it is a hint: '(e.g. cn=admin,o=companyname)'.
- Password :** Password field with '*****' entered.
- root Password :** Password field with '*****' entered.
- Port :** Text field with '636' entered.
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

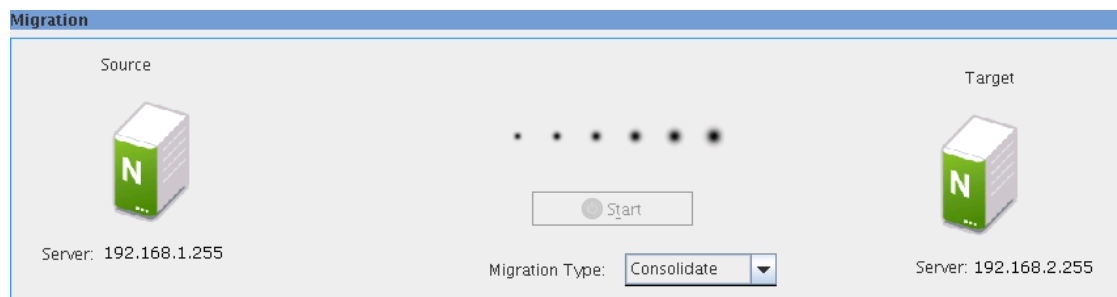
- 1 Specify the credentials of the administrator of the target server.
- 2 Specify the root password.
- 3 (Optional) To use a secure connection for LDAP authentication, select *Use SSL*.

- 4 Click *OK*.

2.2.2 Type of Migration

On successful authentication of the source server and target server, the IP address or the DNS name of the servers are displayed below the server icons.

Figure 2-9 Migration Pane



- 1 Depending on your requirements, select the migration type:
 - ♦ **Consolidate:** Select this option if you want to consolidate the services from the source server into an already running instance of the service on the target server. The source server and the target server can be in the same eDirectory tree or a different eDirectory tree.
 - ♦ **Transfer ID:** Select this option to transfer the server identity of the source server to the target server. The source server and target server must be in the same eDirectory tree.
- 2 To configure the services for migration, see [Section 2.3, “Services to Migrate Pane,” on page 27](#)

2.3 Services to Migrate Pane

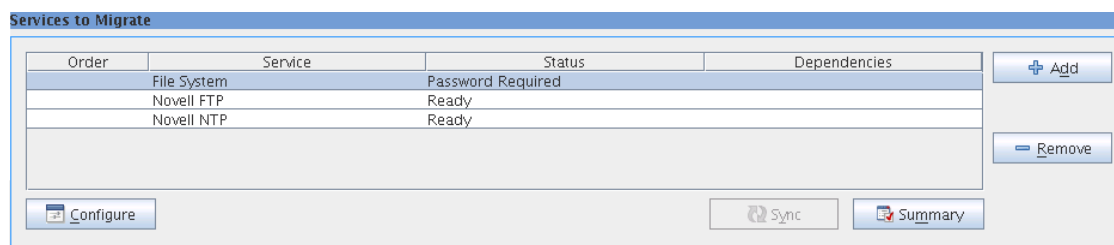
This is the central pane. You use it to select the services that you plan to migrate, and configure the options. When multiple services are configured for migration, the order represents the sequence for migration of the services.

IMPORTANT: You must install all the services on the target server that you plan to migrate from the source server.

You use this pane to perform the following tasks:

- ♦ Select and configure services for migration.
- ♦ Synchronize the migrated service with the service on the source server.
- ♦ View the configuration summary of the service.

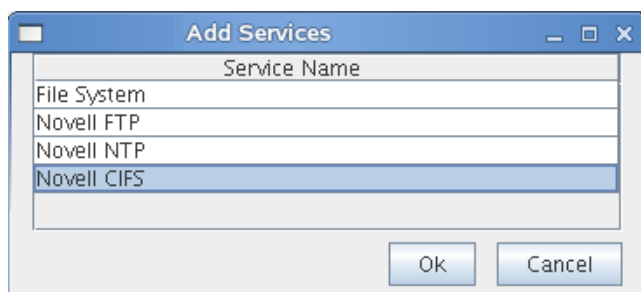
Figure 2-10 *Services to Migrate*



2.3.1 Options

- ♦ **Add:** The *Add Services* dialog box displays a list of services to be migrated to the target server. Services that are not installed on the target server prior to the migration are not listed.

Figure 2-11 *List of Services to Migrate*



- ♦ **Remove:** In the *Services to Migrate* pane, select the service you do not want to migrate and click *Remove*.
- ♦ **Order:** The number indicates the order in which to migrate each service. The order is displayed by the migration tool and cannot be edited.
- ♦ **Service:** Lists the name of service to be migrated.
- ♦ **Status:** The *Service* column lists services to be migrated, depending on the source operating system, support for different types of migration scenarios (Consolidate and Transfer ID), and the services installed on the target server.

NOTE: Only services installed on the target server can be migrated from the source server.

The services can be in different states during migration:

State	Description
Not Configured	The service is not configured.
Password Required	Configuration of a service is not complete.
Ready	The service is configured and ready to migrate.
Migrating	The service is in the process of migration.
Migrated	The service is migrated to the target server.

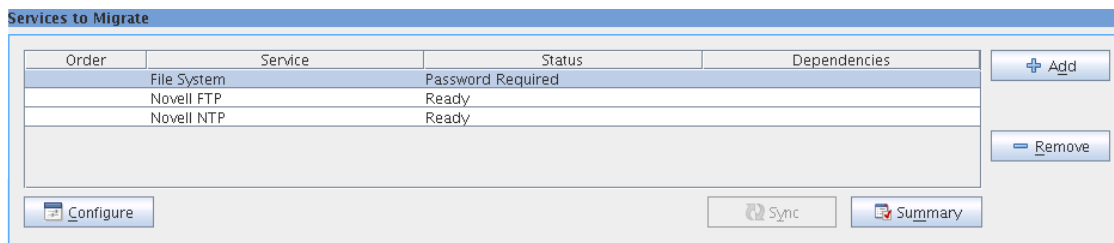
State	Description
Synced	The service on the target server is updated with the changes on the source server.

- ♦ **Dependencies:** Lists the dependent services to be migrated. The migration process progresses independently of whether the dependency is completed.
- ♦ **Configure:** Select the service to prepare for migration, then click *Configure*.
- ♦ **Sync:** The service details on the target server are compared with the source server and only the changed information is migrated to the target server. Select the service to synchronize the details and click *Sync*.

NOTE: Metadata changes are not synchronized by the Sync option. You must manually copy the files to the target server if there are changes to only the attributes of the file.

- ♦ **Summary:** A tree view that displays migration options configured for a selected service.

Figure 2-12 *Services to Migrate*



To select the services to migrate:

- 1 Click *Add* to display the list of services available for migration.
- 2 In the *Add Services* window, select the services to migrate, then click *OK*.
In the *Status* column, the status of the unconfigured services is listed as *Not Configured*.
- 3 Select the service and click *Configure* to configure the migration options.
Details to configure and migrate the services are documented as an Appendix in this guide.

NOTE: The services are listed depending on the source operating system, support for different types of migration scenarios (Consolidate and Transfer ID) and the services installed on the target server.

2.4 Service Migration Status

Displays the migration status and progress of each service along with logs.

- ♦ [Section 2.4.1, “Service,” on page 30](#)
- ♦ [Section 2.4.2, “Logs,” on page 30](#)

2.4.1 Service

Displays the status of the selected service. If a service is in the Migrating state, the progress of the migration is displayed.

Table 2-1 *Migration Status*

State	Description
Ready	The service is configured and ready to migrate.
Precheck	The prerequisites and migration options configured for each service are validated.
Migrate	The service is in the process of migration.
Sync	Synchronization of the services on the source and target server is complete.

Started: Displays the date and start time of migration for a service.

Elapsed: Displays the service migration execution time.

Percentage: The completion percentage of the migration for a service.

2.4.2 Logs

Displays the service migration log. A log directory is created in the same path as the migration project. The associated output and log files for the project are stored in this directory. For example, /var/opt/novell/migration/log.

NOTE: On receiving a Fatal error, the overall migration process is stopped and details are logged in the service-specific log file and common log file. The default common log file name is `debug.log`.

2.5 Overall Migration Status

State Progress displays the progress of the overall migration. The progress icon turns green for each achieved state.

Table 2-2 *Migration Status*

State	Description
Ready	All the required migration parameters are configured for the services.
Precheck	The prerequisites and migration options configured for each service are validated.
Migrate	The service is in progress of migration.
Sync	Synchronization of the services on the source and target server is complete.

Started: Displays the date and start time of overall migration.

Elapsed: Displays the overall migration execution time.

Percentage: The percentage completion of the overall migration.

The OES 2 SP1 Migration Tool has an enhanced gui interface. With the help of a single interface, all the services can be migrated from a source server to the target server. The Migration Tool uses a plug-in architecture and is made up of Linux* command line utilities with a GUI wrapper.

The Migration Tool supports the Consolidate and Transfer ID scenario.

The following tasks are performed during migration:

- ♦ Create a migration project to migrate multiple services.
- ♦ Schedule and run the migration at your convenience.
- ♦ Receive an e-mail indicating the success or failure of the migration process.
- ♦ Display the status of the migrating service and the service-specific logs.
- ♦ Display the overall progress of migration and logs.
- ♦ View a summary of the options configured for each service and for the entire migration project.

Getting Started



- ♦ Chapter 4, “Planning for Migration,” on page 37
- ♦ Chapter 5, “Using the Migration Tool GUI,” on page 39

Planning for Migration

4

The following topics are discussed in this section:

- ♦ [Section 4.1, “Prerequisites,” on page 37](#)
- ♦ [Section 4.2, “Preparing the Source Server for Migration,” on page 38](#)
- ♦ [Section 4.3, “Preparing the Target Server for Migration,” on page 38](#)
- ♦ [Section 4.4, “Installing and Accessing the Migration Tool,” on page 38](#)
- ♦ [Section 4.5, “What’s Next,” on page 38](#)

4.1 Prerequisites

The Migration Tool is installed as part of Open Enterprise Server (OES) 2 SP1 installation. The source server and the target server must meet the requirements outlined in this section.

❑ Platform Support for the Source Server:

- ♦ NetWare® 5.1 SP8. Upgrade to eDirectory™ 8.7.3.7 or later
- ♦ NetWare 6.0 SP5. Upgrade to eDirectory 8.7.3.7 or later
- ♦ NetWare 6.5 SP7 or later and eDirectory 8.8.x or later
- ♦ OES 1.0 SP2 on 32-bit
- ♦ OES 2 Linux on 32-bit or 64-bit

❑ Platform Support for Target Server:

- ♦ OES 2 SP1 Linux on 32-bit or 64-bit

❑ Time Synchronization: The source and target servers must be using the same time synchronization method. For more information on time synchronization, see “[Time Synchronization](#)” in the *OES2 SP1: Planning and Implementation Guide*.

4.1.1 Source Server Requirements

The source server is a NetWare server or OES 1 or OES 2 server that contains the files, volumes, and eDirectory objects to be copied to the target server.

- ❑ The source server must be running supported versions of NetWare and eDirectory.
- ❑ Update the source server with the latest NetWare Support Pack.
- ❑ Ensure that the user performing the migration has read /write /access rights on the source server.

4.1.2 Target Server Requirements

- ❑ The OES 2 SP1 Linux target server must be installed. For instructions on installing an OES 2 SP1 Linux server, see the *OES2 SP1: Linux Installation Guide*.
- ❑ Ensure that the user performing the migration has read/write/access rights on the target server.

4.2 Preparing the Source Server for Migration

1. Shut down any applications, products, or services (virus scan software, backup software, etc.) running on the server to be migrated.
2. Verify the health of eDirectory by loading DSRepair with the following three options:
 - ♦ Unattended Full Repair
 - ♦ Time Synchronization
 - ♦ Report Synchronization Status

If errors are reported, resolve them before attempting migration.

3. (Recommended) Back up eDirectory data and trustees on the source server, even though the source data is not modified during migration.

For information on creating a backup of eDirectory, see “[Backing Up and Restoring Novell eDirectory](#)” in the *Novell eDirectory 8.8 Administration Guide*.

4. Remove any unnecessary applications, then delete and purge unused files and folders.
5. Ensure that all the latest patches are installed.

4.3 Preparing the Target Server for Migration

1. Back up the eDirectory information on the target server. For information on creating a backup of eDirectory, see “[Backing Up and Restoring Novell eDirectory](#)” in the *Novell eDirectory 8.8 Administration Guide*.
2. Make sure that you have installed and configured the services that you are migrating from the source server.

IMPORTANT: If a service is not available on the target server, it is not listed in the Migration Tool GUI.

4.4 Installing and Accessing the Migration Tool

The Migration Tool is automatically installed with OES 2 SP1 (target server) server in the `/opt/novell/migration` folder.

Use one of the following methods to access the Migration Tool on your target server:

- ♦ **Desktop:** Click *Computer > More Applications > System > Novell Migration Tool*.
- ♦ **Console:** Log in as the `root` user and at a terminal prompt, enter
`miggui`

4.5 What's Next

You can perform the migration either with the Migration Tool GUI or through a Transfer ID.

- ♦ [Chapter 5, “Using the Migration Tool GUI,” on page 39](#)
- ♦ [Part IV, “Transfer ID Migration,” on page 51](#)

Using the Migration Tool GUI

5

This section describes how to migrate data from an existing Novell® NetWare®, Open Enterprise Server (OES) 1 Linux or OES 2 Linux server to an OES 2 SP1 Linux server.

After you have completed the prerequisite procedures in [Chapter 4, “Planning for Migration,” on page 37](#), you are ready to perform migration. To do this, complete the following tasks in the order they are listed:

5.1 Getting Started

The Migration Tool is automatically installed with OES 2 SP1 in the `/opt/novell/migration` folder.

IMPORTANT: To perform migration, you must be an eDirectory™ administrator. Migration is not supported if you are a Domain Services for Windows (DSfW) administrator.

5.2 Launch the Migration Tool Utility

You can access the Migration Tool utility in two ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*.

Console: Log in as the `root` user and at a terminal prompt, enter

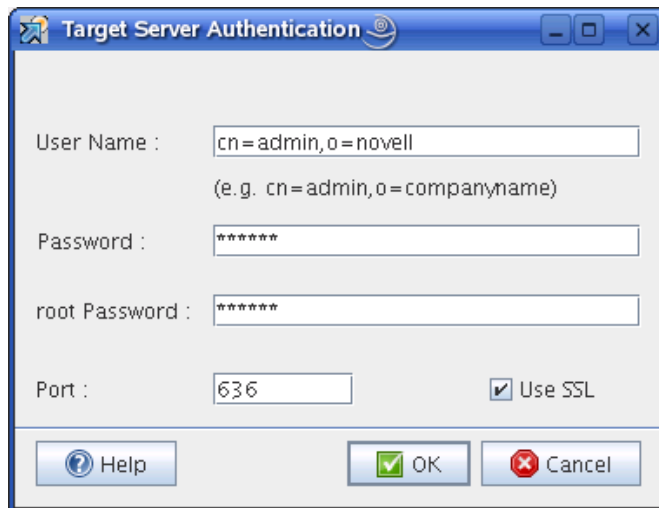
```
miggui
```

5.3 Migration Process

- 1 Launch the Migration Tool.
- 2 Do one of the following to create, open, or save the migration project:
 - ♦ To create a new migration project, click *New Project*, then specify the name of the project and click *OK*.
 - ♦ To open an existing project, click *Open Project*, then select the project and click *Open*. When a confirmation message to open the project is displayed, click *Yes*.
 - ♦ To save a project, click *Save Project > Yes*.
- 3 Specify the credentials of the source server, then click *OK*.



- 4 Specify the credentials of the target server, then click *OK*.



- 5 Depending on your requirements, select the migration type:
 - ♦ Consolidate.
 - ♦ Transfer ID. To perform Transfer ID, see [Part IV, “Transfer ID Migration,” on page 51](#).
- 6 In the *Services to Migrate* pane, select the services to migrate from the source server to target server.

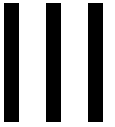
NOTE: Only services installed on the target server are listed for migration.

- 6a To display the list of services for migration, click *Add*.
- 6b In the *Add Services* window, select the services to migrate, then click *OK*.
- 7 Select the service for which you want to configure the migration options, then click *Configure*.
- 8 Click *Start* to proceed with migration. The status of the service changes to *Migrating*.

In *Status > Service*, you can view the progress of migration. When the migration is complete, the status of the service changes to *Migrated*.

NOTE: If you encounter errors during migration, check the *Logs* tab in the *Service* pane. After resolving the errors, execute the migration procedure again.

Server Consolidations



- ♦ Chapter 6, “Preparing for Server Consolidation,” on page 45
- ♦ Chapter 7, “Using the Migration GUI Tool for Consolidation,” on page 47

Preparing for Server Consolidation

To prepare your source server and target server for a Consolidation project, complete the tasks in the following sections:

- ♦ [Section 6.1, “Prerequisites,” on page 45](#)
- ♦ [Section 6.2, “Consolidation Support Matrix,” on page 45](#)

6.1 Prerequisites

- ♦ Ensure that the source server and target server are running with the supported versions of the NetWare®, or Linux server software. For more information, see [Section 1.4, “Supported Service Migration,” on page 19](#).
- ♦ The target must be running Open Enterprise Server (OES) 2 SP1 with the following components enabled:
 - ♦ Novell® eDirectory™
 - ♦ Novell NCP™ Server for Linux
 - ♦ Novell Storage Services™ (NSS)
 - ♦ Novell Storage Management Services™ (SMS)

For more information on installing and configuring OES on Linux, see the [OES2 SP1: Linux Installation Guide](#).

6.2 Consolidation Support Matrix

To migrate or consolidate a service, you must select the Consolidate scenario. Depending on the service, the Consolidate scenario either migrates or consolidates the service.

The [Table 6-1](#) explains the behavior of the service on selecting the Consolidate scenario.

- ♦ **Overwrites the existing configuration:** The service configuration on the target server is overwritten with the service configuration from the source server.
- ♦ **Append to existing configuration:** The service configuration on the target server is appended with the service configuration from the source server.

Table 6-1 *Support Matrix*

Services	Consolidate		Details
	Overwrites the existing configuration	Append to the existing configuration	
AFP	No	Yes	Section 16.2, “Migration Scenarios,” on page 139

Services	Consolidate		Details
Archive and Version Services	Yes	No	Section 17.2.1, "Consolidate - Same Tree," on page 143
CIFS	CIFS configuration	<ul style="list-style-type: none"> ◆ Shares ◆ Context 	Section 18.2.1, "Consolidate - Same Tree," on page 150
DHCP	No	Yes	Section 19.3.2, "Consolidation," on page 172 Section 19.3.2, "Consolidation," on page 172
FTP	Yes	No	Section 21.2, "Migration Scenarios," on page 180
iFolder 3	No	<ul style="list-style-type: none"> ◆ User's iFolder ◆ Sharing information of iFolder 3.2 	"Migration Scenarios" on page 185
iPrint	No	Yes	Section 23.2, "Migration Scenarios," on page 200
NTP	No	Yes	Section 24.2, "Migration Scenarios," on page 215

Using the Migration GUI Tool for Consolidation

7

After you have completed the general prerequisites in [Chapter 4, “Planning for Migration,”](#) on [page 37](#) and prerequisite procedures in [Chapter 6, “Preparing for Server Consolidation,”](#) on [page 45](#), you are ready to migrate the source server. To do this, complete the following tasks in the order they are listed:

- ♦ [Section 7.1, “Launch the Migration Tool Utility,”](#) on [page 47](#)
- ♦ [Section 7.2, “Create the Project File,”](#) on [page 48](#)
- ♦ [Section 7.3, “Select the Source Server, Target Server, and Migration Type,”](#) on [page 49](#)
- ♦ [Section 7.4, “Configure the Services,”](#) on [page 50](#)
- ♦ [Section 7.5, “Run the Migration,”](#) on [page 50](#)

7.1 Launch the Migration Tool Utility

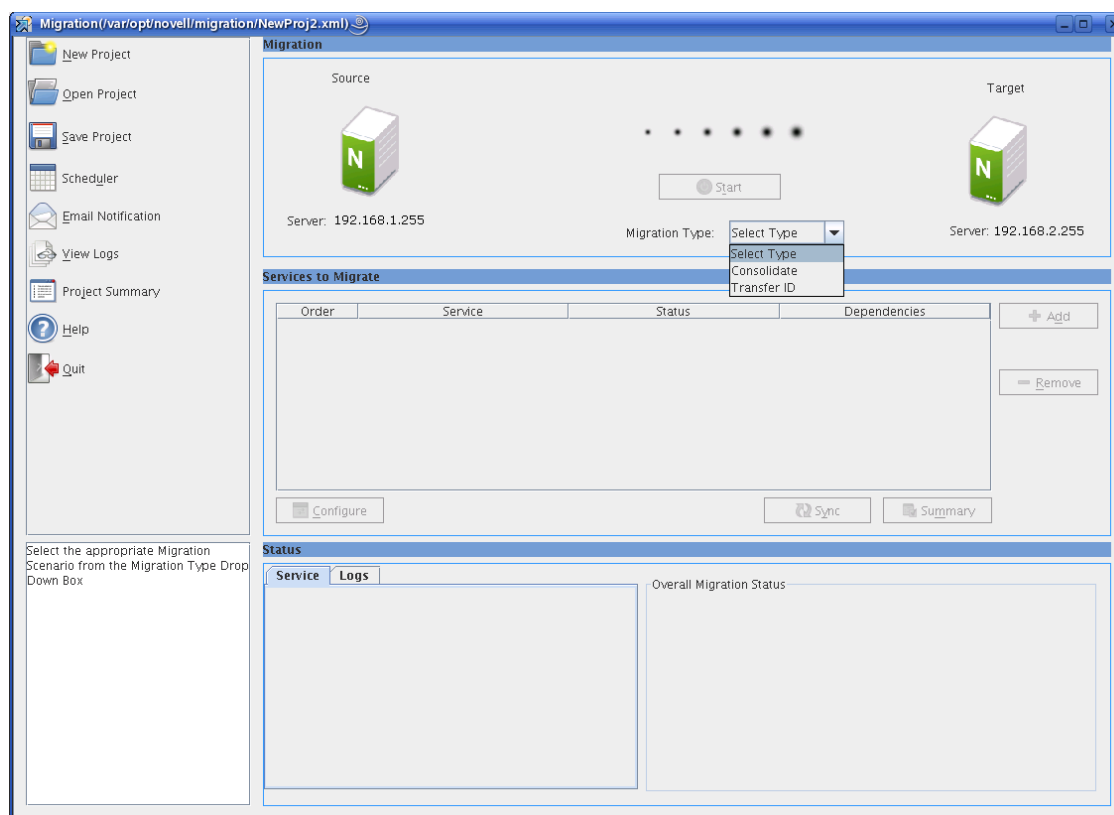
You can access the Migration Tool utility in two ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*.

Console: Log in as the `root` user and at a terminal prompt, enter

```
miggui
```

Figure 7-1 Migration Tool GUI



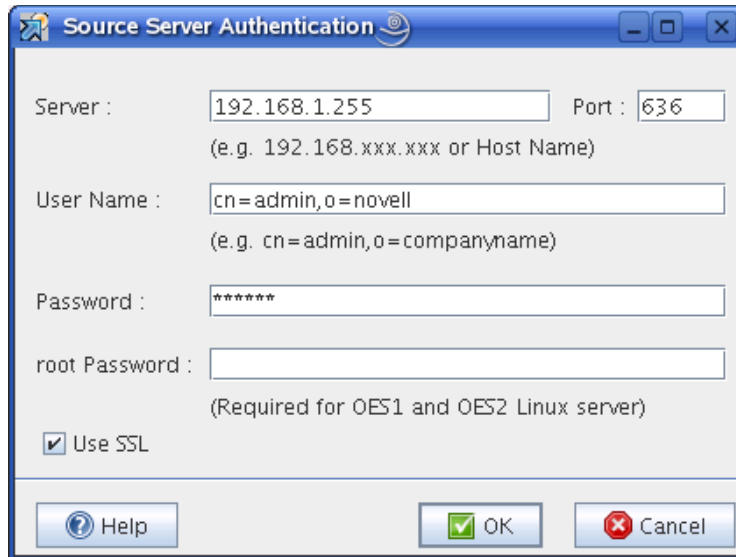
7.2 Create the Project File

- 1 To create a new migration project, click *New Project*. Type the path to the project in the *Location* field or browse to the location and click *Save*.
or
To open an existing migration project, click *Open Project*. Type the path to the project in the *Location* field or browse to the project and click *Open*.
For example, `/home/Carla/migration/mig.xml`
- 2 Type the project filename in the field provided.
The filename can be up to 64 characters long and can include any character except \ * ? < > | " /. The project name also serves as the project's folder name, so you might want to keep it short. The project folder stores the log files and other files associated with the project.
- 3 (Conditional) If you want to store the project file in a location other than the default location provided, click *Browse* and navigate to the desired location, then click *OK*.
- 4 Continue with [Section 7.3, "Select the Source Server, Target Server, and Migration Type,"](#) on [page 49](#).

7.3 Select the Source Server, Target Server, and Migration Type

Specify the credentials to authenticate the source server and target server.

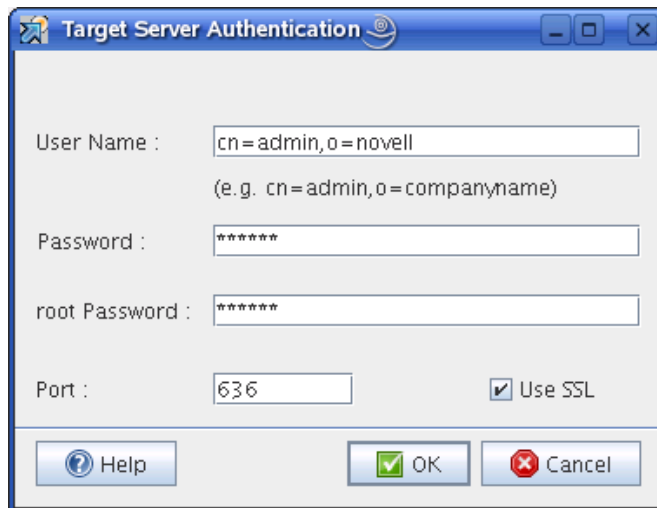
- 1 Specify the source credentials and click *OK*.



The 'Source Server Authentication' dialog box contains the following fields and controls:

- Server :** Text box with '192.168.1.255'. Below it, a hint: '(e.g. 192.168.xxx.xxx or Host Name)'.
- Port :** Text box with '636'.
- User Name :** Text box with 'cn=admin,o=novell'. Below it, a hint: '(e.g. cn=admin,o=companyname)'.
- Password :** Password field with masked characters '*****'.
- root Password :** Empty password field. Below it, a note: '(Required for OES1 and OES2 Linux server)'.
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

- 2 Specify the target server credentials and click *OK*.



The 'Target Server Authentication' dialog box contains the following fields and controls:

- User Name :** Text box with 'cn=admin,o=novell'. Below it, a hint: '(e.g. cn=admin,o=companyname)'.
- Password :** Password field with masked characters '*****'.
- root Password :** Password field with masked characters '*****'.
- Port :** Text box with '636'.
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

On successful authentication, both the servers change to green.

- 3 Select the migration type as *Consolidate*.
- 4 Continue with [Section 7.4, "Configure the Services,"](#) on page 50.

7.4 Configure the Services

- 1 In the *Services to Migrate* panel, click *Add* and select the services to migrate to target server. The *Status* of the services is *Not Configured*.

- 2 Select the service to configure for migration, then click *Configure*.

On successful configuration, the *Status* of the service changes to *Ready*.

IMPORTANT: Before you proceed with migration, ensure that you have met all the prerequisites and configured the migration options for all the services that are to be migrated to the target server.

For a list of service migration chapters and their corresponding documentation, see *Appendix* section.

- 3 Continue with [Section 7.5, “Run the Migration,” on page 50](#).

7.5 Run the Migration

- 1 Click *Start* to proceed with migration.

When migration is in progress, the *Start* button changes to *Stop*. To suspend the migration process, click *Stop*.

You can view the service-specific status of the migration or the status of the overall migration:

- ♦ In the *Status > Service* tab, you can view the progress of migration. On completion of migration, the *Status* of a service changes to *Migrated*.
- ♦ In the *Status* pane > *Overall Migration Status* tab, you can view the progress of overall migration. A message *Migration completed for all Services* is displayed on completion of the migration.

NOTE: If you encounter any errors during migration, check the *Logs* tab in the *Service* pane for individual services or click *View Logs* in the left pane. After resolving the errors, execute the migration procedure again.

On successful completion of migration, the *Stop* button changes to *Start*.

Transfer ID Migration

IV

- ♦ Chapter 8, “Preparing for Transfer ID,” on page 53
- ♦ Chapter 9, “Using the Migration GUI Tool for Transfer ID,” on page 55
- ♦ Chapter 10, “Using Migration Commands for Transfer ID,” on page 65
- ♦ Chapter 11, “Troubleshooting Issues,” on page 71

Preparing for Transfer ID

8

To prepare your source server and target server for a Transfer ID project, complete the tasks in the following sections:

- ♦ [Section 8.1, “Prerequisites,” on page 53](#)
- ♦ [Section 8.2, “Preparing the Source Server for Migration,” on page 54](#)
- ♦ [Section 8.3, “Preparing the Target Server for Migration,” on page 54](#)

8.1 Prerequisites

- ♦ Ensure that the source server and target server are running supported versions of NetWare® or Linux server software. For more information, see [Section 1.4, “Supported Service Migration,” on page 19](#).
- ♦ You must have specific rights to perform the migration.
- ♦ The source server and the target server must be in the same eDirectory™ tree.
- ♦ The target server must be a non-replica server in the eDirectory tree.

To make the target server as a non-replica server, select the *Pre-Migration Server* option on installing the target server.

- ♦ Verify the health of eDirectory by loading `DSRepair` on Open Enterprise Server (OES) 2 SP1 Linux with the following three options:
 - ♦ Unattended Full Repair
 - ♦ Time Synchronization

The target server must be time synchronized with the source server.

Time across all the servers in the replica ring should be synchronized.

For more information on time synchronization, see “[Time Synchronization](#)” in the *OES2 SPI: Planning and Implementation Guide*.

NOTE: The `DSRepair` command locks the eDirectory database, and this results in failure of the Transfer ID migration. You must ensure that all the eDirectory operations are complete before performing a Transfer ID migration.

- ♦ Report Synchronization Status

All the eDirectory replicas are synchronized.

If any errors are reported, resolve them before attempting migration.

- ♦ Ensure that the names and properties of an NSS volume on both the source server and target server are the same
- ♦ Ensure that time is synchronized across all the servers that host the eDirectory replicas of the partition where the source server and the target server resides.
- ♦ Ensure that all the eDirectory replicas are up and working in the current partition; otherwise, eDirectory migration cannot be completed successfully.
- ♦ Ensure that the hostname and IP address of source server and target server are mapped correctly. The hostname can be resolved by using the DNS server or using the `/etc/hosts` file.

8.2 Preparing the Source Server for Migration

- ♦ Shut down any applications, products, or services (virus scan software, backup software, etc.) running on the server to be migrated.

- ♦ (Recommended) Back up all your data on the target server.

For information on creating a backup of eDirectory, see “[Backing Up and Restoring Novell eDirectory](#)” in the *Novell eDirectory 8.8 Administration Guide*.

You must back up the data and trustee of the source servers, even though the source data is not modified during migration.

- ♦ Remove any unnecessary applications, then delete and purge unused files and folders. Files that are deleted from the source server prior to migration are not migrated to the target server.
- ♦ (Conditional) If the source server is OES 1 Linux or OES 2 Linux, enable SSH service. Ensure you have copied the SSH keys to avoid multiple password prompts on execution of the *DIB Copy* step.
- ♦ Ensure that the `/root/.ssh/known_hosts` file contains the entries of both the hostname and its corresponding IP address.

8.3 Preparing the Target Server for Migration

- ♦ Make sure that the *Pre-Migration Server* option was selected for the target server.

When you install the target server for a Transfer ID migration, and you reach the *Software Selection and System Tasks* dialog box, you must select the Novell *Pre-Migration Server* option. This prepares eDirectory for the Transfer ID migration that you will perform later.

- ♦ If the target server is not installed with this option, it cannot be the target of a Transfer ID migration until you reinstall OES 2 SP1 and select the option.

Install the services that you need to migrate from the source server.

IMPORTANT: If a service is not installed on the target server, it is not listed in the Migration Tool GUI screen for migration. This is a mandatory requirement.

- ♦ Back up the eDirectory information on the target server. For information on creating a backup of eDirectory, see “[Backing Up and Restoring Novell eDirectory](#)” in the *Novell eDirectory 8.8 Administration Guide*.

Using the Migration GUI Tool for Transfer ID

9

After you have completed the prerequisite procedures in [Chapter 8, “Preparing for Transfer ID,” on page 53](#), you are ready to migrate the source server. To do this, complete the following tasks in the order they are listed:

- ♦ [Section 9.1, “Launch the Migration Tool Utility,” on page 55](#)
- ♦ [Section 9.2, “Create the Project File,” on page 55](#)
- ♦ [Section 9.3, “Select the Source and Target Server and the Migration Type,” on page 56](#)
- ♦ [Section 9.4, “Configure the Services and Run the Migration,” on page 57](#)
- ♦ [Section 9.5, “Understanding Transfer ID GUI,” on page 58](#)
- ♦ [Section 9.6, “Backup eDirectory Database and NICI Keys,” on page 59](#)
- ♦ [Section 9.7, “Run Transfer ID,” on page 59](#)
- ♦ [Section 9.8, “Post Transfer ID Migration,” on page 62](#)

9.1 Launch the Migration Tool Utility

You can access the Migration Tool Utility in two ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*.

Console: Log in as the `root` user and at a terminal prompt, enter

```
miggui
```

9.2 Create the Project File

- 1 To create a new migration project, click *New Project*. Specify the path to the project in the *Location* field or browse to the location, then click *Save*.

or

To open an existing migration project, click *Open Project*. Type the path to the project in the *Location* field or browse to the project and click *Open*.

For example, `/home/Carla/migration/mig.xml`

- 2 Type the project filename in the field provided.

The filename can be up to 64 characters long and can include any character except `\ * ? < > | " / .`. The project name also serves as the project's folder name, so you might want to keep it short. The project folder stores the log files and other files associated with the project.

- 3 (Conditional) If you want to store the project file in a location other than the default location provided, click *Browse* and navigate to the desired location, and then click *OK*.

9.3 Select the Source and Target Server and the Migration Type

Specify the credentials to authenticate the source server and target server.

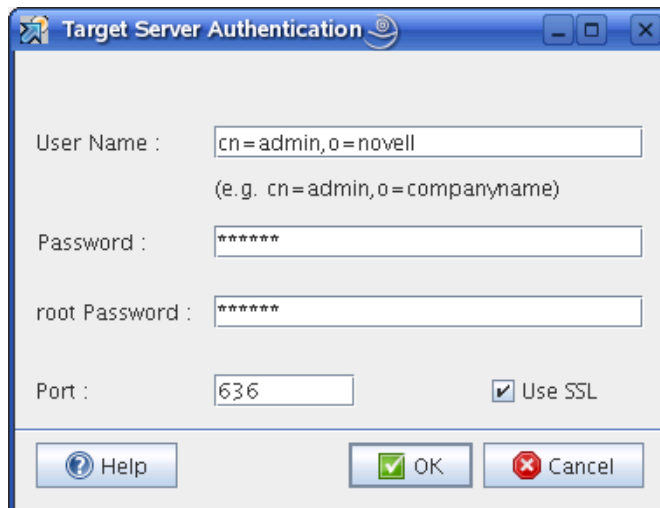
- 1 Specify the source credentials, then click *OK*.



The "Source Server Authentication" dialog box contains the following fields and controls:

- Server :** Text box with "192.168.1.255" entered. Below it, a hint: "(e.g. 192.168.xxx.xxx or Host Name)".
- Port :** Text box with "636" entered.
- User Name :** Text box with "cn=admin,o=novell" entered. Below it, a hint: "(e.g. cn=admin,o=companyname)".
- Password :** Password field with "*****" entered.
- root Password :** Empty password field. Below it, a hint: "(Required for OES1 and OES2 Linux server)".
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

- 2 Specify the target server credentials, then click *OK*.



The "Target Server Authentication" dialog box contains the following fields and controls:

- User Name :** Text box with "cn=admin,o=novell" entered. Below it, a hint: "(e.g. cn=admin,o=companyname)".
- Password :** Password field with "*****" entered.
- root Password :** Password field with "*****" entered.
- Port :** Text box with "636" entered.
- ☒ **Use SSL**
- Buttons at the bottom: **Help** (with a question mark icon), **OK** (with a green checkmark icon), and **Cancel** (with a red X icon).

On successful authentication, both the servers change to green.

- 3 Select the migration type as *Transfer ID*.
- 4 You can either migrate all the services to an OES 2 SP1 server and then transfer the NetWare server's identity, or only transfer the NetWare server's identity to an OES 2 SP1 server.
 - 4a To migrate services, continue with [Section 9.4, "Configure the Services and Run the Migration,"](#) on page 57.

- 4b** To transfer only the NetWare server's identity, click the *Start* button.
- 4b1** Click *Yes* to perform identity transfer without migrating the services, or click *No* to continue with [Section 9.4, "Configure the Services and Run the Migration," on page 57](#).
- 4b2** Click *Yes* to perform the Transfer ID scenario, then continue with [Section 9.5, "Understanding Transfer ID GUI," on page 58](#).

9.4 Configure the Services and Run the Migration

- 1** In the *Services to Migrate* panel, click *Add* and select the services to migrate to target server.
The *Status* of the services is *Not Configured*.
- 2** To configure a service for migration, click *Configure*.
On successful configuration the *Status* of the service changes to *Ready*.

NOTE: Before you proceed with migration, ensure that you have met all the prerequisites and configured the migration options for all the services that are to be migrated to the target server. For a list of service migration chapters and their corresponding documentation, see the [Part VII, "Service Migration," on page 133](#).

- 3** Click *Start* to proceed with migration.
In the *Services to Migrate* pane, select the service to view the service-specific progress in the *Status > Service* tab. On completion of migration, the *Status* of a service changes to *Migrated*.
If you encounter any errors during migration, check the *Logs* tab in the *Service* pane for individual services or click *View Logs* in the left pane. After resolving the errors, execute the migration procedure again.
In the *Status* pane, *Overall Migration Status* tab, you can view the progress of overall migration. A message *Migration completed for all Services* is displayed on completion of migration.
- 4** Check the status of the migration. If the migration is successful, the *Start* button changes to *Transfer ID*.
- 5** (Optional) We recommend you to complete synchronization of the services before proceeding for Transfer ID.
- 6** (Optional) Back up the eDirectory database and NCI keys. For more information, see [Section 9.6, "Backup eDirectory Database and NCI Keys," on page 59](#).
- 7** Decide whether to transfer the ID with the graphical user interface or the command line.
 - ♦ To launch the Transfer ID GUI, click *Transfer ID*. For more information on performing the steps in the GUI, see [Section 9.7, "Run Transfer ID," on page 59](#).
 - ♦ To use the command line, see [Chapter 10, "Using Migration Commands for Transfer ID," on page 65](#).

9.5 Understanding Transfer ID GUI

The Transfer ID GUI runs a series of tasks for transferring the server identity of the source server to the target server. The identity of the server is made up of its IP address, hostname and the eDirectory DIB information from the source server.

IMPORTANT: On successful completion of the tasks, the target server functions with the identity of the source server.






The interface is divided into a left pane and right pane, and each task is associated with an icon that represents the status of the task.

- ♦ [Section 9.5.1, “Left Pane,” on page 58](#)
- ♦ [Section 9.5.2, “Right Pane,” on page 58](#)

9.5.1 Left Pane

The left pane lists a series of tasks to be completed for successful completion of Transfer ID. Each task is associated with an icon.

Table 9-1 *Status Icons*

Icon	Description
	The task is not yet started.
	The task is in progress.
	The task is complete.
	Errors must be resolved before proceeding with the next step. An error is displayed in the <i>Errors</i> text box.
	You can choose to skip this task in the GUI and perform it manually.

9.5.2 Right Pane

- ♦ **Task Description:** A description of the task in progress. The *Command Executed* field displays the command executed to perform the task.
- ♦ **Errors:** A description of the error or warnings and a possible resolution. If no resolution is provided, you can find more information in the [Novell Error Code online documentation \(http://www.novell.com/documentation/lg/nwec/index.html\)](http://www.novell.com/documentation/lg/nwec/index.html). (Search the system by error code number.)
- ♦ **Log Messages:** Log messages for each executed tasks and the overall Transfer ID.
- ♦ **Send E-mail Notification:** Select this option to receive an e-mail for a main task. An e-mail is sent only if you have already configured the *Email Notification* tab in the main Migration GUI screen. E-mail is not sent for suggests.
- ♦ **Ignore:** Ignores a task and proceeds with the next task.
- ♦ **Back:** Click *Back* to re-execute a task.

IMPORTANT: When the current task is executed, the changes are committed, so using *Back* on a completed task does not roll back the changes.

- ♦ **Next:** Click *Next* to complete the current task and move to the next task.
 - ♦ **Cancel:** Click *Cancel* to close the Transfer ID Wizard and quit the task.
-

IMPORTANT: The Transfer ID process is canceled, but changes or steps executed earlier are not rolled back.

9.6 Backup eDirectory Database and NCI Keys

Before performing Transfer ID, we recommend that you to back up your eDirectory database and NCI keys on both the source server and target server. If the Transfer ID fails or you quit the scenario, you cannot perform any actions on the source server without restoring the server's DIB from the backup.

For more information on backing up and restoring eDirectory, refer [Novell eDirectory 8.8 Administration Guide](http://www.novell.com/documentation/edir88/edir88/index.html?page=/documentation/edir88/edir88/data/a2n4mb6.html) (<http://www.novell.com/documentation/edir88/edir88/index.html?page=/documentation/edir88/edir88/data/a2n4mb6.html>).

For more information on backing up and restoring NCI keys, refer [Novell eDirectory 8.8 Administration Guide](http://www.novell.com/documentation/edir88/edir88/index.html?page=/documentation/edir88/edir88/data/bunbdw.html) (<http://www.novell.com/documentation/edir88/edir88/index.html?page=/documentation/edir88/edir88/data/bunbdw.html>).

9.7 Run Transfer ID

Ensure that you have completed the following:

- ♦ All the services you need to migrate must be configured on the target server.
- ♦ Ensure that all eDirectory processes (such as eDirectory repair) are completed before performing the Transfer ID scenario. The Transfer ID process locks the DIB (eDirectory database) on the source server and no operations can be performed.
- ♦ Back up the eDirectory database. For more information, see [Section 9.6, “Backup eDirectory Database and NCI Keys,” on page 59](#).

IMPORTANT: Some of the steps for ID Transfer need to be performed manually. The GUI displays messages to ensure that you have completed the manual step. When the manual steps are completed, click *OK* to proceed to the next step. If you skip the manual steps, errors are encountered in the subsequent steps.

When you click Transfer ID at the end of the migration process (See [Step 7 on page 57](#)), the Transfer ID GUI displays tasks you perform to complete the transfer.

- 1 Click *Next* to perform an eDirectory Precheck.

This step can be executed multiple times to verify the health of the eDirectory tree. Executing of this step does not modify the source server and target server.

On successful completion of this step, the icon adjacent eDirectory Precheck changes to a green check mark.

- 2 Click *Next*.

The Preparation step removes eDirectory from the target server. The LUM association with the groups and users is no longer available because the Unix Workstation object is also removed.

This step fails to execute if the prerequisites are not met.

- 3** (Conditional) If the source server is OES 1 Linux or OES 2 Linux, ensure that you have copied the SSH keys to avoid multiple password prompts on execution of this step.

- 3a** Enable SSH on the source server and the target server.

- 3b** Enter the `# ssh-keygen -t rsa` command on the target server.

- 3c** When you are prompted to enter the file in which to save the key (`/root/.ssh/id_rsa`), press Enter.

The ssh keys are stored in the default location.

- 3d** When you are prompted to enter the passphrase (empty for no passphrase), press Enter.

We recommend that you do not include the passphrase.

- 3e** Copy the key value (the output of the `# ssh-keygen -t rsa` command) to the source server.

```
# scp ~/.ssh/id_rsa.pub root@<source-server>/root/
```

where `<source-server>` is the IP address or the hostname of the source server.

- 3f** Log on to source server by using `ssh`. If the `.ssh` directory is not available, create the directory, then append the key value to the list of authenticated keys.

```
cat id_rsa.pub >> /root/.ssh/authorized_keys
```

- 4** Click *Next* to copy the eDirectory database.

The DIB Copy creates a eDirectory DIB (Directory Information Base) copy of the source server on to the target server.

On completion of this step, the source server's DIB is locked and further operations are not permitted on the source server. The eDirectory database and the NICI files are copied to the target server.

IMPORTANT: In this step, the eDirectory database on the source server is locked. The eDirectory database and the NICI files are copied to the target server.

- 5** Click *Next* to execute the step.

IMPORTANT: This command fails to execute if the replica ring is not in sync, or the time is not synchronized among all the servers in the replica ring.

On completion of this step the source server's DIB is locked and further operations are not permitted on the source server.

- 6** Click *Next* to manually shut down the source server and disconnect it from the network.

- 6a** You are prompted to confirm that the source server is shut down. Click *OK* and proceed with the next step, or click *Cancel* and shutdown the source server.

- 7** Click *Next* to restore the eDirectory database that was backed up from the source server in [Step 4 on page 60](#) on the target server. This includes the NICI keys and the eDirectory related information.

WARNING: If the backup in [Step 4 on page 60](#) was not successful, the *DIB Restore* step fails. A failure at this point might cause the target eDirectory server to be unusable.

- 8 Click *Next* to change the IP address of the services and their configuration files on the target server to the source server IP address.

IMPORTANT: Failure of the script to change the IP address, or terminating the operation manually might cause the system to hang. For more details, refer to [Chapter 11](#), “[Troubleshooting Issues](#),” on page 71.

If you are executing the Migration GUI through a remote session, the Transfer ID wizard hangs and fails to proceed.

8a System: The target server IP address is overwritten with the source server IP address.

8b Services: The configuration files of the migrated services are assigned the new IP address of the target server.

8c Others: Executes the IP address change scripts for the services that are not included in the plug-ins of the Migration Tool GUI. The IP address change scripts are located in the `/opt/novell/migration/sbin/serveridswap/ipchange/nonplugin/` folder. If you need to change the IP address of any additional services, you must add the scripts to the `nonplugin` folder.

In this step, the Transfer ID Wizard runs the IP address change scripts located in the `nonplugin` folder.

No e-mail is sent in this step, even if you have selected the settings to receive an e-mail.

- 9 Click *Next* to change the hostname of the services and their configuration files to the source server hostname.

IMPORTANT: Failure of the script to change the hostname or terminating the operation manually, may cause the system to hang. For more details, refer to [Chapter 11](#), “[Troubleshooting Issues](#),” on page 71.

9a System: The target server hostname is overwritten with the source server hostname.

9b Services: The configuration files of the migrated services are assigned the new hostname of the target server.

9c Others: Executes the hostname change scripts for the services that are not included in the plug-ins of the Migration Tool GUI. The hostname change scripts are located in the `/opt/novell/migration/sbin/serveridswap/hostchange/nonplugin/` folder. If you need to change the hostname of any additional services, you need to add the scripts in the `nonplugin` folder.

In this step, the Transfer ID wizard runs the hostname change scripts located in the `nonplugin` folder.

NOTE: No e-mail is sent in this step, even if you have selected the settings to receive an e-mail.

-
- 10 Click *Next* to reinitialize the target server with the IP address and hostname of the source server. eDirectory is also restarted.
- 11 Click *Next* to repair LUM, eDirectory, and services on the target server. The `ndsrepair` command is used to perform eDirectory repair. Service-specific repairs only run for services that were migrated using the current project.
- 11a E Dir:** Checks if eDirectory is up and running on the target server. It also runs a repair on the eDirectory tree.
- 11b Certificates:** Repairs the target server certificate and the trusted root certificate.

11c LUM: The following steps are performed during LUM repair:

- ♦ Creates a Unix Workstation object.
- ♦ Regenerates the certificate for LUM on the target server.
- ♦ Associates admin, novlxtier and www groups to the target servers's Unix Workstation object.
- ♦ Associates the users admin, novlxregd, wwwrun, and novlxsrvd to the target server's Unix Workstation object.
- ♦ Refreshes the LUM cache.

11d Services: Repairs all the services migrated to the target server.

11e Others: Executes the repair scripts for the services that are not included in the plug-ins of the Migration Tool GUI. The scripts are located in the `/opt/novell/migration/sbin/serveridswap/repair/nonplugin/` folder. If you need to repair any additional services, you must add the scripts in the `nonplugin` folder.

In this step, Transfer ID wizard runs the scripts located in `nonplugin` folder.

12 Manually restart your target server for completion of Transfer ID.

The target server now runs with the source server identity.

13 Continue with [Section 9.8, "Post Transfer ID Migration," on page 62](#) to complete some final manual configuration tasks.

9.8 Post Transfer ID Migration

- ♦ [Section 9.8.1, "Manually Configuring Services for Change in IP Address and Hostname," on page 62](#)
- ♦ [Section 9.8.2, "Cleanup Objects," on page 63](#)

9.8.1 Manually Configuring Services for Change in IP Address and Hostname

On completion of the Transfer ID migration, you should manually configure some files in the QuickFinder service to change the IP address and the hostname.

In the QuickFinder service, update the `/var/lib/qfsearch/SiteList.properties` file with the new IP address and hostname.

In this example, assume that the old IP address is 172.16.200.201, and the new IP address after Transfer ID migration is 172.16.100.101.

- 1** Open the `/var/lib/qfsearch/Sites/.properties` file and search for the old address, which in this example is `default@Alias:172.16.200.201`.
- 2** Change the IP address in the file to the new IP address; in this example it is `/var/lib/qfsearch/Sites/default@Alias:172.16.100.101`.
- 3** Save the file.
- 4** Restart Tomcat by entering `rcnovell-tomcat5 restart`.
- 5** Restart Apache by entering `rcapache2 restart`.

The QuickFinder service runs with the changed IP address.

9.8.2 Cleanup Objects

You should manually clean up the following objects from the target server on completion of Transfer ID migration:

- ♦ NSS Pools
- ♦ NCP Volumes
- ♦ afpProxy User
- ♦ cifsProxy User
- ♦ iFolder Proxy User
- ♦ SAS
- ♦ KMO Objects

Even if the above objects are not cleaned, they do not impact the working of the target server.

Using Migration Commands for Transfer ID

10

Before running Transfer ID, ensure you have met all the **prerequisites** and prepared your servers as described in **Section 4.2, “Preparing the Source Server for Migration,”** on page 38 and **Section 4.3, “Preparing the Target Server for Migration,”** on page 38.

Before you begin, remember the following considerations:

- ♦ All the services you need must be migrated to the target server.
- ♦ When you start the Transfer ID process, you cannot perform any operations on the source server because the process locks the DIB (eDirectory™ database) on the source server.

To perform a Transfer ID using CLI:

- 1** Use the following command to do an eDirectory precheck:

```
migedir -s <sourceipaddress> -u <admin name> -A <projectpath> -i -t
```

For example, `/opt/novell/migration/sbin/migedir -s 172.16.100.101 -u admin.novell -A /var/opt/novell/migration/NewProj0 -i -t`

When prompted, enter the username and password of the source server.

This step can be executed multiple times to verify the health of the eDirectory tree. Execution of this step does not modify the source server and target server.

- 2 Preparation:** Removes the eDirectory from the target server. The LUM association with the groups and users is no longer available because the Unix Workstation object is also removed.

- 2a** Ensure the availability of the hostname and IP address on the source server. The hostname or IP address can be resolved using the DNS server or using the `/etc/hosts` file of the source server.

- 2b** (Conditional) If the source server is OES 1 or OES 2, ensure that ssh keys to avoid multiple prompts for password on execution of this step.

To copy the ssh keys:

1. Enable ssh on the source server and target server.
2. Enter the command on the target server, `# ssh-keygen -t rsa`

On executing the above command, you are prompted for the following:

- a. “Enter file in which to save the key (`/root/.ssh/id_rsa`)”, press Enter.

The ssh keys are stored in the default location.

- b. “Enter passphrase (empty for no passphrase)”, press Enter.

We recommend you not to include passphrase.

3. Copy the key value i.e. the output of the above command to the source server

```
# scp ~/.ssh/id_rsa.pub root@<source-server>
```
4. Log to source server using `ssh` and add the key value to the list of authenticated keys.

```
cat id_rsa.pub >> /root/.ssh/authorized_keys
```

2c If the source server is OES1 or OES2, create a backup of the `/etc/nam.conf` file of the source server.

If the source server is NetWare, create a backup of the `/etc/nam.conf` file of the target server.

2d To remove the Unix Workstation object on the target server, enter

```
/usr/bin/namconfig rm -a admin.novell
```

2e To remove eDirectory from the target server, enter

```
ndsconfig rm -c --config-file /etc/opt/novell/eDirectory/conf/nds.conf
```

2f To verify the health of the eDirectory and to ensure that both the source server and target server are time-synchronized, enter

```
migedir -s <sourceipaddress> -u <admin name> -A <projectpath> -i -t
```

For example, `/opt/novell/migration/sbin/migedir -s 172.16.100.101 -u admin.novell -A /var/opt/novell/migration/NewProj0 -i -t`

NOTE: When prompted, enter the username and password of the source server.

3 DIB Copy: Creates a backup of the eDirectory DIB (Directory Information Base) of the source server on to the target server. This step locks the DIB of the source server and further operations are not permitted on the source server.

```
migedir -s <source-server-ip> - u <admin dn> -A <logfile directory> -i -B
```

For example, `/opt/novell/migration/sbin/migedir -s 172.16.100.101 -u -A /var/opt/novell/migration/NewProj0 -i -B`

On running the above command, you are prompted for the username and password of the source server. Enter “y” all the questions.

IMPORTANT: This command fails to execute if the replica ring is not in sync, or the time is not synchronized between all the servers in the replica ring.

NOTE: If you need to perform any operations on the source server, you must unlock the DIB. To unlock the DIB on the NetWare server, reload the `DS.nlm` file and on the OES 1 Linux server or OES 2 Linux server, restart `ndsdaemon`.

4 Shutdown Source: You need to shutdown the source server and disconnect it from the network.

5 DIB Restore: Restores the eDirectory database that was backed up from the source server in [Step 3](#) on the target server. This includes the NICI keys and the DIB identity.

IMPORTANT: Ensure to backup the target eDirectory database and NICI keys, see [Section 9.6, “Backup eDirectory Database and NICI Keys,” on page 59](#) for more information.

5a At the command prompt of the target server, enter

```
migedir -R
```

On running the above command, you will be prompted for the password of the root user on the target server.

WARNING: If the backup in [Step 3 on page 66](#) was not successful, the *DIB Restore* step fails. A failure at this point may cause the eDirectory service on the target server to be unusable.

- 6 IP Change:** The IP address of the target server and its services is changed to the source server IP address.

WARNING: If you are executing the Migration GUI by using a remote session, the Transfer ID wizard hangs and fails to proceed.

The scripts to be executed in this step are located in the `/opt/novell/migration/sbin/serveridswap/scripts/ipchange/nonplugin` folder.

- ♦ To change the IP address of the server in the `/opt/novell/migration/sbin/serveridswap/scripts/ipchange` folder, enter

```
ruby server-yast-ipchange.rb --old-ip <target_server IP> --ip  
<source_serverIP>
```

For example, `ruby server-yast-ipchange.rb --old-ip 172.16.200.201 --ip 172.16.100.101`

- ♦ The `nonplugin` folder contains a list of scripts that need to be executed for changing the IP address. An example to change the IP address of the services on the target server by using the `iprintipchange.sh` script. In the `/opt/novell/migration/sbin/serveridswap/scripts/ipchange/nonplugin` folder, enter

```
<server-script> <target_server IP> <source_server IP> <source_server  
IP> <source_server IP>
```

For example, `iprintipchange.sh 172.16.200.201 172.16.100.101
172.16.100.101 172.16.100.101`

If you want to execute any additional scripts copy them to the `/ipchange/nonplugin` folder in the same pattern as the existing scripts.

WARNING: Failure of the script to change the IP address or terminating the operation manually, may cause the system to hang. If a service-specific IP address script fails to change the IP address, replace the `<service>.conf` file with `<service>.orig` file.

For example, if eDirectory authentication fails on completion of *IP Change* step, do the following:

```
cp /opt/novell/eDirectory/conf/nds.orig /opt/novell/eDirectory/conf/  
nds.conf
```

-
- 7 Hostname Change:** The hostname of the services is changed to source server hostname.

The scripts to be executed in this step are located in the `/opt/novell/migration/sbin/serveridswap/scripts/hostchange/nonplugin` folder.

- ♦ To change the hostname of the server and the services go to `/opt/novell/migration/sbin/serveridswap/scripts/hostchange` folder, enter

```
<hostname-script> <targethostname> <sourcehostname>
```

For example, `server-hostname-change.sh aus-market201.marketing.com aus-
market101.marketing.com`

If you want to execute any additional scripts copy them to the `nonplugin` folder in the same pattern as the existing scripts.

For example, `./iprinthostnamechange.sh netwarehostname linuxhostname
netwarehostname linuxhostname`

WARNING: Failure of the script to change the hostname or terminating the operation manually, may cause the system to hang. If a service specific hostname script fails to change the hostname, replace the `<service>.conf` with `<service>.orig` file.

For example, if iPrint authentication fails on completion of *Hostname Change* step, do the following:

```
cp /etc/opt/novell/iprint/httpd/conf/iprint_ssl.orig /etc/opt/novell/  
iprint/httpd/conf/iprint_ssl.conf
```

8 Reinitialize Server: Reinitialize the target server with the IP address and hostname of the source server. In this step, eDirectory is also restarted.

- ♦ To re initialize the server, enter

```
/etc/init.d/network restart
```

- ♦ To restart eDirectory, enter

```
/etc/init.d/ndsd restart for restarting nds
```

9 Repair: Next, you need to repair certificates for the server and eDirectory, LUM, and other OES services on the target server.

9a To repair eDirectory, enter

```
/opt/novell/eDirectory/bin/ndsrepair -U
```

9b To restart eDirectory, enter

```
/etc/init.d/ndsd restart
```

9c To create the SAS object, enter

```
/opt/novell/eDirectory/bin/ndsconfig add -m sas -a <admin dn> --  
config-file /etc/opt/novell/eDirectory/conf/nds.conf
```

This step also repairs the certificates for the server and eDirectory.

9d To verify the health of eDirectory, enter

```
ndscheck -h <target-newip> -a <admin dn> -w <adminpass> -F <log  
directory path>
```

9e LUM:

9e1 (Conditional) If the source server is OES2 linux server, enter

```
chown -R wwwrun:www /var/opt/novell/nici/30
```

9e2 To remove the existing nam.conf, enter

```
rm /etc/nam.conf
```

9e3 Create or modify the existing Unix Workstation object:

- ♦ If the source server is NetWare, a new Unix Workstation object is created. Enter the following command,

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/  
nam-reconf.rb -a <admin dn> -s <new ip> -u <Unix config object-  
dn>
```

where `Unix_config_object-dn` is the value of the base-name parameter in the `nam.conf` file. The file was backed up in [Step 2c](#).

- ♦ If the source server is OES 1 Linux or OES 2 Linux, the Unix workstation object is retained. To modify the Unix workstation object, enter

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/
nam-reconf.rb -a <admin dn> -s <new ip> -u <Unix_config_object-
dn>
```

where `Unix_config_object-dn` is the value of the base-name parameter in the `nam.conf` file. The file was backed up in [Step 2c](#).

9e4 To regenerate the certificate on the target server, enter

```
/opt/novell/oes-install/util/getSSCert -a <new ip address> -t
<tree name> -u <admin dn>
```

For example, `eg /opt/novell/oes-install/util/getSSCert -a 172.16.100.101 -t TESTTREE -u cn=admin,o=novell`

You are prompted for the password of the administrator.

9e5 To copy the certificate as the IP address, enter

```
cp /etc/opt/novell/certs/SSCert.der /var/lib/novell-lum/
.<target new_ip address>.der
```

For example, `cp /etc/opt/novell/certs/SSCert.der /var/lib/novell-lum/.172.16.100.101.der`

9e6 To convert the certificate to the pem format, enter

```
openssl x509 -inform der -in /etc/opt/novell/certs/SSCert.der -
outform pem -out /etc/opt/novell/certs/SSCert.pem
```

9e7 (Conditional) If the source server is NetWare, use the following steps to modify the predefined users and groups:

1. To modify the `admingroup`, `www`, and `novlxtier` groups, enter the following commands:

- ♦ `ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-grpmod.rb -H <hostname> -a <admin dn> admingroup`
- ♦ `ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-grpmod.rb -H <hostname> -a <admin dn> www`
- ♦ `ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-grpmod.rb -H <hostname> -a <admin dn> novlxtier`

When prompted, enter the password for the administrator.

2. To modify the `admin`, `wwwrun`, `novlxregd`, and `novlxsvd` users, enter the following commands:

- ♦ `/opt/novell/migration/sbin/serveridswap/scripts/repair/nam-usrmod.rb -H <hostname> -a <admin dn> admingroup admin`
- ♦ `/opt/novell/migration/sbin/serveridswap/scripts/repair/nam-usrmod.rb -H <hostname> -a <admin dn> novlxtier novlxregd`
- ♦ `/opt/novell/migration/sbin/serveridswap/scripts/repair/nam-usrmod.rb -H <hostname> -a <admin dn> novlxtier novlxsvd`

- ♦ `/opt/novell/migration/sbin/serveridswap/scripts/repair/nam-usrmod.rb -H <hostname> -a <admin dn> www wwwrun`
- ♦ `/opt/novell/migration/sbin/serveridswap/scripts/repair/nam-usrmod.rb -H <hostname> -a <admin dn> novlxtier admin`

When prompted for a password, enter the password for the administrator.

9e8 (Conditional) If the source server is OES 1 Linux or OES 2 Linux, modify the users and groups by entering the following command:

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-  
fix.rb -H <sourcehostname> -a <admin dn>
```

10 Restart Server: Restart the target server for the changes to take effect.

On successful completion of the Transfer ID migration, the target server functions with the source server's eDirectory identity.

- Section 11.1, “On completing Transfer ID migration, you are unable to access iManager or Novell Remote Manager via a Web browser on the target server,” on page 71
- Section 11.2, “On executing the Transfer ID scenario, if you terminate the step for changing the IP address, it might cause the system to hang,” on page 71
- Section 11.3, “On executing the Transfer ID scenario, if you terminate the step for changing the Hostname, it might cause the system to hang,” on page 72

11.1 On completing Transfer ID migration, you are unable to access iManager or Novell Remote Manager via a Web browser on the target server

Description: In the Transfer ID migration, certificates were not repaired properly in the *Repair* step.

Action:

- 1 Relaunch the project created for the Transfer ID migration, then authenticate to the target server.
- 2 On successful authentication of the target server, the Transfer ID GUI is launched. The *Finish* and the *Back* buttons are highlighted.
- 3 Click *Back* to reach the *Repair* step, then run the *Repair* step again.
- 4 Restart the target server for changes to be effective.

11.2 On executing the Transfer ID scenario, if you terminate the step for changing the IP address, it might cause the system to hang

Description: Failure of the script to change the IP address or terminating the *IP Change* step manually might cause the system to hang. You must restart the target server and replace the service-specific configuration file with the backup file for the service.

Action: To restore the original IP address of the target server, replace the `<service>.conf` configuration file with the `<service>.orig` backup file for the service.

For example, if eDirectory authentication fails on completion of the *IP Change* step, use the following command:

```
cp /opt/novell/eDirectory/conf/nds.orig /opt/novell/eDirectory/conf/nds.conf
```

where `nds.orig` is the backup service file on the target server and `nds.conf` is the configuration file created during execution of the *IP Change* step.

11.3 On executing the Transfer ID scenario, if you terminate the step for changing the Hostname, it might cause the system to hang

Description: Failure of the script to change the hostname or terminating the *Hostname Change* step manually might cause the system to hang. You must restart the target server and replace the service-specific configuration file with the backup file for the service.

Action: To restore the original hostname of the target server, replace the <service>.conf configuration file with the <service>.orig backed up file of the service.

For example, if iPrint authentication fails on completion of the *Hostname Change* step, use the following command:

```
cp /etc/opt/novell/iprint/httpd/conf/iprint_ssl.orig /etc/opt/novell/iprint/httpd/conf/iprint_ssl.conf
```

where `iprint_ssl.orig` is the backup service file on the target server and `iprint_ssl.conf` is the configuration file created during execution of the *Hostname Change* step.

Security Considerations



- ♦ Chapter 12, “Security Considerations for Data Migration,” on page 75

Security Considerations for Data Migration

12

This section describes how the Novell® Open Enterprise Server 2 (OES 2) file system migration tools can be used in a secure environment. It provides information to help you ensure that authentication credentials and other sensitive data are not compromised through the use of these tools.

For additional security implementation information, see “Security” in the *OES2 SP1: Planning and Implementation Guide*.

- ♦ [Section 12.1, “Root-Level Access Is Required,” on page 75](#)
- ♦ [Section 12.2, “Securing User Credentials,” on page 75](#)
- ♦ [Section 12.3, “Mounting Remote File Systems,” on page 77](#)
- ♦ [Section 12.4, “Transmitting Data Across the Network,” on page 78](#)
- ♦ [Section 12.5, “Managing Passwords for Migrated Users,” on page 78](#)

12.1 Root-Level Access Is Required

To use the OES migration tools, you must be logged in to the target OES 2 Linux server as root or a root-equivalent user.

12.2 Securing User Credentials

You can take precautions to ensure that authentication credentials (usernames and passwords) are securely stored and retrieved when using the OES 2 migration tools.

- ♦ [Section 12.2.1, “How User Credentials Are Stored During a Migration,” on page 75](#)
- ♦ [Section 12.2.2, “How Credentials Are Passed from the Migration GUI Utilities to the Migration Commands,” on page 77](#)
- ♦ [Section 12.2.3, “Managing Credential Storage with migcred,” on page 77](#)
- ♦ [Section 12.2.4, “Securing Credentials When Piping Commands,” on page 77](#)

12.2.1 How User Credentials Are Stored During a Migration

By default, neither the migration GUI utilities (File System Migration Utility and NTFS Migration Utility) nor the command line tools (`mls`, `migfiles`, etc.) store the usernames and passwords entered by the user running the migration.

- ♦ [“Migration Commands” on page 76](#)
- ♦ [“Migration GUI Utilities” on page 76](#)

Migration Commands

When using the migration commands, administrators can choose to use the Novell Common Authentication Service Adapter (CASA) to store credentials during a migration, so that they are not prompted repeatedly for usernames and passwords when authenticating to the source and target servers. This feature can be selected by adding the `--use-casa` option in the migration commands. If this option is used, the username and password information is stored in the CASA secret store.

NOTE: As an alternative to using the `--use-casa` option in the migration commands, you can set the `MIG_USE_CASA` environment variable by using the following export command:

```
export MIG_USE_CASA=1
```

You can set this environment variable in the shell init scripts so that every shell has it set.

Various migration commands provide the `--use-casa` option, which tells the command to obtain the credentials from the CASA store and not prompt the user for them. If the `--use-casa` option is used and the credentials are not found in the CASA store, the command prompts for them and then stores them in the CASA store.

The migration commands use the CASA API library to securely store and retrieve credentials from this secret store. For more information, see the [Novell Common Authentication Services Adapter \(CASA\)](http://developer.novell.com/wiki/index.php/Special:Downloads/casa/Documentation) (<http://developer.novell.com/wiki/index.php/Special:Downloads/casa/Documentation>) documentation.

Migration GUI Utilities

The migration GUI utilities do not use CASA, nor do they store user credentials in any file format. Rather, the utilities accept the user credentials entered for the source server and target server and, after validating them (via secure or non-secure LDAP authentication), the utilities store this information in a proprietary cache. These credentials are used by the applications to execute various migration-related operations. For example:

- ♦ To retrieve NetWare® source volumes, the File System Migration Utility issues an `ncpshell` command.
- ♦ To retrieve Windows source shares, the NTFS Migration Utility issues the `ntresource` command.
- ♦ To carry out migrations, the GUI utilities execute the required migration commands (`mls`, `migfiles`, `maprights`, `maptrustees`, `ntfsmis`, etc.).

The migration utility cache is flushed when the applications are closed.

In a saved migration project, only the IP addresses of the source and target servers, the volume names, and any other migration options, are stored in the `.xml` configuration file. When you open and rerun a saved project, you are prompted to reenter the credentials.

12.2.2 How Credentials Are Passed from the Migration GUI Utilities to the Migration Commands

The GUI utilities execute migration commands within their process context and pass the user credentials whenever required or prompted through their process APIs, which can be hidden from the user. The GUI applications neither set the credentials in environment variables nor use the CASA store, even though the migration commands provide the option.

To pass credentials to the migration commands, the GUI utilities open a terminal connected to the standard input and feed in the password to the command line prompt.

12.2.3 Managing Credential Storage with migcred

As mentioned previously, administrators can choose to store user credentials in CASA so that they are not prompted for usernames and passwords every time they perform a migration task.

You can use the `migcred` command to control and manage what is stored in the CASA secret store. This command provides options to store, view, and delete information for a particular identity. With the necessary user credentials stored in CASA, usernames and passwords can be retrieved as needed by other migration commands.

12.2.4 Securing Credentials When Piping Commands

Administrators might also want to pipe the output of one migration command to another, so they cannot feed usernames and passwords to the commands through the console. Using the CASA secret store provides a way to protect this secure information when piping migration commands.

The user must include the `--use-casa` option when building the pipelines. For example:

```
mls -s 192.168.131.135 -v V1 --use-casa | maptrustees -s 192.168.131.135 -r --use-casa
```

12.3 Mounting Remote File Systems

The OES 2 migration tools, which run on the target OES 2 Linux server, must mount the remote file systems of the source servers in order to obtain information about the source volumes and to copy the specified data to the target server.

- ♦ [Section 12.3.1, “NetWare and OES 1 Linux Source Servers,” on page 77](#)
- ♦ [Section 12.3.2, “Windows Source Servers,” on page 78](#)

12.3.1 NetWare and OES 1 Linux Source Servers

For NetWare and OES 1 Linux migrations, the `mls` and `migfiles` commands require an NCP™ mount. They use the `ncpmount` command to map the remote volume to `/tmp/migrate`, and then read data from the `_admin` volume to validate the source path. These commands unmount the file system upon termination. If the process is killed forcibly (`kill -9`), the mount point remains mounted and must be unmounted by the administrator.

For NetWare source servers, the `mls` command also uses the NCP mount to copy the output file of `tcnvlrx.nlm`. For OES 1 Linux source servers, `mls` reads the `.trustee_database.xml` file from the source volume's `._NETWARE` folder to build the list of trustees.

12.3.2 Windows Source Servers

For Windows migrations, `migfiles` uses the `mount.cifs` command to mount the remote Windows share to `/tmp/migrate`. It then uses `rsync` to copy the files to the target volume. The remote share is unmounted after the files are copied. If the process is killed forcibly (`kill -9`), the mount point could possibly remain mounted. If so, it must be unmounted by the administrator.

12.4 Transmitting Data Across the Network

The OES migration tools use Novell Storage Management Services™ (SMS) to copy data from NetWare and OES 1 Linux source servers, and they use `rsync` to copy data from Windows source servers. Data is not encrypted when it is transmitted across the network.

12.5 Managing Passwords for Migrated Users

When performing a tree-to-tree migration or a migration from Windows to OES 2 Linux, you have the option to migrate users into the target server's eDirectory™ tree. If you are migrating users, you have two choices for passwords:

- ♦ Generate random passwords for the migrated users (by using the `-r` option of the `maptrustees` command)
- or
- ♦ Assign a specific password for all migrated users (by using the `-s` option of the `maptrustees` command)

If neither `-r` nor `-s` is used, users are created without a password and the user accounts are locked until they are manually assigned a password by the administrator, using iManager or other eDirectory management tools. Null passwords (`-s ""`) are not allowed.

The new passwords are recorded in the `maptrustees` output file. This file is then used as an input to the `migtrustees` command and possibly the `mignotify` command. To avoid password theft, dispose of this file in a secure manner after you have communicated the new passwords to their respective users.

For an example of how to use `mignotify` to notify migrated users of their new passwords, see [“mignotify” on page 123](#).

Data Migration

VI

- ♦ Chapter 13, “Migrating Data from Windows to OES 2 SP1 Linux,” on page 81
- ♦ Chapter 14, “Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP1 Linux,” on page 93

Migrating Data from Windows to OES 2 SP1 Linux

13

This section explains how to migrate data from Microsoft Windows servers to Novell® Open Enterprise Server 2 (OES 2) SP1 Linux servers.

NOTE: To migrate data from Windows to an OES 2 SP1 Linux server, use the Migrate Windows Shares utility. The Migration Tool with OES 2 SP1 does not support Windows migration.

- ♦ [Section 13.1, “Prerequisites,” on page 81](#)
- ♦ [Section 13.2, “Using the Migration Commands,” on page 82](#)
- ♦ [Section 13.3, “Using the Migrate Windows Shares Utility,” on page 84](#)

13.1 Prerequisites

To perform migration, you must be an eDirectory™ administrator. Migration is not supported if you are a Domain Services for Windows (DSfW) administrator.

For the source server:

- ☐ The OES migration tools support Windows NT/2000/2003 sources with NTFS file system data and Active Directory* domains.
- ☐ The source must be a Primary Domain Controller (PDC).
- ☐ The source path must be exported as a Windows share.
- ☐ You need the credentials of the Administrator or equivalent user with full access rights to the exported Windows share.

For the target server:

- ☐ Make sure that the `samba-client` software package is installed.

The `samba-client` package is installed by default with SUSE® Linux Enterprise Server (SLES) 10 SP1. To verify that it is installed, select *Computer > YaST > Software > Software Management* and search for `samba-client`.

- ☐ Create the required target volumes by using `nssmu` (for NSS volumes) or `ncpcon` (for NCP™ volumes).
- ☐ If you want to use the CASA secret store to store usernames and passwords during the migration, ensure that the following RPM is installed:

`CASA-1.7-xxx.i586.rpm`

Restart the CASA daemon by entering the following command:

```
/etc/init.d/micasad restart
```

For more information, see “[Using CASA with Linux](#)” in the *Novell Common Authentication Services Adapter (CASA)* documentation.

13.2 Using the Migration Commands

This section covers data migration from the NTFS file system on Windows NT, 2000, or 2003 source machines to NSS or NCP volumes on OES 2 SP1 Linux servers.

- ♦ [Section 13.2.1, “Migration Commands to Use,” on page 82](#)
- ♦ [Section 13.2.2, “Migration Steps,” on page 82](#)
- ♦ [Section 13.2.3, “Example,” on page 82](#)
- ♦ [Section 13.2.4, “Limitations,” on page 83](#)
- ♦ [Section 13.2.5, “Troubleshooting,” on page 84](#)

13.2.1 Migration Commands to Use

The main command to use is `migfiles`. To map the users and groups from the source domain to the target eDirectory tree, you need to use `ntfsm ls`, `maptrustees`, and `migtrustees`. To map the user and group permissions, you also need to use `ntfsm ls`, `ntfsmap`, and `migrights`.

13.2.2 Migration Steps

- 1 Run the `migfiles` command to copy the data from the source to the target server.
- 2 Capture the ACL and rights information of the Windows share by running `ntfsm ls` and redirecting the output to a file.
- 3 Generate a list of users and groups who have rights to the files on the source share by running `ntuserls`.
- 4 Run the following commands in the order specified to map the Windows users and groups in the generated list to eDirectory users and groups and to create the new users and groups in the target tree:

```
maptrustees  
migtrustees
```

- 5 Run the following commands in the order specified to map the Windows users' rights to eDirectory/NSS or NCP trustee rights:

```
ntfsmap  
migrights
```

13.2.3 Example

The following example shows how to migrate data from a Windows share to an NSS volume on an OES 2 SP1 Linux server.

- 1 Migrate the files from a share named WinShare on a Windows source server with an IP address of 192.168.1.3 to a target NSS volume named NSSVOL:

```
migfiles -n -w -s 192.168.1.3 -v WinShare -i -V NSSVOL
```

If you are migrating to a target NCP volume named VOL1, omit the `-n` option:

```
migfiles -w -s 192.168.1.3 -v WinShare -i -V VOL1
```

The `migfiles` command mounts the Windows share by using a CIFS mount and copies the files using `rsync`.

- 2 Capture the ACL and rights information of the Windows share to an output file:

```
ntfsmcls -s 192.168.1.3 -v WinShare > ntfsmcls.yaml
```

- 3 Generate a list of users and groups who are assigned as authorized users for the files (with their ACLs) on the source share:

```
ntuserls -g -s 192.168.1.3 ntfsmcls.yaml > ntuserls.yaml
```

Be sure to include the `-g` option.

- 4 Map the Windows users and groups in the generated list to eDirectory users and groups:

```
maptrustees -s 192.168.1.3 -C DC=adminusers,DC=Windows, DC=Domain -k  
ou=winusers,o=org -r ntuserls.yaml > maptrustees.yaml
```

The `maptrustees` command uses LDAP to retrieve the user attributes from Active Directory.

Use the `-C` option to specify the Administrator user context.

All Windows users are migrated into a single eDirectory container specified by the `-k` option (`ou=winusers.o=org` in this example).

The `-r` option is for generating random passwords. If this option is used, each user is assigned a random password stored in the `maptrustees` output file (`maptrustees.yaml` in this example). If you want to assign users specific passwords, use the `-s` option instead of the `-r` option.

- 5 Migrate/create the mapped users in the target eDirectory tree:

```
migtrustees -d 192.168.1.67 maptrustees.yaml
```

- 6 Map the Windows users' rights to their files and folders to eDirectory/NSS trustee rights:

```
ntfsmap -n -k ou=winusers,o=org -V NSSVOL ntfsmcls.yaml > ntfsmap.yaml
```

If you are migrating to a target NCP volume, omit the `-n` option:

```
ntfsmap -k ou=winusers,o=org -V NCPVOL ntfsmcls.yaml > ntfsmap.yaml
```

- 7 Migrate/assign the eDirectory/NSS trustee rights on the target volume:

```
migrights -i ntfsmap.yaml > migrights.yaml
```

13.2.4 Limitations

Be aware of the following limitations when migrating file system data from Windows to OES 2 SP1 Linux:

- ♦ The Active Directory hierarchy is not maintained. All Windows users are migrated into a single eDirectory container.
- ♦ The OES migration tools support the migration of Windows users and groups only. They do not support the migration of other Active Directory objects.
- ♦ Migration of a Windows Encrypted File System (EFS) is not supported in this release of the OES migration tools.
- ♦ Only the following Windows user attributes are migrated:

description

mail

facsimileTelephoneNumber

fullName
givenName
initials
language
physicalDeliveryOfficeName
postOfficeBox
postalCode
st
street
telephoneNumber
title

- ♦ Windows Allow rights are supported, but not Deny rights.
- ♦ The OES migration tools do not migrate file sharing permissions, only user rights assigned in the security permissions.
- ♦ The OES migration tools do not support special Windows file types such as DFS junctions, shortcuts, and so on.

13.2.5 Troubleshooting

If the CIFS mount fails during the `migfiles` operation, try using the `mount.cifs` command to resolve issues related to mounting the source share.

If `migfiles` fails to unmount the Windows share from `/tmp/migrate`, use the following command to unmount the source share:

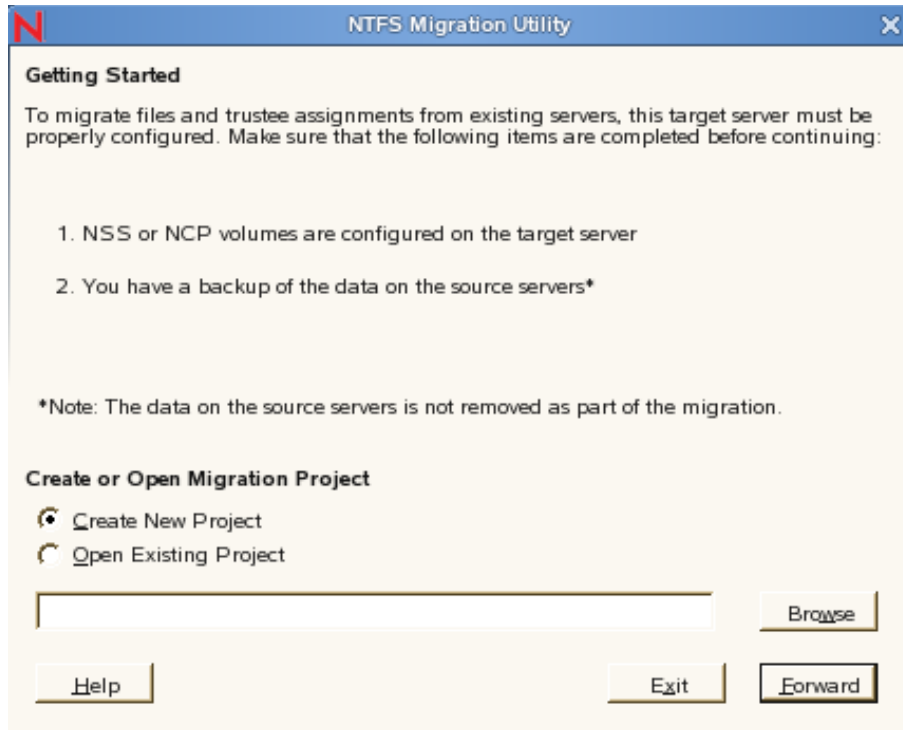
```
umount -i /tmp/migrate
```

13.3 Using the Migrate Windows Shares Utility

When you install an OES 2 Linux server or later, the Migrate Windows Share utility is automatically installed through YaST. This utility lets you perform basic data migrations from Windows to OES 2 SP1 Linux by using a graphical user interface (GUI) instead of command line tools.

To migrate Windows data shares:

- 1 Prepare the source and target servers as instructed in [Section 13.1, “Prerequisites,” on page 81](#).
- 2 On the target server, access the utility from the desktop by selecting *Computer > YaST Administrator Settings > Open Enterprise Server > Migrate Windows Shares*.



3 (Optional) Create a new migration project:

3a Select *Create New Project*.

3b Specify the path to where you want the project file to be saved, or click *Browse* and select the path.

The default path is `/root/Desktop/` and the default project name is `newProject.xml`. You can change the path and project name as necessary.

A subdirectory with the same name as the project is created in the specified path. The associated output and log files for the project are stored in this subdirectory.

If a project with the same name already exists in the specified path, you are prompted whether you want to replace the old file. If you click *OK*, the new project overwrites the old one.

3c Click *Forward*.

3d Skip to **Step 5**.

4 (Optional) Open an existing migration project. Select *Open Existing Project*, click *Browse*, select a project file (`project_name.xml`), then click *Forward*.

If a selected file is not a valid migration project file, an error is displayed and you are prompted to select a valid project file.

The screenshot shows a window titled "NTFS Migration Utility" with a red 'N' icon. The main heading is "Source Server Authentication". Below it, a text block says: "Enter the following information for the Primary Domain Controller (PDC). The PDC is the domain from which you will migrate data to the target server." There are three input fields: "PDC" with a hint "(e.g. 192.168.xxx.xxx or Host Name)", "User Name" with a hint "(e.g. administrator or cn=admin,cn=users,dc=novell)", and "Password". Below these is a checked checkbox labeled "Authenticate using Secure Socket Layer (SSL)". At the bottom are four buttons: "Help", "Cancel", "Back", and "Forward".

5 Authenticate to the source Windows domain:

- 5a** In the *PDC* (Primary Domain Controller) field, specify the IP address or DNS name of the PDC server.
- 5b** In the *User Name* field, specify the fully distinguished, typeful name of an Active Directory user with admin rights, or the Windows administrator of the source server.
Use either the simple form (Administrator) or the LDAP comma-delimited format (cn=admin,cn=users,dc=novell).
- 5c** In the *Password* field, specify the password for the user.
The *Authenticate using Secure Socket Layer (SSL)* option is unavailable for Windows source servers.

5d Click *Forward*.

The screenshot shows a window titled "NTFS Migration Utility" with a close button (X) in the top right corner. The main heading is "Target Server Authentication". Below it, a message states: "This Server is not in the same eDirectory tree as the source server you specified. Enter the following information for the target eDirectory tree." There are three input fields: "Server" with the value "127.0.0.1" and a hint "(e.g. 192.168.xxx.xxx or Host Name)", "User Name" which is empty with a hint "(e.g. cn=admin,o=companyname)", and "Password" which is empty. Below these fields is a checked checkbox labeled "Authenticate using Secure Socket Layer (SSL)". At the bottom, there are four buttons: "Help", "Cancel", "Back", and "Forward".

6 Authenticate to the target tree.

6a In the *Server* field, specify the IP address or DNS name of the target server.

6b In the *User Name* field, specify the fully distinguished, typeful name of a user with admin rights in the target tree.

Use the LDAP (comma-delimited) format. For example: cn=admin,o=novell

6c In the *Password* field, specify the password for the user.

6d Decide whether to use a secure connection.

- ♦ To use a secure connection for LDAP authentication, make sure the *Authenticate using Secure Socket Layer (SSL)* option is selected (the default setting).

When this option is selected, you must also ensure that TLS is enabled for LDAP on the source server. In iManager, click *LDAP > LDAP Options > LDAP Group-server_name > Authentication Options* and verify that *Require TLS for Simple Binds with Password* is selected (it is selected by default).

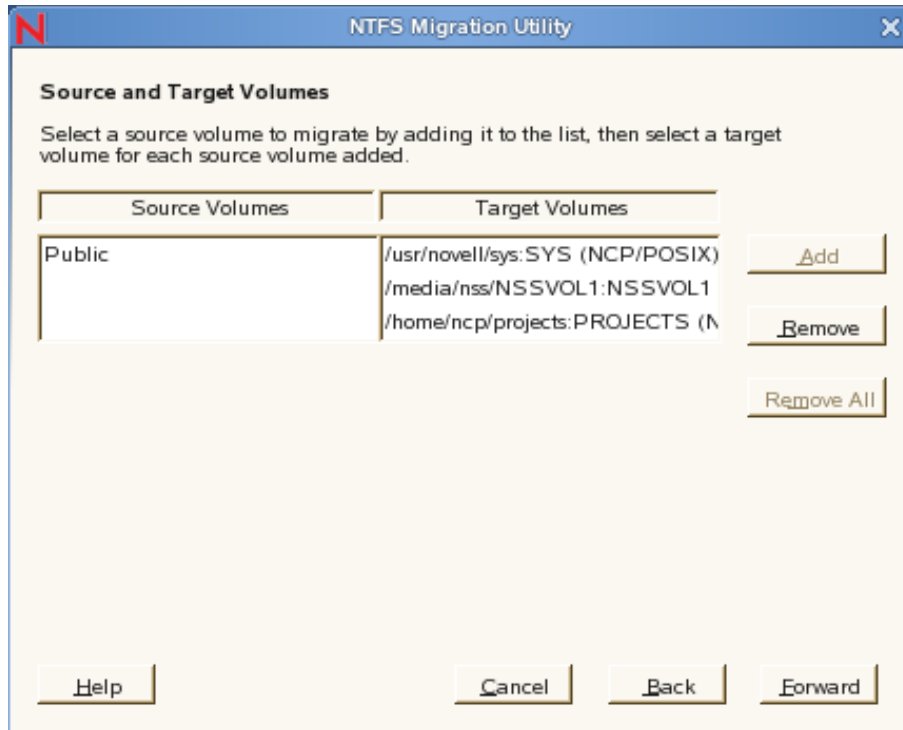
- ♦ If you do not want to use a secure connection, deselect the *Authenticate using Secure Socket Layer (SSL)* option.

You must also disable TLS for LDAP on the source server by using *iManager > LDAP > LDAP Options > LDAP Group-server_name > Authentication Options* and deselecting *Require TLS for Simple Binds with Password*.

Failure to set these options as instructed can result in unpredictable system behavior.

6e Click *Forward*.

7 Select the source and target volumes.



7a Click *Add*.

7b In the *Source Volumes* column, select the source share you want to migrate.

In the *Target Volumes* column, select the corresponding target volume.

The target volume type is displayed after the volume path:

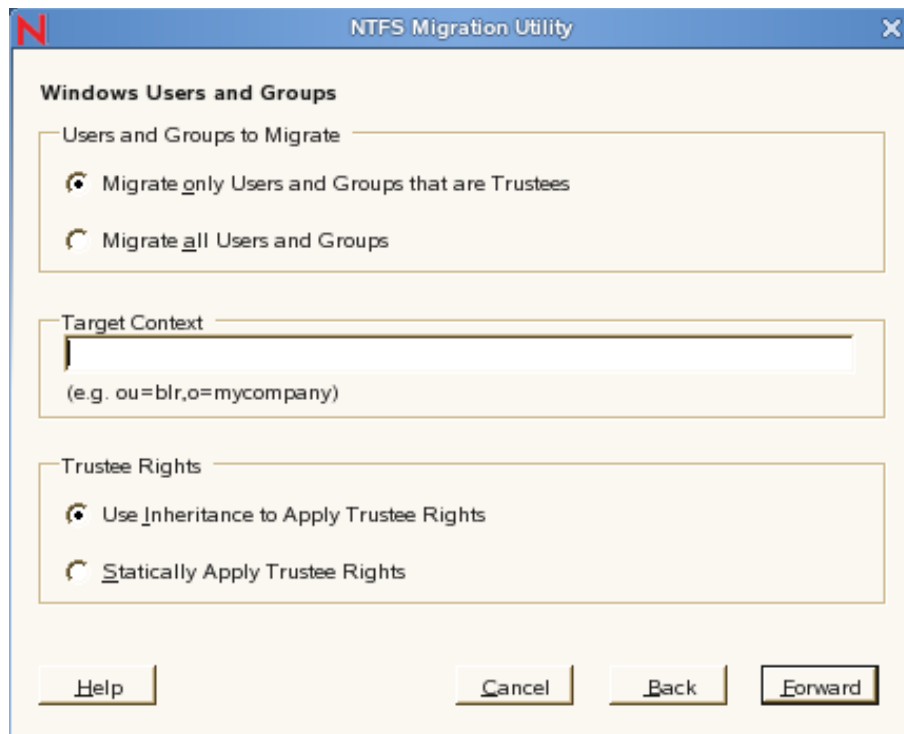
- ♦ NSS indicates a Novell Storage Services™ volume.
- ♦ NCP/POSIX indicates a NetWare Core Protocol™ volume on a Linux POSIX file system, such as EXT3 or XFS.

If no entry is selected for the source or target volume, the first volume listed in the respective column is selected by default.

7c If necessary, click *Remove* to clear the source and target volume entries and start over.

The *Remove All* button is not functional in this release.

7d When you have selected the desired source and target volumes, click *Forward*.



8 Specify the settings for migrating the Windows users and groups.

8a The *Users and Groups to Migrate* setting determines which users and groups to migrate from the Windows domain. Select one of the following options:

- ♦ Select *Migrate Only Users and Groups That Are Trustees* (the default) to migrate only users and groups that have been assigned permissions to the data.
- ♦ Select *Migrate All Users and Groups* to migrate all users and groups in the Windows domain regardless of whether they have been assigned permissions to the data.

8b In the *Target Context* field, specify the container in the target eDirectory tree where you want User and Group objects to be created for the migrated Windows users and groups.

Use LDAP (comma-delimited) format. For example: ou=blr,o=mycompany.

If the specified context does not exist, it is created in the target tree.

8c The *Trustee Rights* setting specifies whether or not you want to use inheritance to apply trustee rights. Select one of the following options:

- ♦ Select *Use Inheritance to Apply Trustee Rights* (the default) if you want the migrated data to take advantage of the Novell rights model, which allows rights set at one level to flow down to lower levels in the file system hierarchy.
- ♦ Select *Statically Apply Trustee Rights* if you want trustee rights to be explicitly assigned at each level in the file system hierarchy.

In this release of the OES migration tools, selecting *Statically Apply Trustee Rights* has no effect. The migration always uses the default setting.

8d Click *Forward*.

The screenshot shows the 'NTFS Migration Utility' window with the 'File Migration Options' tab selected. The window has a blue title bar with a red 'N' icon. The main area is yellow and contains three sections: 'Duplicate File Resolution' with two radio buttons ('Always Copy Source File' selected), 'File Date Filters' with two columns ('After' and 'Before') each having 'Last Accessed' and 'Last Modified' fields with 'Set' and 'Clr' buttons, and 'File Type Filter' with a text box containing '(e.g. *.mp3,*.prj)'. At the bottom are 'Help', 'Cancel', 'Back' (highlighted with a dashed border), and 'Forward' buttons.

9 Specify the file migration options you want to use for this migration project.

9a The *Duplicate File Resolution* setting determines what action should occur when a file is being copied from the source server and a file with the same name and path exists on the target server. Select one of the following options:

- ♦ Select *Always Copy Source File* (the default) if you want the source files to overwrite files with the same name on the target server.
- ♦ Select *Never Overwrite Existing File* if you do not want the source files to overwrite files with the same name on the target server.

9b Select the filter options you want.

The *File Date Filters* let you set date ranges for *Last Accessed* and *Last Modified* to filter the files that are migrated from the source server.

Only the Last Modified After filter is functional in this release of the OES migration tools.

- ♦ If no filters are set, files are migrated regardless of their Last Accessed and Last Modified dates.
- ♦ If you specify a date in the *After* column, only files accessed or modified after the specified date are migrated.
- ♦ If you specify a date in the *Before* column, only files accessed or modified before the specified date are migrated.
- ♦ If you set both an *After* and a *Before* date, only files accessed between the two specified dates are migrated.

For each date filter setting, click *Set* to select a date from a calendar, or type a date in DD-MM-YYYY hh:mm:ss format. If necessary, click *Clear* to remove the date.

The File Date Filters are inclusive in nature, meaning all files that fall within the specified date ranges are migrated.

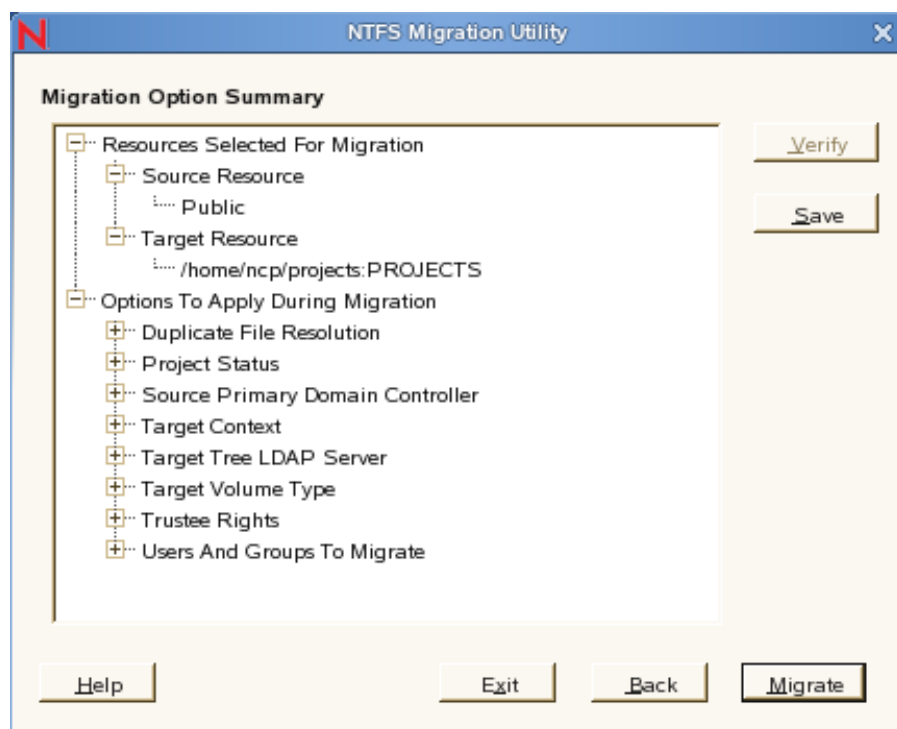
9c (Optional) Select File Type filter options.

The *File Type Filter* lets you exclude all files of a specific type, as well as individual filenames.

Enter filenames or extensions. Wildcard (*) specifications are permitted. For example, entering *.mp3 excludes all files with an extension of .mp3 from being migrated. Entering samplefile.txt excludes any files with this name from being migrated. Use a comma to separate multiple entries; for example: *.mp3, *.mov, *.tmp

The File Type Filter is exclusive in nature, meaning all files that match the filter patterns are not migrated.

9d When you have finished selecting your migration options, click *Forward*.



10 Review the migration option summary:

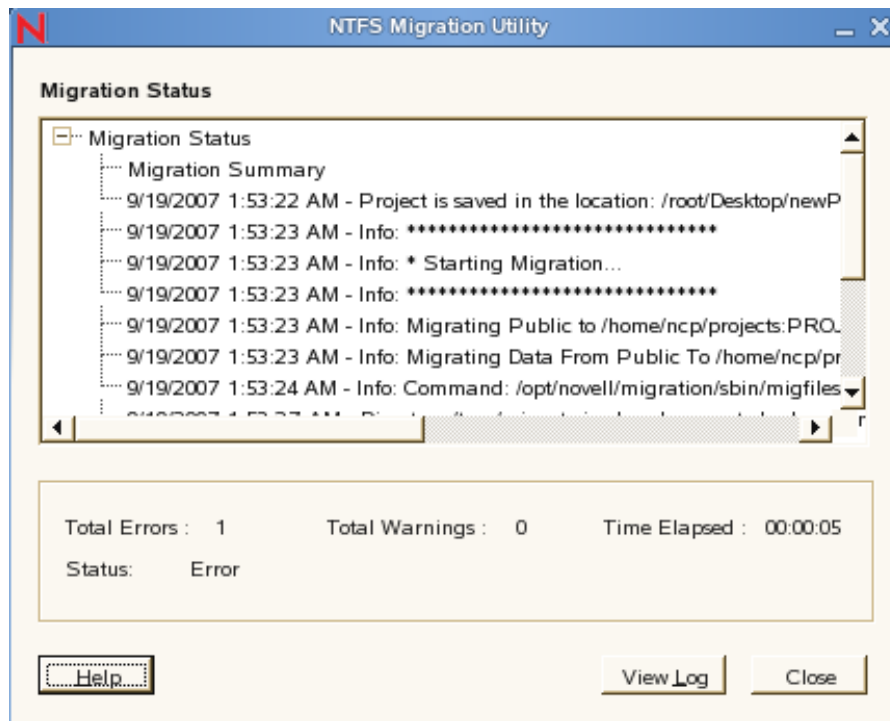
10a Expand the entries to verify that you have made the correct selections.

10b Take the appropriate action:

- ◆ If needed, click *Back* to go back through the previous pages and change the migration settings.
- ◆ If you do not want to start the migration now, click *Save* to save the settings to the migration project file. You can open and continue the migration project later.
- ◆ Click *Cancel* to exit the project without performing the migration.
- ◆ Click *Migrate* to start the migration process. Continue with [Step 11](#).

The *Verify* button is enabled only after the migration has completed (see [Step 14 on page 92](#)).

- 11 Monitor the progress of the migration project.



The Migration Status window displays the progress of the migration, and the field below shows the total number of errors and warnings, the time elapsed, and a status message.

- 12 When the migration finishes or if it stops prematurely, click *View Log* to open the log file (`project.log` in the project folder) in a text editor.

The log file records everything displayed in the Migration Status window. You should review the log to verify the success of the migration.

If errors occurred, the messages recorded in the log file can help you determine what needs to be corrected before you attempt the migration again.
- 13 Click *Close* to close the Migration Status window.
- 14 (Conditional) To ensure that everything was migrated correctly, click *Verify* and review the log file again.
- 15 Click *Exit* to exit the *Migrate Windows Shares* utility.

Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP1 Linux

14

This section provides information on how to migrate the file system running on NetWare® or Open Enterprise Server (OES) Linux to OES 2 SP1 Linux. In this section, the NetWare server, OES 1 Linux, and OES 2 Linux servers are referred to as the source server and the OES 2 SP1 Linux server is referred to as the target server.

14.1 Preparing for File System Migration

To prepare your network for file system migration complete the tasks in the following sections:

- ♦ [Section 14.1.1, “Prerequisites,” on page 93](#)
- ♦ [Section 14.1.2, “Migration Scenarios,” on page 95](#)
- ♦ [Section 14.1.3, “GUI Limitations,” on page 96](#)
- ♦ [Section 14.1.4, “Migration Procedure,” on page 96](#)

14.1.1 Prerequisites

- ♦ [“Source Server Requirements” on page 93](#)
- ♦ [“Target Server Requirements” on page 94](#)

Source Server Requirements

- ♦ [“NetWare Server” on page 93](#)
- ♦ [“OES 1 or OES 2 Linux Server” on page 94](#)

NetWare Server

On the source NetWare server:

- ♦ Shut down any applications, products, or services (virus scan software, backup software, etc.) running on the server to be migrated.
- ♦ Ensure that the latest version of Storage Management Services™ (SMS) is running on the source NetWare server.

SMS updates can be downloaded from the [Novell Downloads Web site \(http://www.novell.com/download\)](http://www.novell.com/download).

- ♦ When migrating data from a Traditional NetWare volume, ensure that the NPM files for NFS and name space are loaded on the Traditional NetWare Volumes.
- ♦ Although data on the source server is not deleted as part of the migration, we recommend that you back up your data.

OES 1 or OES 2 Linux Server

On the source OES Linux server:

- ♦ Shut down any applications, products, or services (virus scan software, backup software, etc.) running on the server to be migrated.
- ♦ Ensure that the server is running OES 1 SP2 or OES 2 with all the available patches in the channel.
- ♦ Ensure that the latest version of Storage Management Services (SMS) is running on the server.
- ♦ Ensure that the latest version of NetWare Core Protocol™ (NCP™) is installed on the server.
- ♦ Ensure that source volumes on OES 1.0 or OES 2.0 Linux servers are NSS volumes, NCP volumes, or POSIX volumes.

NOTE: The Migration Tool GUI does not support POSIX file system migration. Create an NCP volume with the POSIX path that you want to migrate, then migrate the NCP volume.

- ♦ To migrate data from NCP volumes on OES 1 server, ensure that you have done the following:
 - ♦ Install the Novell Client™ 2.0 SP1 for Linux
 - ♦ Restart SMS by running the following command:

```
rcnovell-smdrd restart
```
 - ♦ Ensure that the user performing migration has read/write/access rights to back up the files on the NCP volume.
- ♦ To perform migration, the user must have read/write/access permissions to the source server

Target Server Requirements

- ♦ Ensure that the server is running OES 2 SP1.
- ♦ Services to be migrated must be installed and configured on the target server.
- ♦ If the source server is running NetWare 5.1 SP8 and your data contains extended ASCII or Unicode* characters, add the following setting to the `/etc/opt/novell/sms/tsafs.conf` file of the target server:

```
useCodeSet=xxx
```

For `xxx`, substitute the code page value set on the NetWare server. For example, the default code page is 437. (Alternate forms include CP437, CSPC8CODEPAGE437, and IBM437.) For more information and a list of code page values, see “Code Pages” in the *NetWare 5.1 Server Operating System Guide* (http://www.novell.com/documentation/nw51/sos__enu/data/hu3pac0y.html#hu3pac0y).

Restart SMS by running the following command:

```
rcnovell-smdrd restart
```

The following additional prerequisites must be met for NSS and NCP target volumes:

- ♦ “For NSS Target Volumes” on page 95
- ♦ “For NCP Target Volumes” on page 95

For NSS Target Volumes

- ❑ Use the Novell Storage Services Management Utility (nssmu) or iManager to create the NSS volumes to which you will be migrating the data. Ensure that you allocate sufficient space for the volume to hold all of the source data.
- ❑ Ensure that the target volumes have similar properties to the source volumes. For example, if compression is turned on for the source volume, turn on compression for the target volume as well. The same applies to user quotas and other NSS features.
- ❑ If you want to use the CASA secret store to store usernames and passwords during the migration (via the `--use-casa` option), ensure that the following RPM is installed on the OES 2 Linux server:

`CASA-1.7-xxx.i586.rpm`

Restart the CASA daemon by entering the following command:

```
/etc/init.d/micasad restart
```

For more information, see “[Using CASA with Linux](#)” in the *Novell Common Authentication Services Adapter (CASA)* documentation.

For NCP Target Volumes

- ❑ Use the NCP Server Console utility (ncpcon) to create the NCP volumes.
- ❑ Ensure that the user performing the migration has read/write/access rights to the POSIX path that corresponds to the NCP volume.

14.1.2 Migration Scenarios

The procedures for migrating file system data from the NSS volumes or Traditional volumes on NetWare or from the NSS volumes on OES 2 Linux vary depending on whether the source server and target server are in the same eDirectory tree or in different eDirectory trees. This section covers the following scenarios:

- ♦ “[Consolidating Data to a Server in the Same Tree](#)” on page 95
- ♦ “[Consolidating Data to a Server in a Different Tree](#)” on page 96
- ♦ “[Transfer ID](#)” on page 96

NOTE: For more information about migration scenarios, see [Chapter 1, “Overview of the Migration Tools,”](#) on page 15.

Consolidating Data to a Server in the Same Tree

The source file system volumes are migrated to the target file system volumes within the same eDirectory tree.

The following are migrated from the source server to target server:

- ♦ Volumes, folders and files
- ♦ Users and their trustee rights

Consolidating Data to a Server in a Different Tree

The source file system volumes are migrated to the target file system volumes in a different eDirectory tree.

The following are migrated from the source server to target server:

- ♦ Volumes, folders and files
- ♦ Users and their trustee rights
- ♦ Create users in the Tree B. Tree B represents the target file system volumes.
- ♦ Specify a global password for the new users created on the target server.

Transfer ID

In the Transfer ID scenario a series of tasks are executed for transferring the server identity of the source server to the target server. In the Migration Tool GUI, the file system is configured, then migrated. On successful migration of all of the services, the Start button changes to Transfer ID. For more information, see [Part IV, “Transfer ID Migration,” on page 51](#).

No additional steps are required for migrating a file system by using the Transfer ID scenario.

14.1.3 GUI Limitations

In the File System window, foldernames with non-English characters are not displayed when you configure the file system for migration in *Volume Information > Source Server*.

14.1.4 Migration Procedure

Use either of the following methods to perform a file system migration:

- ♦ [Section 14.2, “Migrating a File System by Using the GUI Migration Tool,” on page 96](#)
- ♦ [Section 14.3, “Migrating the File System by Using the Command Line Utilities,” on page 104](#)

14.2 Migrating a File System by Using the GUI Migration Tool

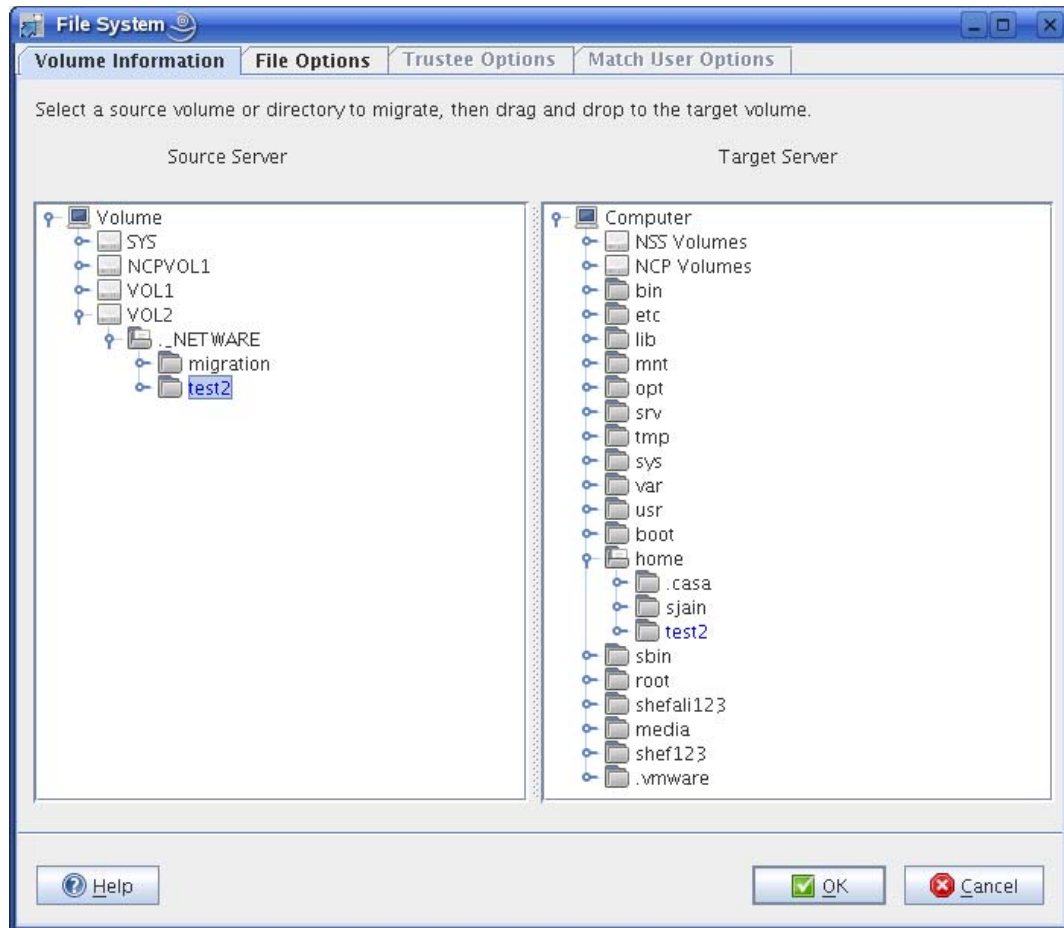
After you have completed the prerequisites procedures in [Section 14.1, “Preparing for File System Migration,” on page 93](#), you are ready to migrate the source server.

- 1 Launch the Migration Tool, using either of the following methods:
Desktop: Click *Computer > More Applications > System > Novell Migration Tools* to launch the Migration GUI.
Terminal Prompt: Log in as the `root` user and at a terminal prompt, enter `miggui`
- 2 Enter your authentication credentials for the source server and target server.
File System is listed in the *Service* panel.
- 3 Depending on the type of migration to perform, select the *Migration Type* as *Consolidate* or *Transfer ID*.
- 4 In the *Services* panel, click *Add* and select *File System*.

The *Status* of the service is *Not Configured*.

IMPORTANT: File System is listed in the Service panel list only if it installed and configured on the target server.

- 5 To configure migration parameters for the file system, select *File System*, then click *Configure*.





Tabs	Purpose
Volume Information	Identify the volumes or folders that you want to move from the selected source server to a selected target server. By default, all of the data in the volumes or folders that you select for migration in the source server tree is migrated to the target server.
File Options	Customize the files and quotas that are migrating to the target server. You can also specify the home directory location and set options to synchronize the file system.
Trustee Options	You can migrate the trustee rights of the users from the source server to target server. You can also specify the global password for the new users created on the target server. This tab is enabled only in a Different Tree scenario.
Match User Options	You can specify which users to migrate and how to handle the migration if the user already exists on the target server. This tab is enabled when you select the Custom User mapping option in the Trustee Options page.

- 5a** In the *Volume Information* tab, in the *Source Server* tree, select the volume or folder that you want to migrate, then drag and drop it in the *Target Server* tree.

NOTE: In the *Source Server* tree, you cannot expand the volume or folder when you copy to the *Target Server* tree.

For explanation on different tasks that can be performed in the Volume Information tab, refer to the table below, else proceed with default settings to **Step 5b**.

Task	Description
Removing Volumes or Folders from the Target Server	In the target server tree, right-click the volume or folder that you have decided not to migrate, then select <i>Undo</i> . The folder no longer appears under the target server tree and is no longer a candidate for migration.
Volumes or Folders selected for migration	The volumes or folders that are selected for migration are highlighted in blue in the <i>Source Server</i> tree and the <i>Target Server</i> tree.

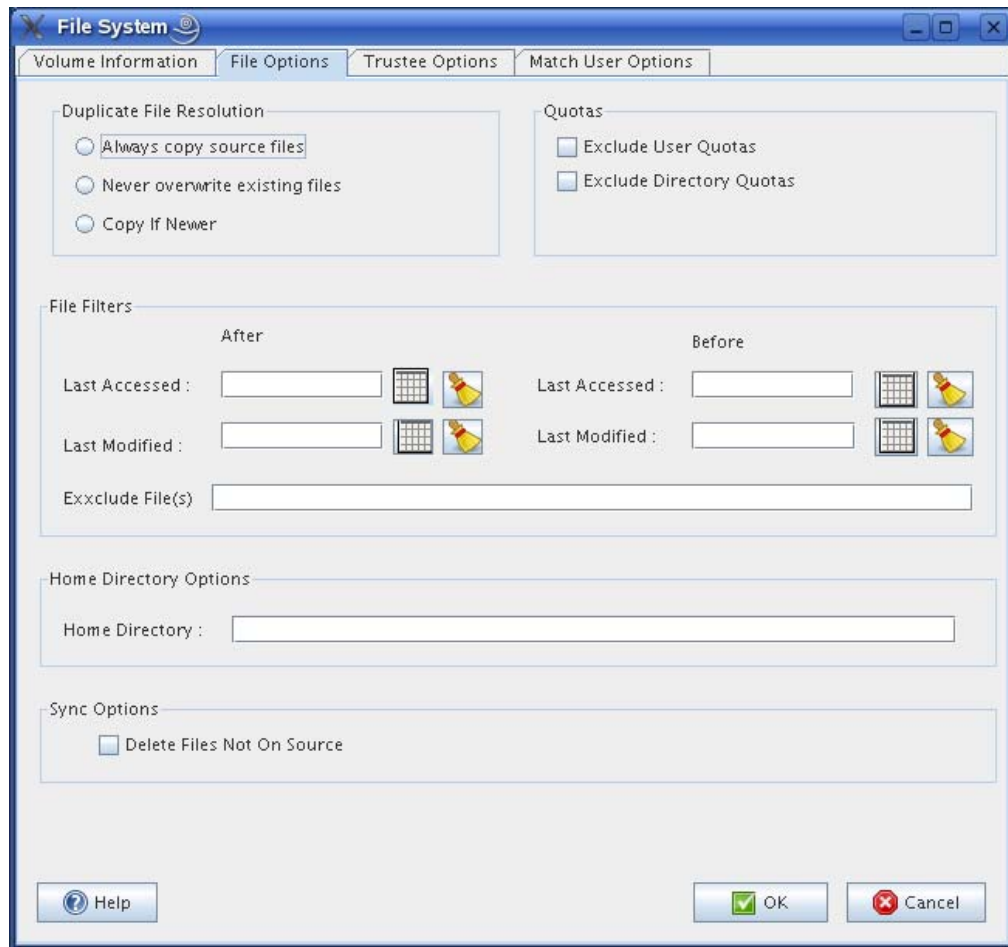
Task	Description
Target Location	<p>After you have selected volumes and folders for migration, you might want to identify the path of the folder or volume moved to the target server.</p> <ul style="list-style-type: none"> In the <i>Source Server</i> tree, right-click the volume or folder that is selected for migration, then click <i>Target Location</i> from the drop-down menu. The tree in the <i>Target Server</i> view expands to display the volume or folder that was copied from the source server. 
Source Location	<p>After you have selected volumes and folders for migration, you might want to identify the path of the folder or volume moved from the source Server.</p> <ul style="list-style-type: none"> In the <i>Target Server</i> tree, right-click the volume or folder that is highlighted for migration, then click <i>Source Location</i> from the drop-down menu. The tree in the <i>Source Server</i> view expands to display the volume or folder that was copied to the <i>Target Server</i>. 

5b Click the *File Options* tab, then click *OK* to accept the defaults.

or

Use the options to customize the files and quotas to migrate to the target server, then click *OK* to save the settings.

For explanation of the different tasks that can be performed in the File Options page, refer to the Table below.



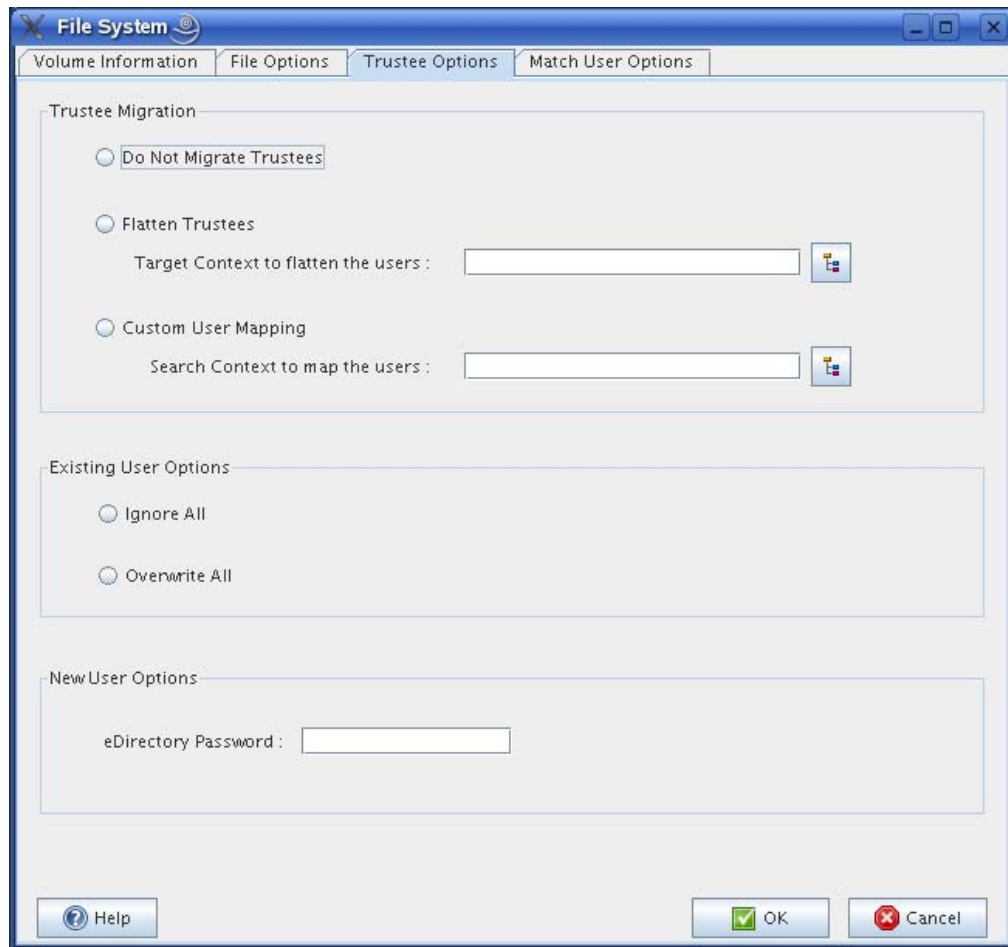
Task	Description
Duplicate File Resolution	<p>Determines what action to take when a file copied from the source server has the same filename as an existing file on the target server. Specify one of the following resolutions:</p> <ul style="list-style-type: none"> ♦ Always Copy Source File (default): The migrated file always overwrites the existing file. ♦ Never Overwrite Existing File: The file from the source server is not migrated, if a file of the same name exists on the target server. ♦ Copy if Newer: The migrated file overwrites the existing file on the target server, only if its last modified date is newer than the existing file's date.

Task	Description
Quotas	<p>You might need to remove user quotas, If you are migrating the volume or folder to a larger NSS pool/ volume on the target server.</p> <hr/> <p>NOTE: If you are migrating to a different file system (NSS to NCP volumes or from NSS to Linux POSIX volumes) on the target server, user quotas are not valid.</p> <hr/> <ul style="list-style-type: none"> ♦ Exclude User Quotas: The user quotas from the source server are not copied to the OES 2 SP1 Linux server. ♦ Exclude Directory Quotas: The directory quotas from the source server are not copied to the OES 2 SP1 Linux server.
File Filters	<p>Determines which files to include for migration. If no filters are set, all files are migrated. You can specify the files that you want to migrate by specifying the date range or you can exclude the files from migrating by specifying the filenames or file extensions.</p> <ul style="list-style-type: none"> ♦ Last Accessed/ Last Modified: The date range to include files for migration. ♦ Exclude File(s): The filenames or file extensions to exclude from migration. Wildcards (*) are permitted. For example: *.mp3, *.mov, *.tmp, samplefile.txt, "my sample file.txt." <p>Specifying *.mp3 excludes all files with an extension of .mp3 from being migrated. Specifying samplefile.txt excludes all samplefile.txt from being migrated.</p>
Home Directory Options	<p>Type the path where you want to create home directories for the users who are being migrated to the target server.</p> <p>For example, /media/nss/DATA/homes</p>
Sync Options	<p>The <i>Sync</i> option performs synchronization of the target server with the source server. After completion of file system migration, if the source server is updated with new information, you can use the <i>Sync</i> option for synchronizing the servers. The <i>Sync</i> option is also available in the main Migration GUI window.</p> <p>Delete Files Not On Source: During synchronization of the servers, additional files or folders on the target servers are deleted that are not available on the source server.</p> <p>To modify handling of trustees, or user options, change the options in the Trustee Options tab.</p>

- 5c** Click the *Trustee Options* tab, then click *OK* to accept the defaults and migrate the trustee rights of users on the source server to target server.

For explanation on different tasks that can be performed in the *Trustee Options* tab, refer to Table below.

NOTE: In the Same Tree scenario, the *Trustee Options* tab is disabled.



Task	Description
Trustee Migration	<p>Specify an option to migrate trustee rights of users from the source server to the target server.</p> <ul style="list-style-type: none"> ♦ Do Not Migrate Trustees (default): The user rights to the access folder and its content on the source server are not migrated to the target server. ♦ Flatten Trustees: The users on the source server are migrated to a selected context on the target server, irrespective of whether the users are in different context on the source server. <ul style="list-style-type: none"> ♦ Target Context to flatten the users: Select the context on the target server to migrate all the users. ♦ Custom User Mapping: Users on the source volume are mapped with the users on the target server. In the Match User Options tab, select the users from the source server or target server, then assign migration options. <ul style="list-style-type: none"> ♦ Search Context to map users: Select the context on the target server to match the users.

Task	Description
Existing User Options	<p>A username on the source server has a corresponding username on the target server. You can overwrite the trustee details of the user on the target server, or ignore the user.</p> <ul style="list-style-type: none"> ♦ Ignore All: Do not create users on the target server. ♦ Overwrite All: Overwrite the users on the target server.
New User Options	<p>Specify the global password for the new users created on the target server.</p> <p>eDirectory Password: Specify the password for the users to use, when they log in for the first time on the target server.</p>

5d

The *Match User Options* tab is enabled when you select the **Custom User mapping** option in the Trustee Options page.

5d1 To view the list of users on the source server and target server, click *Map Users*, then select how to handle the users.

- ♦ **Existing or Mapped Users:** A username on the source server has a corresponding username on the target server. If the users are mapped, only the trustee details are migrated.
- ♦ **New Users:** Users do not exist on the target server. Create new users on the target server, or ignore the users.

5d2 This is a global setting for all the users. Specify one of the following options to migrate users or ignore users.

- ♦ **Ignore All:** Do not migrate the new users. Only existing users are migrated to the target server.
- ♦ **Create All:** Create all users on the target server.

5d3 (Optional) To specify settings for individuals and groups that override the global handling of user migration, click the username, then assign one of the migration options from the drop-down menu:

- ♦ **Create:** Create users on the target server and assign the trustee rights.
The users are created on the target server using the same FDN as the source server. The search context is used only to match the source server users to target server users in that context.
- ♦ **Ignore:** Ignore the user and do not assign the trustee rights of the source user.
- ♦ **Browse:** Assign an equivalent user by browsing the same context or a different context on the target server and assigning trustee rights.

6 After you have finished configuring the parameters in each tab, click *OK* to save your file system migration setup and return to the main Migration window.

7 Click *Start* on the main page to begin the migration.

The migration does not begin until you click *Start* on the main page.

14.3 Migrating the File System by Using the Command Line Utilities

This section provides information on how to use the command line to migrate a file system running on OES NetWare or OES Linux to OES 2 SP1 Linux.

The procedures for migrating file system data from the NSS or Traditional volumes on NetWare or from NSS volumes on OES 1 Linux depending on whether the source server and target server are in the same eDirectory tree or in different eDirectory trees. This section covers the following scenarios:

- ♦ [Section 14.3.1, “Migrating Data to a Server in the Same Tree,” on page 104](#)
- ♦ [Section 14.3.2, “Migrating Data to a Server in a Different Tree,” on page 106](#)
- ♦ [Section 14.3.3, “Migrating Data to a POSIX File System,” on page 113](#)
- ♦ [Section 14.3.4, “File System Migration Commands,” on page 115](#)
- ♦ [Section 14.3.5, “Additional Migration Options,” on page 129](#)

14.3.1 Migrating Data to a Server in the Same Tree

This section describes how to migrate file system data from a NetWare or OES 1 Linux server to an OES 2 SP1 Linux server in the same eDirectory tree.

- ♦ [“Migrating the Data” on page 104](#)
- ♦ [“Examples” on page 104](#)
- ♦ [“Limitations” on page 106](#)
- ♦ [“Troubleshooting” on page 106](#)

Migrating the Data

The main command to use is `migfiles`. If you need to modify the home directories of the migrated users, you also need to use `mls`, `maptrustees`, and `migtrustees`.

- 1 (Conditional) If you need to modify the home directories of the migrated users, run the following command:

```
mls
```

- 2 Run the `migfiles` command to copy the data from the source server to target server.
- 3 (Conditional) If you need to modify the home directories of the migrated users, run the following commands in the order specified:

```
maptrustees
```

```
migtrustees
```

Examples

The following examples illustrate ways to use the various options available for the migration commands.

- ♦ [“Volume-to-Volume Migration:” on page 105](#)

- ♦ “Directory-to-Directory Migration:” on page 105
- ♦ “Volume-to-Directory Migration:” on page 105
- ♦ “Source Linux NSS Directory-to-Directory Migration” on page 105
- ♦ “Remapping Home Directories” on page 105

Volume-to-Volume Migration:

This command migrates all data from the Traditional or NSS volume SRCVOL1 on the source server with IP address 192.168.1.3 to the target server’s TGTVOL1 volume with verbose output:

```
migfiles -s 192.168.1.3 -V SRCVOL1 -v TGTVOL1 -i
```

Directory-to-Directory Migration:

This command migrates data from the Traditional or NSS path DATA:impstuff on the source server with IP address 192.168.1.3 to the stuff directory on the NSS volume NSS1 with verbose output:

```
migfiles -s 192.168.1.3 -V DATA:impstuff -x /media/nss/NSS1/stuff -i
```

Volume-to-Directory Migration:

This command migrates data from the Traditional or NSS volume named DATA on the source server with IP address 192.168.1.3 to the newdir directory on the NCP volume NCP1 located at path /data/ncp1 without verbose output:

```
migfiles -s 192.168.1.3 -V DATA -x /data/ncp1/newdir
```

Source Linux NSS Directory-to-Directory Migration

This command migrates data from NCP Linux volume NCPVOL at /usr/novell/ncpvol on the source server with the IP address 192.168.1.3 to the newdir directory on the NSS volume NSS1:

```
migfiles -s 192.168.1.3 -X /usr/novell/ncpvol -x /media/nss/NSS1/
```

Remapping Home Directories

These commands migrate the VOL1 volume on source server 192.168.1.3 to the VOL1 volume on target server 192.168.1.4. The -H option in the maptrustees command is used to remap the home directories of the users to the target server named NEW-SERVER.

- 1 Create a list of files and associated rights on the source volume:

```
mls -s 192.168.1.3 -V VOL1 > mls.yaml
```

- 2 Copy the data from the source volume to the target volume:

```
migfiles -s 192.168.1.3 -V VOL -x /media/nss/VOL1 -i
```

- 3 Map the trustees and home directories from the source server to the target server:

```
maptrustees -s 192.168.1.3 -H /media/nss/VOL1/users/--map-homedir-only  
mls.yaml> maptrustees.yaml
```

The -H option is a path to the base directory that includes all the home directories.

- 4 Migrate the information generated in the previous step:

```
migtrustees -d 192.168.1.4 -m maptrustees.yaml
```

Limitations

- ♦ If you have user space restrictions set on a source NSS volume, the restrictions are migrated to target NSS volumes if you do a full volume migration.

Troubleshooting

- ♦ The error `nbackup: open file` means that files on the source server are open, so they are not migrated because this would cause data inconsistencies.
- ♦ The error `nbackup: execute only files` means that `nbackup` encountered files with the Execute-only bit set. These files are not copied by default. If you want to copy Execute-only files, use the `tsafs /ExcludeExecuteOnly=0` setting on the source NetWare server.
- ♦ SMS errors, such as `nbackup: A file cannot be read` and `nbackup: Failed to read dataset`, occur if the source volumes or the target volumes become unavailable or are renamed during the course of a migration. Do not rename volumes while a migration is in progress. If a migration stops because a volume becomes unavailable, ensure that the volume is properly activated and mounted, then restart the migration project.

14.3.2 Migrating Data to a Server in a Different Tree

When the source server and target servers are in different eDirectory trees, your file system user and group trustees must be migrated from the source tree to the target tree, along with their associated data. The `maptrustees` and `migtrustees` commands are used to migrate users and groups assigned as trustees in the source tree to the target tree. Alternatively you can use Novell Identity Manager to migrate the eDirectory users and groups, and then use the `mismatchup` command to match the user from the source server to the target server. Use the `maprights` and `migrights` commands only if the user and the group structure has changed during the migration.

- ♦ [“Migrating the Data” on page 106](#)
- ♦ [“Examples” on page 107](#)
- ♦ [“Limitations” on page 111](#)
- ♦ [“Troubleshooting” on page 112](#)

Migrating the Data

The main command to use is `migfiles`. To map the trustees (users and groups) from the source tree to the target tree, you need to use `mls`, `maptrustees`, and `migtrustees`. If you are reorganizing the trustees (migrating to a different context), you also need to use `mls`, `maprights`, and `migrights` to map the trustee rights. If you want to notify users that their data has been migrated to a new tree and that their passwords have changed, you can use the `mignotify` command.

To migrate the data from a source NetWare server in one eDirectory tree to the target Linux server in another tree:

- 1 You can either migrate the source server trustees to the target server or map the source server trustees with the target server.

- ♦ To migrate the trustees, run the following commands in the order shown:

```
mls
maptrustees
migtrustees
```

or

- ♦ To map the trustees, run the following commands in the order shown:

```
mls
migmatchup
```

- 2 Run the `migfiles` command to copy the data from the source to the target server.
- 3 (Conditional) If you are migrating users and groups to a different context or matching the user with different name, run the following commands in the order shown:

```
mls
maprights
migrights
```

- 4 To notify users, run the following commands in the order shown:

```
mls
maptrustees
mignotify
```

NOTE: The output of `maptrustees` is needed for `mignotify`, but it must be run after `migfiles` and the `maprights/migrights` operation.

Examples

- ♦ “Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees” on page 107
- ♦ “Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees and Flatten the Trustee Structure” on page 108
- ♦ “Tree-to-Tree Migration with Trustees Already Migrated to the New Tree and Reorganized in the New Tree.” on page 110

Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees

The following example shows how to migrate data from a source NetWare server in one tree to a target OES 2 SP1 Linux server in another tree. In this example, the target volumes are NSS volumes, and the users are to be migrated to the same context in the target tree.

- 1 Create a list of files and trustees on volume V1 on the source server with IP address 192.168.1.3:

```
mls -s 192.168.1.3 -V V1 > mls.yaml
```

- 2 Map the trustees on the source server and output the list to a file:

```
maptrustees -s 192.168.1.3 -H/media/nss/VOL1/users/ --random-password
mls.yaml > maptrustees.yaml
```

The `-H` option replaces the home directory of the source server user with the new home directory specified by `-H` option. The `-H` option is a path to the base directory that includes all the home directories. If the users don't have home directories, this option doesn't need to be used.

The `--random-password` option is for generating random passwords. If this option is used, each user is assigned a random password stored in the `maptrustees` output file (`maptrustees.yaml`). If you want to assign users specific passwords, use the `-specific-password` option.

NOTE: The new passwords are stored in the `maptrustees` output file. To avoid password theft, dispose of this file in a secure manner after you have communicated the new passwords to their respective users.

3 Migrate the trustees to the target server:

```
migtrustees -d 192.168.1.67 maptrustees.yaml
```

4 (Conditional) When migrating to an NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For information about LUM-enabling users, see “[LUM Implementation Suggestions](#)” in the *OES2 SP1: Planning and Implementation Guide*.

5 Migrate the data from source volume V1 to target NSS volume VOL1:

```
migfiles -s 192.168.1.3 -V VOL1 -x /media/nss/VOL1/ -i
```

After the users have been migrated (this only needs to be done once), additional data volumes can be migrated. Repeat this command to migrate other volumes on the source server.

6 Notify users about the data migration:

```
mignotify -a login -e myusername@mycompany.com --mail-server  
smtp.mycompany.com -m message -i maptrustees.yaml
```

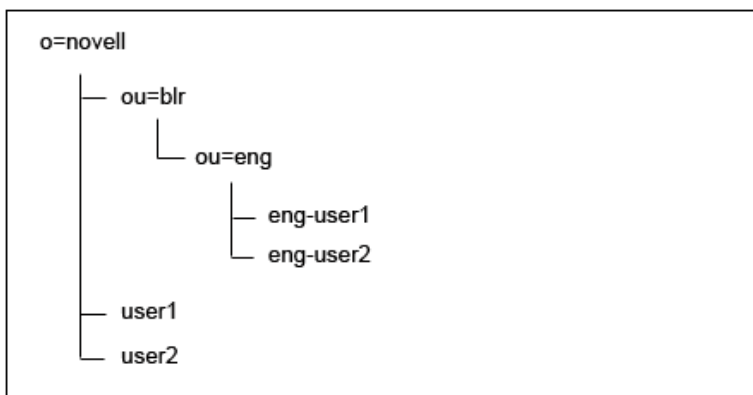
This command sends an e-mail containing the message specified in the `message` text file to all users who have been migrated to the new server. See “[mignotify](#)” on [page 123](#) or the `mignotify` man page for a sample message file.

Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees and Flatten the Trustee Structure

The `maptrustees` command includes a `-k` option that allows you to migrate users to a different context in the target tree. When you do this, the container hierarchy is flattened.

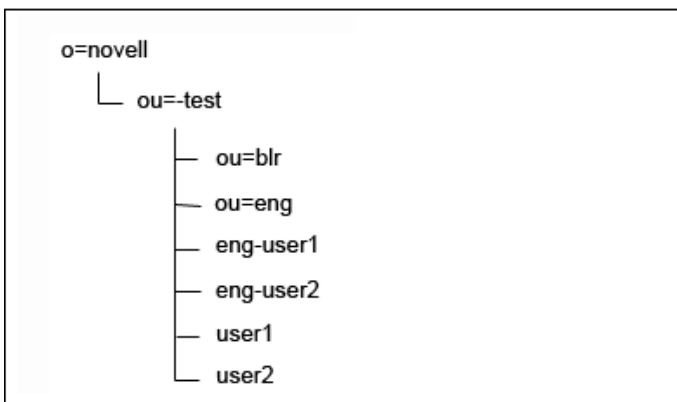
For example, suppose your source eDirectory tree looks like the one shown in [Figure 14-1](#).

Figure 14-1 Source eDirectory Tree Structure



When the users are migrated to ou=test.o=novell, the resulting tree structure is shown in **Figure 14-2**.

Figure 14-2 Target eDirectory Tree Structure



The following example shows how to migrate data from a source OES 1 Linux server in one tree to a target OES 2 SP1 Linux server in another tree. In this example, the target volumes are NCP Linux volumes and the new user context is ou=new-context.o=company.

- 1 Create a list of files and trustees on volume SRCVOL on the source server with IP address 192.168.1.3:

```
mls -s 192.168.1.3 -V SRCVOL > mls.yaml
```

- 2 Map the trustees on the source server and output the list to a file:

```
maptrustees -s 192.168.1.3 -H/usr/novell/NCP1/homes/ -k 'ou=new-  
context,o=company' --random-password mls.yaml > maptrustees.yaml
```

The `-H` option replaces the home directory of the source server user with the new home directory specified by `-H` option. The `-H` option is a path to the base directory that includes all the home directories. If the users don't have home directories, this option doesn't need to be used.

The `--random-password` option is for generating random passwords. If this option is used, each user is assigned a random password stored in the `maptrustees` output file (`maptrustees.yaml`). If you want to assign users specific passwords, use the `--specific-password`.

NOTE: The new passwords are stored in the `maptrustees` output file. To avoid password theft, dispose of this file in a secure manner after you have communicated the new passwords to their respective users.

3 Migrate the trustees to the target server:

```
migtrustees -d 192.168.1.67 maptrustees.yaml
```

4 (Conditional) When migrating to an NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For more information on LUM-enabling users, see “[LUM Implementation Suggestions](#)” in the *OES2 SP1: Planning and Implementation Guide*.

5 Migrate the data from source volume SRCVOL to target NCP Linux volume NCP1:

```
migfiles -s 192.168.1.3 -V SRCVOL -x /usr/novell/NCP1/ -i --no-trustees
```

After the users have been migrated (this only needs to be done once), various data volumes can be migrated. Repeat this command to migrate other volumes on the source server.

6 Map the trustee rights on the source server:

```
maprights -V SRCVOL -k ou=new-context,o=company -x /usr/novell/NCP1/  
mls.yaml > maprights.yaml
```

7 Migrate the trustee rights to the target server:

```
migrights -i maprights.yaml
```

Repeat [Step 1](#), [Step 6](#), and [Step 7](#) for each source volume being migrated.

8 Notify users about the data migration:

```
mignotify -a login -e myusername@mycompany.com --mail-server  
smtp.mycompany.com -m message -i maptrustees.yaml
```

This command sends an e-mail containing the message specified in the `message` text file to all users who have been migrated to the new server. See “[mignotify](#)” on [page 123](#) or the `mignotify` man page for a sample message file.

Tree-to-Tree Migration with Trustees Already Migrated to the New Tree and Reorganized in the New Tree.

The following example shows how to migrate data from a source NetWare server in one tree to a target OES 2 SP1 Linux server in another tree. In this example, the target volume is an NSS volume, and the users have already been migrated by using tools like Novell Identity Manager so that they now reside in different contexts in the target tree. In this example, the migration tools are used only to only migrate the data and map the trustees correctly.

1 Create a list of files and trustees on volume V1 on the source server with IP address 192.168.1.3:

```
mls -s 192.168.1.3 -V V1 > mls.yaml
```

2 Match the users on the source server to the users on the target server:

```
migmatchup -s 192.168.1.3 -d 192.168.1.67 -k 'ou=re-org,o=company' >  
migmatchup.yaml
```

mismatchup searches for the trustees in their source context. If it doesn't find a matching trustee, it searches the container specified with the -k option recursively and matches the first trustee with the same name. If the trustee with the same name is not found, it is not matched.

If the trustee name is changed, then the output of mismatchup can be edited so that each source trustee is mapped to the corresponding user on the target tree.

- 3** (Conditional) When you are migrating to a NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For more information on LUM-enabling users, see “**LUM Implementation Suggestions**” in the *OES2 SP1: Planning and Implementation Guide*.

- 4** Migrate the data from source volume SRCVOL to target NSS volume TGTVOL:

```
migfiles -s 192.168.1.3 -V SRCVOL -x /media/nss/TGTVOL/ -i --no-trustees
```

After the users have been migrated (this only needs to be done once), various data volumes can be migrated. Repeat this command to migrate other volumes on the source server.

- 5** Map the trustee rights on the source server:

```
maprights -V SRCVOL --matchup-file mismatchup.yaml -x /media/nss/TGTVOL/  
mls.yaml > maprights.yaml
```

- 6** Migrate the trustee rights to the target server:

```
migrights -i maprights.yaml
```

Repeat **Step 5**, and **Step 6** for each source volume being migrated.

Limitations

Be aware of the following limitations when performing tree-to-tree migrations:

- ♦ If users have home directories on a volume that is migrated, the Home Directory attribute is changed only for users who are assigned as trustees or belong to the groups that are assigned as trustees.
- ♦ If the maptrustee and migtrustee commands are used to migrate the users then the following User Object attributes are migrated:
 - ♦ Common Name (CN)
 - ♦ Country
 - ♦ Description (description)
 - ♦ E-mail Address (mail)
 - ♦ Fax Number (facsimileTelephoneNumber)
 - ♦ Full Name (fullName)
 - ♦ Generational Qualifier (generationQualifier)
 - ♦ Given Name (givenName)
 - ♦ Initials (initials)
 - ♦ Language (Language)
 - ♦ Locality Name (l)
 - ♦ Lockout After Detection (lockedByIntruder)
 - ♦ Login Allowed Time (loginAllowedTimeMap)
 - ♦ Login Disabled (loginDisabled)

- ♦ Login Expiration Time (loginExpirationTime)
- ♦ Login Grace Limit (loginGraceLimit)
- ♦ Login Grace Remaining (loginGraceRemaining)
- ♦ Login Intruder Limit (loginIntruderAttempts)
- ♦ Login Maximum Simultaneous (loginMaximumSimultaneous)
- ♦ Login Script (loginScript)
- ♦ Network Address Restriction (networkAddressRestriction)
- ♦ Organizational Name (o)
- ♦ Organizational Unit Name (ou)
- ♦ Password Allow Change (passwordAllowChange)
- ♦ Password Expiration Interval (passwordExpirationInterval)
- ♦ Password Expiration Time (passwordExpirationTime)
- ♦ Password Minimum Length (passwordMinimumLength)
- ♦ Password Required (passwordRequired)
- ♦ Password Unique Required (passwordUniqueRequired)
- ♦ Physical Delivery Office Name (physicalDeliveryOfficeName)
- ♦ Post Office Box (postOfficeBox)
- ♦ Postal Address (postalAddress)
- ♦ Postal Code (postalCode)
- ♦ State or Province Name (st)
- ♦ Street Address (street)
- ♦ Surname (sn)
- ♦ Telephone Number (telephoneNumber)
- ♦ Title (title)
- ♦ When LUM-enabled users are migrated to a new tree, they are no longer LUM-enabled.

Troubleshooting

- ♦ If the ownership information is changed during a migration from NSS to NCP, make sure you LUM-enable the users that are migrated into the target eDirectory tree before you run the `migfiles` command.

If you LUM-enabled the users that were migrated into the target eDirectory tree and still don't see the proper ownership information (for example, the owner is nobody as viewed in POSIX, or the server name as viewed by the Novell Client™), try the following:

- ♦ At the OES 2 SP1 Linux server terminal prompt, enter `namcd cache_refresh`.
- ♦ Synchronize the eDirectory replicas by using `DSREPAIR`.
- ♦ Enter `nsscon /resetidcache`.

To check to see if the owner information is now correct, enter:

```
ls -l /usr/novell/NCP1
```

14.3.3 Migrating Data to a POSIX File System

This section provides information on migrating data from NetWare or OES 1 Linux NSS volumes to a POSIX file system such as EXT3 or Reiser on a target OES 2 SP1 Linux server.

- ♦ “Mapping Users, Groups, and File Attributes to POSIX” on page 113
- ♦ “Example” on page 114
- ♦ “Limitations” on page 115

Mapping Users, Groups, and File Attributes to POSIX

In this type of migration, eDirectory users and groups are migrated to POSIX. The `useradd` and `groupadd` commands are used to create the POSIX users and groups corresponding to their eDirectory equivalents, and the NetWare file attributes are mapped to the POSIX `rxw` permissions.

Objects in eDirectory with an objectClass of Organization, groupOfNames, or organizationUnit are mapped to POSIX groups. Those with objectClass organizationalPerson are mapped to POSIX users.

Because POSIX user and group names are more restrictive than eDirectory object names, the following conventions are used to map the common name (cn) of the objects to POSIX:

- ♦ Names with 32 or more characters are truncated to 31 characters in length.
- ♦ Characters not belonging to the POSIX portable character class ([A-Za-z_] [A-Za-z0-9_-.] * [A-Za-z0-9_-.]) are replaced by an underscore (_) character.

For more details about POSIX names, see the man page for the `useradd` command.

NetWare file attributes are mapped as shown in Table 14-1.

Table 14-1 Mapping NetWare Attributes to POSIX Permissions

NetWare Attribute	POSIX Permissions
No attributes set	rw_ _ _ _
Read Only and Hidden	_ _ _ _
Read Only	r_ _ _ _
Hidden	_w_ _ _ _

For directories the execute bit for the owner is set.

NOTE: These mappings are based on NetWare attributes, not trustee rights. Administrators should evaluate the post-migration POSIX permissions and make adjustments as necessary to maintain suitable data security for users.

- 1 Run the `migfiles` command to copy the data from the source to the target server.
- 2 (Conditional) If you need to modify the home directories of the migrated users, run the following three commands in the order specified:

```
mls
maptrustees
migtrustees
```

- 3 Run the following commands in the order shown:

```
mls
maprights
migrights
```

- 4 To notify users, run the following commands in the order shown:

```
mls
maptrustees
mignotify
```

NOTE: The output of `maptrustees` is needed for `mignotify`, but it must be run after `migfiles` and the `maprights/migrights` operation.

Example

The following example shows how to migrate data to a POSIX file system.

- 1 Migrate the data from the volume SRCVOL on the source server with IP address 192.168.1.3 to the target POSIX path:

```
migfiles -s 192.168.1.3 -V SRCVOL -x /path/to/copy --no-trustees -pi
```

Substitute the desired target POSIX path for `/path/to/copy`.

After the users have been migrated (this only needs to be done once), various data volumes can be migrated. Repeat this command to migrate other volumes on the source server.

- 2 Create a list of files and trustees on volume SRCVOL:

```
mls -s 192.168.1.3 -V SRCVOL > mls.yaml
```

- 3 Map the trustees on the source server and output the list to a file:

```
maptrustees -s 192.168.1.3 -p -H /data/home/ --random-password mls.yaml >
maptrustees.yaml
```

The `-H` option replaces the home directory of the source server user with the new home directory specified by `-H` option. The `-H` option is a path to the base directory that includes all the home directories. If the users don't have home directories, this option doesn't need to be used.

The `--random-password` option is for generating random passwords. If this option is used, each user is assigned a random password stored in the `maptrustees` output file (`maptrustees.yaml`). If you want to assign users specific passwords, use the `--specific-password`.

NOTE: The new passwords are stored in the `maptrustees` output file. To avoid password theft, dispose of this file in a secure manner after you have communicated the new passwords to their respective users.

- 4 Migrate the trustees to the target server:

```
migtrustees -p maptrustees.yaml
```

- 5 Map the trustee rights on the source server:

```
maprights -p -V SRCVOL1 -x /path/to/copy -m maptrustee.yaml mls.yaml >
maprights.yaml
```

6 Migrate the trustee rights to the target server:

```
migrights -p maprights.yaml
```

Repeat **Step 1**, **Step 5**, and **Step 6** for each source volume being migrated.

7 Notify users about the data migration:

```
mignotify -a login -e myusername@mycompany.com --mail-server
smtp.mycompany.com -m message -i maptrustees.yaml
```

This command sends an e-mail containing the message specified in the message text file to all users who have been migrated to the new server. See “**mignotify**” on **page 123** or the **mignotify** man page for a sample message file.

Limitations

Sparse files are copied as normal files when migrated from NSS to POSIX. This is because of a known limitation from the POSIX perspective. Sparse files are generally supported on restore by restoring the data areas to sparse locations in the file system. The file system then determines whether or not to preserve the sparse nature of the file. POSIX file systems do not preserve the sparse nature of sparse files.

14.3.4 File System Migration Commands

The OES 2 migration tools include several command line tools for file system migrations. Each tool performs a subtask of the migration by taking the required input and outputting the converted output or results to stdout. **Table 14-2** lists the commands that are available for file system migrations.

Table 14-2 File System Migration Commands

Command	Description
maprights	Maps NetWare NSS/Traditional or OES 1.0 Linux NSS file system rights to OES 2 SP1 Linux file system rights.
maptrustees	Maps users and groups from the source server to the target server specifications.
migcred	Establishes persistent credentials for the migration utilities.
migfiles	Copies files and folders from a source server to a target server.
mignotify	Sends e-mail notifications to the migrated users.
migrights	Sets file rights on the target server as defined by the output from the maprights command.
migtrustees	Creates users and groups on the target server based on the output generated by the maptrustees command.
mls	Lists all files in a given NetWare or OES 1.0 Linux NSS path, with associated trustees, rights, and quotas.
ntfsm ls	Lists all files under a given Windows share path, with associated owners and their rights to files and folders.

Command	Description
<code>ntfsmmap</code>	Maps the Windows NTFS rights and ACLs to OES 2 Linux NSS, NCP or POSIX rights and permissions.
<code>ntresource</code>	Provides detailed information about a Windows source server.
<code>ntuserls</code>	Lists all users and groups in a Windows Active Directory domain.

The sections that follow discuss these commands and their options in greater detail. You can also refer to the respective man page for each command or use the `-h (--help)` and `--usage` options.

maprights

The `maprights` command gleans file system rights information from the `mls` output and maps the rights to a specified volume or path on the OES 2 SP1 Linux target server. You can specify a mapping to NSS, NCP, or POSIX rights. If neither `-n` nor `-p` is specified, the default is NCP rights.

If the target server is in a different tree and users and groups are to be in new containers, you can use the `-k` option to migrate the users and groups into a specified container in the target eDirectory tree.

Syntax

```
maprights -v [-n] [-p] -V|-x [-k] [-m] inputfile
```

Options

Option	Long Form	Purpose
<code>-v</code>	<code>--source-path</code>	Specifies the volume or directory path to use on the source server. Examples: <code>-v NSSVOL</code> <code>-v VOL1:/apps/data</code>
<code>[-n]</code>	<code>[--nss]</code>	Map user rights to NSS file system access rights.
<code>[-p]</code>	<code>[--posix]</code>	Map user rights to POSIX file system access rights.
<code>-V</code>	<code>--destination-volume</code>	Specifies the volume on the OES 2 SP1 Linux target server where the rights information should be mapped. This option cannot be used with the <code>-x</code> option. Example: <code>-V NSSVOL</code>
<code>-x</code>	<code>--destination-path</code>	Specifies the volume path on the OES 2 SP1 Linux target server where the rights information should be mapped. You must use <code>-x</code> in <code>maprights</code> if you have used <code>-x</code> in <code>migfiles</code> . This option cannot be used with the <code>-V</code> option.
<code>[-k]</code>	<code>[--destination-ldap-container]</code>	Specifies an eDirectory container where all users and groups are to be migrated. You must use <code>-k</code> in <code>maprights</code> if you have used <code>-k</code> in <code>maptrustees</code> . Example: <code>-k ou=users,o=company</code>

Option	Long Form	Purpose
[-m]	<code>--maptrustee-file</code>	Specifies the name of the <code>maptrustees</code> file associated with this <code>maprights</code> migration (required for POSIX rights mapping). Example: <code>-m maptrustees.yaml</code>
	<i>inputfile</i>	Indicates the name of the output file produced from the <code>mls</code> command or from <code>stdin</code> .
	<code>--debug</code>	Prints debug messages to the <code>maprights</code> log file located at <code>/var/opt/novell/log/migration/</code> .

maptrustees

The `maptrustees` command maps the users and groups from the source server's tree or domain to the target server's specifications. It uses input from `mls` or `ntuserls` to produce and map user and group data from the source server. You must use `maptrustees` when migrating data to a different tree or when migrating users and groups to a different context.

By default, `maptrustees` maps users and groups into a new target tree. The target file server should be in the same tree as the LDAP target server. You can use the `-k` option to map users and groups into a single target container.

The `maptrustees` command can also be used to map users and groups to POSIX users and groups in `/etc/passwd` and `/etc/group`. It uses `ldapsearch` to retrieve the user and group data from the source LDAP server. The source LDAP server should be in the same tree as the source file server that produced the `mls` output.

Syntax

```
maptrustees -s [-H] [-p] [-k] [-g] [-r] [-S] [-E] [--use-casa] inputfile
```

Options

Option	Long Name	Purpose
-s	<code>--source-ldap</code>	Specifies the source LDAP server's IP address. Example: <code>-s 192.168.1.3</code>
[-H]	<code>--homedir</code>	Specifies the path to the directory for migrating user's home directories. This option is used to map users' home directories to the new path on the target server. Example: <code>-H /media/nss/nssvol1/homedir</code>
[-p]	<code>--posix</code>	Map users and groups to <code>/etc/passwd</code> and <code>/etc/group</code> on the OES 2 SP1 Linux server. (If no mapping option is specified, the default is LDAP.)
[-k]	<code>--destination-ldap-container</code>	Specifies the container where all users and groups are to be migrated. This option is mandatory for Windows-to-Linux migrations. Example: <code>-k ou=merged,o=company</code>

Option	Long Name	Purpose
[-g]	[--primary-group]	<p>Specifies the primary POSIX group for migrated users. If not specified, the default primary group is "users."</p> <p>Example: <code>-g migrated-users</code></p> <p>The specified group must be created before you run the <code>migtrustees</code> command, because <code>migtrustees</code> does not create the group.</p>
[-r]	[--random-password]	<p>Generates random passwords for each user to be created in the target tree.</p> <p>If neither <code>-r</code> nor <code>-S</code> is used, users are created without a password and the user accounts are locked until they are manually assigned a password.</p>
[-S]	[--specific-password]	<p>Assigns the specified password for each user to be created in the target tree.</p> <p>Example: <code>-S "abcd1234"</code></p> <p>If neither <code>-r</code> nor <code>-S</code> is used, users are created without a password and the user accounts are locked until they are manually assigned a password. Null passwords (<code>-S ""</code>) are not allowed.</p>
[-E]	[--obj-exclude-file]	<p>Exclude from migration the objects listed in the specified file.</p> <p>Example: <code>-E excludefile.txt</code></p> <p>If this option is used, the global exclude file is not read. See "Excluding Objects" on page 119 for more information.</p>
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	<i>inputfile</i>	Indicate the output file produced from the <code>mls</code> or <code>ntuserls</code> command or from stdin.
	[--debug]	Print debug messages to the <code>maptrustees</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Examples

- This first example illustrates mapping users and groups to the same container in the target tree as in the source tree, using the output from the `mls` command, and generating random passwords for the users:

```
maptrustees -s 192.168.1.3 -r mls.yaml > maptrustees.yaml
```

The example assumes you have the same tree structure in the target tree as in the source tree. The random passwords are recorded in the `maptrustees` output file.

- This next example illustrates mapping users and groups to a new container in the target tree, using the output from the `ntuserls` command:

```
maptrustees -s 192.168.1.3 -k ou=merged,o=company -r ntuserls.yaml >
maptrustees.yaml
```

A new container named `ou=merged,o=company` is created in the target tree, and all migrated users and groups are created within that container.

- ◆ This third example illustrates mapping users to `/etc/passwd` and `/etc/group` in a POSIX environment:

```
maptrustees -s 192.168.1.3 -p -r mls.yaml > maptrustees.yaml
```

Excluding Objects

When generating the list of users and groups to be mapped to the target tree, `maptrustees` reads the `obj-exclude-list.conf` file in the `/etc/opt/novell/migration/` directory and excludes the eDirectory objects listed in that file.

The global exclude file includes entries for NetWare objects, such as `cn=admin,ou=Tomcat-Roles`.

If you find that objects are being migrated from your source eDirectory tree that you do not want to appear in the target tree, you can add the objects to the `obj-exclude-list.conf` file. Use fully distinguished object names in LDAP (comma-delimited) format. For example:

```
cn=testuser,ou=users,o=novell
```

NOTE: NCP Server objects that are assigned as file system trustees are not migrated in a tree-to-tree migration.

migcred

The `migcred` command can be used to store, retrieve, and delete persistent credentials for the other file system migration commands. It uses CASA to store credential details of an identity. A `migcred` identity can be either a server IP address or a Windows domain name. With each identity, a type of user name (for example, LDAP, NDS Distinguished Name, or e-mail name) is stored along with an associated password.

Syntax

```
migcred -i -l|-n|-N|-c|-o|-W|-e [-w] [-r] [-d]
```

Options

Option	Long Form	Purpose
-i	--id	Specifies the identity or key to identify the credential. Example: <code>-i 192.168.1.3</code>
-l	--ldap-dn	Specifies credential details in LDAP format. Example: <code>-l cn=admin,o=company</code>
-n	--nds-dn	Specifies credential details in NDS_DN format. Example: <code>-n admin.company</code>
-N	--nds-fdn	Specifies credential details in NDS_FDN format. Example: <code>-N cn=admin.o=company</code>
-c	--cn	Specifies credential details in Common Name (CN) format. Example: <code>-c John Smith</code>

Option	Long Form	Purpose
-o	--other	Specifies credential details in a non-specified format.
-W	--windows	Specifies credential details as a Windows username. Example: -W administrator
-e	--email	Specifies credential details as an e-mail address. Example: -e admin@company.com
[-w]	[--password]	Retrieve a stored password.
[-r]	[--retrieve]	Retrieve credential details of an identity.
[-d]	[--delete]	Delete the credentials of an identity.
	[--debug]	Print debug messages to the migcred log file located at /var/opt/novell/log/migration/.

Examples

- ♦ This example illustrates storing the credential details of identity 192.168.1.3 in LDAP format. The command prompts for credential details, which should be entered in LDAP format (cn=admin,o=mycompany):

```
migcred -i 192.168.1.3 -l
```

- ♦ This example illustrates retrieving credentials after they have been stored:

```
migcred -i 192.168.1.3 -l -r
```

- ♦ This example illustrates deleting credential details of identity 192.168.1.3:

```
migcred -i 192.168.1.3 -d
```

migfiles

The **migfiles** command copies files from NetWare Traditional or NSS volumes and OES 1.0 Linux NSS volumes to OES 2.0 Linux NSS, NCP or POSIX paths. It uses the Novell Storage Management Services™ (SMS) framework to migrate file data and metadata.

When the migration is between two servers in the same eDirectory tree, **migfiles** copies the trustees and rights information along with the file data. When migrating data to a server in a different tree, **migfiles** copies only the file data. You must use other commands such as **mls**, **maptrustees**, **migtrustees**, **maprights**, and **migrights** to migrate the trustees and rights information.

This command also supports file migration from Windows NT, Windows 2000, and Windows 2003 servers to OES 2.0 Linux NSS or NCP volumes. It uses **cifs mount** to mount the Windows share to a local path and then uses **rsync** to copy the files to target. You must use other commands such as **ntfsm ls**, **ntuser ls**, **maptrustees**, **migtrustees**, **ntfsmap**, and **migrights** to migrate Windows ACLs and other rights information.

Syntax

```
migfiles -s [-w] [-n] [-p] [-i] -v -V|-x [-N] [-e] [-L] [-c] [-u] [--use-casa]
[--no-trustees] [--demigrate-files]
[--update-ifnewer]
```

General Options

Option	Long Form	Purpose
-s	--source-server	Specifies the source server's IP address. Example: -s 192.168.1.3
[-w]	[--windows]	Specifies that a Windows file server is the migration source.
[-n]	[--nss]	Specifies that the target is an NSS volume/path. (If not specified, the default target type is NCP over POSIX.).
[-p]	[--posix]	Specifies that the target is a POSIX path. (If not specified, the default target type is NCP over POSIX.).
[-i]	[--verbose]	Print verbose file migration status.
-v	--source-path	Specifies the source path, in VOLNAME or VOLNAME:/path or Windows share name format. Examples: -v NSSVOL -v VOL:apps/data -v winshare
-V	--destination-volume	Specifies the volume on the target server where the files should be copied. This option cannot be used with the -x option. Example: -V VOL1
-x	--destination-path	Specifies the target path for copying NSS, NCP, or POSIX data. This option cannot be used with the -V option. Example: -x /media/nss/TEST
[-N]	[--never-overwrite]	Do not overwrite files that already exist on the target server.
[-e]	[--exclude]	Set an exclude filter on files to be copied. Use this option multiple times to exclude multiple file types. Example: -e "*.mp3" -e "*.tmp"
[-L]	[--log]	Write an error log to the file specified. The default error log is novell-migration.log created in /var/opt/novell/log/migration. Example: -L /root/documents/migration/error.log
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	[--debug]	Print debug messages to the migfiles log located at /var/opt/novell/log/migration/.

NetWare Options

The following options can be used only in NetWare-to-Linux migrations.

Option	Long Form	Purpose
[-c]	[--session-file]	<p>Store the migration's progress, including the date and time of the migration, the source and target IP addresses, and the source and target volume names, in the specified session file.</p> <p>Example: <code>-c "status.log"</code></p> <p>This file can be used to resume a previously halted migration job. If an absolute or relative path is not specified with the filename, <code>migfiles</code> searches the current working directory for the file. If the specified file does not exist, all files are migrated. See "Multi-Session Migration" on page 122 for more information.</p>
[-u]	[--update]	<p>Migrate files newer than the date specified with this option. See "Updating Modified Files" on page 123 for more information.</p> <p>This option supports date/time inputs in the following formats:</p> <p><code>"%d-%m-%Y %H:%M:%S"</code></p> <p><code>"%d-%m-%Y %H:%M"</code></p> <p>where d, m, Y, H, M, and S are format variables of standard Linux date/time implementations. The supported formats can be extended by using the DATEMSK environment variable. The DATEMSK environment variable must be sent to the file path pointing to the date/time formats to support. See <code>getdate(1)</code> and <code>strptime(3)</code> for more information on using DATEMSK.</p>
	[--no-trustees]	Exclude trustees while migrating file system data.
	[--demigrate files]	Migrate the data of HSM-migrated files. By default, only stubs are migrated.
	[--update-ifnewer]	Update the file if the file on the source server is newer than the file on the target server.

Progress Indicator

While the `migfiles` command is running (without the `-i` option), a pound (#) character is displayed for every 100 files migrated.

Multi-Session Migration

The `-c` or `--session-file` option of the `migfiles` command allows you to stop the migration partway through and then continue it later from where it left off. This is especially useful when migrating large data volumes that might take several working days to copy and that must remain online during the migration.

For example, the following command stores the migration's progress and other metadata in a session file named `V1-to-V1 090907`:

```
migfiles -s 192.168.1.3 -v VOL1 -V VOL1 -ni -c "V1-to-V1 090907"
```

To terminate the migration session at any time, press `Ctrl+C`. You can resume the session later by reentering the `migfiles` command by passing the same session file `V1-to-V1 090907`

Updating Modified Files

Another useful option for the `migfiles` command is the `-u` or `--update` option. This option lets you specify a date and time, then `migfiles` copies only files that have been modified after this date and time. This option must be used after completing a multi-session migration described above to update all the files modified by users during the migration. The session file contains the data and time at which the migration started.

For example, the following command updates all the files on the target volume that have been modified at the source after 9 September 2008 at 12:30:

```
migfiles -s 192.168.1.3 -v V1 -V V1 -ni -u "9-09-2007 12:30"
```

mignotify

The `mignotify` command can be used to notify users via e-mail that a data migration has occurred and that their passwords have been changed. To generate the e-mail notifications, `mignotify` uses the `maptrustees` output file as its input.

Syntax

```
mignotify -e --mail-server -m -a [-i] inputfile
```

Options

Option	Long Form	Purpose
-e	--email-address	Specifies the string that should be used in the <code>{from}</code> field in the e-mail message. Example: <code>-e "Mail admin <admin@company>"</code>
	--mail-server	Specifies the SMTP mail server's IP address for posting messages to users. Example: <code>--mail-server smtp1.company.com</code>
-m	--message-file	Specifies the message file that is to be sent to the users. Example: <code>-m message.txt</code>
-a	--authentication	Specifies the type of authentication required by the mail server: <code>plain</code> , <code>login</code> , <code>cram_md5</code> . Example: <code>-a login</code>
[-i]	[--verbose]	Print verbose information about which users have been sent e-mail messages.
	<i>inputfile</i>	Indicate the output file produced from the <code>maptrustees</code> command or from <code>stdin</code> .

Example

To notify users of the data migration and new passwords:

```
mignotify -a login -e admin@mycompany.com -mail-server smtpserver.company.com  
-m messagefile -i maptrustees.yaml
```

Here is an example of a message file:

```
<intentional line> Hello #{first} #{last} with email address #{email},  
  
This email is to inform you that you must re-login in order to transfer over to  
the new file server. Your new password is #{password}.  
  
Regards,  
  
#{from} of your friendly IT staff
```

migrights

The `migrights` command uses input from `maprights` or `ntfsmap` to set file rights on the target server. All details for setting rights are stated in the input file. `migrights` uses this information to set the rights appropriately on the target file system.

Syntax

```
migrights [-i] [-A] [-t] [-d] [--use-casa] inputfile
```

Options

Option	Long Form	Purpose
[-i]	[--verbose]	Print verbose rights migration status.
[-A]	[--audit]	Audit the results of the file rights migration.
[-t]	[--test]	Perform a test run of the rights migration operation.
[-d]	[--destination-ldap]	Indicate the IP address of an LDAP server in the target server's tree. (Required when using the <code>-t</code> option.)
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	<i>inputfile</i>	Indicate the output file produced by the <code>maprights</code> or <code>ntfsmap</code> command or from stdin.
	[--debug]	Print debug messages to the <code>migrights</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Examples

- ♦ To set rights on the target file system with verbose output:

```
migrights -i maprights.yaml
```
- ♦ To audit the outcome after setting rights on the target file system:

```
migrights -i -A maprights.yaml
```
- ♦ To perform a test run with the output from `maprights` and see if the files and users exist in the target tree, the target LDAP server IP address of 192.168.1.5, with the test results being redirected to `migrights-t.yaml`:

```
migrights -i maprights.yaml -td 192.168.1.5 > migrights-t.yaml
```

migtrustees

The `migtrustees` command uses input from `maptrustees` to create users and groups in the target tree. It uses `ldapadd` and `ldapmodify` to make the changes on the target LDAP server.

If the `-p` (`--posix`) option has been specified in `maptrustees`, `migtrustees` uses `useradd` and `groupadd` to create users and groups in `/etc/passwd` and `/etc/group`.

If the `-g` (`--primary-group`) option was specified in `maptrustees`, the specified group must already exist or it must be created before running `migtrustees`.

Syntax

```
migtrustees -d [-i] [-A] [-m] [--use-casa] inputfile
```

Options

Option	Long Form	Purpose
-d	--destination-ldap	Specifies the target LDAP server's IP address (not needed for POSIX migrations). Example: <code>-d 192.168.1.5</code>
[-i]	[--verbose]	Print verbose information regarding the user and group migration status.
[-A]	[--audit]	Audit the results of the user and group migration.
[-m]	[--modify-existing]	Modifies or updates users or groups if they already exist. If you do not include the <code>-m</code> option, the <code>migtrustees</code> command displays <code>user exists</code> errors if a User object being migrated is already present in the target eDirectory tree. In this case, no modifications are made to the User object in the target tree.
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	<i>inputfile</i>	Indicate the output file produced from the <code>maptrustees</code> command or from stdin.
	[--debug]	Print debug messages to the <code>migtrustees</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Examples

- ♦ To migrate users and groups to a target tree, using an LDAP server with the IP address of 192.168.1.4 in the target tree:

```
migtrustees -d 192.168.1.4 maptrustees.yaml
```

- ♦ To audit the outcome of a trustee migration:

```
migtrustees -d 192.168.1.4 -A maptrustees.yaml
```

- ♦ To migrate users and groups to POSIX with verbose information:

```
migtrustees -i maptrustees.yaml
```

mls

The `mls` command lists files and associated trustees, rights, and quotas from NetWare or OES 1.0 Linux source servers. The output from this command is used as input for both `maprights` and `maptrustees`.

To gather the required information for NetWare Traditional or NSS volumes, `mls` copies `tcnvlrx.nlm` to the NetWare server. To gather this information for OES 1.0 Linux NSS volumes, it uses the `.trustee_database.xml` file in the `._NETWARE` directory.

Syntax

```
mls -s -v [--use-casa]
```

Options

Option	Long Form	Purpose
-s	--source-server	Specifies the source server's IP address. Example: <code>-s 192.168.1.3</code>
-v	--source-path	Specifies the volume or directory path to use on the source server. Examples: <code>-v NSSVOL</code> <code>-v VOL1:/apps/data</code>
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	[--debug]	Print debug messages to the <code>mls</code> log file located at <code>/var/opt/novell/log/migration/</code> .

ntfsmls

The `ntfsmls` command is used to list file attributes and user permissions for files on a Windows NTFS file system. The output from this command is in YAML file format and is used as input for both `maprights` and `maptrustees`.

Syntax

```
ntfsmls -s -v [--use-casa]
```

Options

Option	Long Form	Purpose
-s	--source	Specifies the Windows source server's IP address.
-v	--source-path	Specifies the share name on the Windows source server.
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	[--debug]	Print debug messages to the <code>ntfsmls</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Example

To list file rights and user permissions of the data share on a Windows server with the IP address 192.168.1.3, and with all information being redirected to `ntfsmpls.yaml`:

```
ntfsmpls -s 192.168.1.3 -v data > ntfsmpls.yaml
```

ntfsmap

The `ntfsmap` command gleans all rights information from `ntfsmpls` output and maps it to a specified volume or a specified path on the OES 2 SP1 Linux target server. It also maps all the Windows users to a specified eDirectory container. The output from this command is in YAML file format.

Syntax

```
ntfsmap -k [-n] [-I] [-m] -V|-x inputfile
```

Options

Option	Long Form	Purpose
-k	--destination-ldap-container	Specifies a container where all Windows users and groups will be migrated.
[-n]	[--nss]	Specifies that Windows permissions are to be mapped to NSS rights. The default is NCP.
[-I]	[--inheritance]	Specifies an inheritance type of static or inherited. The default is inherited.
[-m]	[--mapfile]	Specifies a user-specified rights mapping file.
-V	--destination-volume	Specifies the volume on the OES 2 SP1 Linux target server where all the rights information should be mapped.
-x	--destination-path	Specifies the path on the OES 2 SP1 Linux target server where all the rights information should be mapped.
	<i>inputfile</i>	Output file produced from the <code>ntfsmpls</code> command or from stdin.
	[--debug]	Print debug messages to the <code>ntfsmap</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Example

To obtain all rights information from `ntfsmpls.yaml`, map it to an NCP volume named TEST, migrate the user rights to the container `ou=test1,o=novell`, and redirect the output to `ntfsmap.yaml`:

```
ntfsmap -V TEST -k ou=test1,o=novell ntfsmpls.yaml > ntfsmap.yaml
```

ntresource

The `ntresource` command displays information about the Windows source server, including shares, computer information, NetBIOS information, and domain information. You can use this command with the `-l` option to display the share names to be used in the `migfiles` command.

Syntax

```
ntresource -s [-l] [-c] [-n] [-d] [--use-casa]
```

Options

Option	Long Form	Purpose
-s	--source	Specifies the Windows source server's IP address.
[-l]	[--shares-info]	List the shares defined on the Windows server.
[-c]	[--computer-info]	List information about the Windows server computer.
[-n]	[--netbios-info]	List NetBIOS information from the Windows server.
[-d]	[--domain-info]	List the domain information from the Windows server.
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.
	[--debug]	Print debug messages to the <code>ntresource</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Examples

- ♦ To list the shares defined on a Windows source server with the IP address of 192.168.1.3:

```
ntresource -s 192.168.1.3 -l
```

- ♦ To list NetBIOS information about a Windows source server with the IP address of 192.168.1.5:

```
ntresource -s 192.168.1.3 -n
```

ntuserls

The `ntuserls` command lists the users and groups in the Windows source server's domain. Use the `-g` option to generate the user and groups list based on the output generated by `ntfsm ls`.

Syntax

```
ntuserls -s [-g] [--use-casa] inputfile
```

Options

Option	Long Form	Purpose
-s	--source	Specifies the Windows source server's IP address.
[-g]	[--generate]	Output the list of users and groups based on the output generated by <code>ntfsm ls</code> . If this option is not specified, the command lists all users and groups.
	<i>inputfile</i>	Specifies the input file produced by running <code>ntfsm ls</code> . If no filename is provided, the command reads input from stdin.
	[--use-casa]	Use CASA to store and retrieve usernames and passwords.

Option	Long Form	Purpose
	<code>[--debug]</code>	Print debug messages to the <code>ntuserls</code> log file located at <code>/var/opt/novell/log/migration/</code> .

Examples

To generate a list of users and groups from a Windows server with the IP address of 192.168.1.3, using a file produced by running `ntfsmls`, and redirecting the output to `ntuserls.yaml`:

```
ntuserls -s 192.168.1.3 -g ntfsmls.yaml > ntuserls.yaml
```

14.3.5 Additional Migration Options

The OES 2 SP1 Migration Tool provides additional options to be executed with file system migration utilities.

You can execute these commands with file system migration utilities, except Windows migration utilities (`ntfsmls`, `ntfsmap`, `ntuserls`, `ntuserls`, `ntresource`). [Table 14-2](#) lists the additional options that are available for file system migrations.

Table 14-3 *Additional Migration Options with File System Commands*

Option	Description
<code>--session-file</code>	Stores the checkpoint information of a command.
<code>--progress</code>	Display the progress of the command being executed
<code>--progress-interval</code>	Specifies the time interval for displaying the progress of a command.
<code>--debug</code>	Executes the command in a debug mode and creates a log file.
<code>--precheck</code>	Validates the arguments passed in a command.

Session File

A session file stores the status of a command, checkpoint information of a command (the point at which the execution of command was stopped), and parameters for validating the session file. You can create a session file by executing a command with `-session-file` option.

An example to create a session file for the `migfiles` command:

```
migfiles -s 192.168.1.3 -iV src_volume -v dest_volume -session-file /home/migfiles_session.session
```

This command migrates data from the source NSS volume `src_volume` to the target NSS volume `dest_volume`. You can stop the command and re-execute it at a later stage. On executing the command at a later stage the `migfiles_session.session` file is taken as an input and the `migfiles` command starts at the point when it was last stopped.

For example, your source volume contains 50GB of data and after migrating 40 GB of data, migration was stopped. On re-executing the `migfiles` command the remaining 10 GB of data is migrated.

Sample Session File

```
src-server: 192.168.1.3
dest-server: 192.65.1.2
src-path: "DFS:"
dest-path: "/media/nss/VOL1/"
started-on: "18-7-2008 16:8:15"
status: stopped
stopped-at: "DFS:db/"
Bytes Processed: 22
```

Progress

The `-progress` command can be executed with any command to display the progress of the command being executed.

To view progress on executing the `migtrustees` command:

```
migtrustees -d 192.168.1.3 maptrustees.yaml -i -progress
```

Output of the command:

```
Created 200 trustees of 500
```

When you execute the `migtrustees` command with the `--progress` option, it displays the progress of trustee creation. You can set the time to display the progress by specifying the `--progress-interval` option.

Progress Interval

The `-progress-interval` option is used along with `-progress` option to specify the time interval for displaying the progress of a command. The default time interval is 30 seconds for refreshing the progress of a command.

To view progress every 10 seconds on executing the `migtrustees` command:

```
migtrustees -d 192.168.1.3 maptrustees.yaml -i -progress -progress-interval 10
```

The `migtrustees` command refreshes the progress every 10 seconds.

Debug

The `-debug` option executes the command in debug mode and creates a log file in `/var/opt/novell/log/migration` folder.

To execute `mls` command in debug mode:

```
mls -s 192.168.1.3 -V src_volume -debug
```

This command creates an `mls.log` file that is stored in the `/var/opt/novell/log/migration` folder.

Precheck

The `-precheck` option validates the arguments passed in a command.

To execute the `migfiles` command:

```
migfiles -s 192.165.1.1 -iV src_volume -v dest_volume -precheck
```

On executing this command the `-precheck` option validates the existence of the `src_volume` and `dest_volume` on the source server and the target server. The command authenticates to the source server and target server and also checks if SMS is running on the target server.

Service Migration

VII

- ♦ Chapter 15, “Migrating eDirectory to OES 2 SP1 Linux,” on page 135
- ♦ Chapter 16, “Migrating AFP from NetWare to OES 2 SP1 Linux,” on page 139
- ♦ Chapter 17, “Migrating Novell Archive and Version Services from OES 1 NetWare to OES 2 SP1 Linux,” on page 143
- ♦ Chapter 18, “Migrating CIFS from NetWare to OES 2 SP1 Linux,” on page 149
- ♦ Chapter 19, “Migrating DHCP from NetWare to OES 2 SP1 Linux,” on page 161
- ♦ Chapter 20, “Migrating DNS from NetWare to OES 2 SP1 Linux,” on page 175
- ♦ Chapter 21, “Migrating FTP from NetWare to OES 2 SP1 Linux,” on page 179
- ♦ Chapter 22, “Novell iFolder Upgrade, Migration, and Coexistence,” on page 183
- ♦ Chapter 23, “Migrating iPrint from NetWare to OES 2 SP1 Linux,” on page 199
- ♦ Chapter 24, “Migrating Timesync/NTP from NetWare to NTP on OES 2 SP1 Linux,” on page 215

Migrating eDirectory to OES 2 SP1 Linux

15

eDirectory™ migration to Open Enterprise Server (OES) 2 SP1 Linux requires the migration of the eDirectory data and server identity to provide seamless accessibility after migration. The eDirectory migration utility performs all of the pre-migration tasks, health validations and server backups, server migration, and post-migration tasks for you.

The following sections give you more details on the migration procedure for eDirectory. For more information, see the *OES Migration Guide* (<http://www.novell.com/products/openenterpriseserver/migrate.html>).

- ♦ Section 15.1, “Planning Your Migration,” on page 135
- ♦ Section 15.2, “Migration Tools,” on page 136
- ♦ Section 15.3, “Migration Procedure,” on page 136
- ♦ Section 15.4, “After the Migration,” on page 138

15.1 Planning Your Migration

This section lists the important requirements that must be verified before attempting eDirectory migration.

- ♦ Section 15.1.1, “System Requirements,” on page 135
- ♦ Section 15.1.2, “Prerequisites,” on page 136
- ♦ Section 15.1.3, “Supported Platforms,” on page 136
- ♦ Section 15.1.4, “Considerations,” on page 136

15.1.1 System Requirements

- ❑ The target server must run OES 2 SP1 with the migration pattern selected, and should have the eDirectory 8.8 SP4 RPMs already installed.
- ❑ If there is any eDirectory 8.8 SP4 instance already configured in the target OES 2 server, it must be deconfigured. For more information on removing a server object, refer to “Using the *ndsconfig* Utility to Add or Remove the eDirectory Replica Server” (<http://www.novell.com/documentation/edir88/edirin88/data/a79kg0w.html>) in the *eDirectory 8.8 Installation Guide*.
- ❑ OES 2 does not support multiple instances of eDirectory on the same server, so any non-default instances should not be running during migration.
- ❑ The source server should be running and should not be part of any partition operation. For more information on supported source server versions, refer to the “eDirectory Coexistence and Migration” (http://www.novell.com/documentation/oes2/oes_implement_lx_nw/index.html?page=/documentation/oes2/oes_implement_lx_nw/data/edir.html#edir-coexistnmig) in the *OES 2 SP1: Planning and Implementation Guide*.

15.1.2 Prerequisites

- ❑ The eDirectory migration utility can run only on the target server and must be able to access the source server remotely.

15.1.3 Supported Platforms

The eDirectory migration utility is designed to run on the Linux version of OES 2, which is the target platform for migration. For more information on the compatible eDirectory versions at the source and the corresponding target servers, refer to the [Section 4.1, “Prerequisites,” on page 37](#) and [Section 1.4, “Supported Service Migration,” on page 19](#).

15.1.4 Considerations

- ♦ IP address and DNS migrations are not performed by this migration utility.
- ♦ Only the eDirectory instance is migrated. Applications depending on eDirectory are not migrated by this utility.
- ♦ You should not use this migration methodology if you want both the servers to be available during the migration operation.

NOTE: Only the target server is available after the migration. The eDirectory DIB on the source server is locked. Other service migrations cannot be performed after completing eDirectory migration. The source server can be brought back by restarting the eDirectory server, but you should do this only if the target server migration is unsuccessful.

15.2 Migration Tools

The eDirectory migration can be performed independently or by using the OES migration framework. The complete migration task is performed by invoking the migatedir command line utility.

15.3 Migration Procedure

- 1 Run the migatedir utility by entering the following command on the target server:

```
migatedir [-A <log directory name>] [-s <IP address>] [-t] [-h] [-i] [-u] [-a] [-w] [-B] [-R]
```

The utility takes the following command line options:

Option	Description
-A <i>directory name</i>	Enables auditing. <i>directory name</i> specifies the directory in which log files should be created.
-s <i>IP address</i>	Specifies the IP address of the source server containing the eDirectory instance to be migrated.
IMPORTANT: -s is a mandatory parameter.	

Option	Description
-t	Tests the validity of the input parameters.
	NOTE: This option verifies the IP address; however, it does not perform the actual migration.
-h	Prints help about using this utility.
-i	Enables the verbose mode.
-u	Enables the unattended mode.
-a	Specifies the tree adminDN.
-w	Specifies the admin password.
-B	Enables the Backup Only mode.
-R	Enables the Restore Only mode.

2 Follow the on-screen instructions as the utility performs the migration.

The migration utility does some pre-migration checks, performs the migration, then does some post-migration tasks.

- ♦ [“Pre-migration” on page 137](#)
- ♦ [“Migration” on page 137](#)
- ♦ [“Post-migration” on page 137](#)
- ♦ [“Handling Failures” on page 138](#)

Pre-migration

The utility performs the following checks:

- ♦ The health and state of the replicas in the ring are verified.
- ♦ Time synchronization is verified between the source and target servers.

Migration

The utility performs the migration of the eDirectory instance from the collected configuration information. This involves backing up the source server data, locking the eDirectory instance in the source server, migrating data to the target server, and restoring the eDirectory instance on the target server. The dependent NICI files are also migrated.

Post-migration

After migration, the following tasks are performed by the utility:

- ♦ The `nds.conf` configuration file is modified with the source server eDirectory instance information, such as tree name and server name.
- ♦ The eDirectory instance in the target server is restarted so it can use the new data.
- ♦ Network address repair is performed to start the synchronization of the new IP address in the replica ring.

Handling Failures

During migration, the database in the source server is locked to avoid multiple copies of the instance running on the source and target servers. Multiple copies of the same instance can lead to data inconsistency. If the process fails and if you intend to bring up the source server again, you need to perform the following tasks:

- 1 Remove the partially migrated eDirectory instance on the target server.

For more information on removing the eDirectory instance from a server, refer to the ‘[Removing a Server Object And Directory Services From a Tree](http://www.novell.com/documentation/edir88/edir88/data/a79kg0w.html#bxm6fn9)’ (<http://www.novell.com/documentation/edir88/edir88/data/a79kg0w.html#bxm6fn9>) in the *eDirectory 8.8 Installation Guide*.

- 2 Bring up the source server by reloading the directory services. Make sure that the source server is brought up on the network only when the migration fails. The database backup and log files are saved in the `SYS:\` folder.

15.4 After the Migration

After migration, the target eDirectory instance listens on the IP address of the target server and not on the source server’s address. It requires additional time after migration for the eDirectory instance to synchronize the new IP address in the replica ring. Successful eDirectory migration can be verified by performing eDirectory operations on the new IP address.

If you want to use the existing security certificates, you must change the IP address of the target server to that of the source server. If you don’t want to do this, you must issue new certificates.

NOTE: If you change the IP address of the target server after migration, you must modify the `nds.conf` file, restart the eDirectory instance, and repair the network address and partitions replica manually. For more information on repairing eDirectory instance, refer to ‘[Advanced DSRepair Options](http://www.novell.com/documentation/edir88/edir88/data/aflm3p7.html)’ (<http://www.novell.com/documentation/edir88/edir88/data/aflm3p7.html>) in the *eDirectory 8.8 Administration Guide*.

Migrating AFP from NetWare to OES 2 SP1 Linux

16

Migration refers to the process of migrating AFP services from a NetWare® system to a Linux system. For general information about the Open Enterprises Server (OES) 2 SP1 Migration Tool, see [Chapter 1, “Overview of the Migration Tools,” on page 15](#).

The following sections give you more details on the migration procedure for AFP.

- ♦ [Section 16.1, “Requirements,” on page 139](#)
- ♦ [Section 16.2, “Migration Scenarios,” on page 139](#)
- ♦ [Section 16.3, “Understanding the Migration Process,” on page 140](#)
- ♦ [Section 16.4, “Migration Procedure,” on page 140](#)
- ♦ [Section 16.5, “Verifying the Migration Process,” on page 141](#)
- ♦ [Section 16.6, “Cross-Platform Issues,” on page 141](#)

16.1 Requirements

Make sure your source server and target server meet the following requirements:

Source Server Requirements

- ♦ NetWare 5.1 or later versions

Target Server Requirements

- ♦ OES 2 SP1 Linux server
- ♦ Install and configure the AFP server by following the instructions in “[Installing and Setting Up AFP](#)” in the *OES 2 SP1: Novell AFP For Linux Administration Guide*

16.2 Migration Scenarios

AFP supports the following migration scenarios:

- ♦ Migrating Servers through Server Consolidation
- ♦ Migrating Servers through Transfer ID

For more information about these scenarios, see [Section 1.3, “Migration Scenarios,” on page 17](#).

NOTE: AFP does not support migration across different eDirectory trees. However, it can be achieved by using the Different Tree scenario to migrate the file system, then reconfiguring AFP on the target server:

For details, see [Section 14.3.2, “Migrating Data to a Server in a Different Tree,” on page 106](#) and “[Installing and Setting Up AFP](#)” in the *OES 2 SP1: Novell AFP For Linux Administration Guide*

16.3 Understanding the Migration Process

During the migration process, the source server reads the context file information and migrates it to the target server.

If the contexts on NetWare do not have a Universal Password policy, the migration process includes the Universal Password policy.

If the contexts on NetWare already have a Universal Password policy, the migration process modifies the policy by enabling Universal Password and including the proxy user to read the users' password.

16.4 Migration Procedure

Migrating the AFP configuration is done by using the YaST utility or through the command line interface.

- ♦ [Section 16.4.1, “Using the Migration Tool to Migrate,” on page 140](#)
- ♦ [Section 16.4.2, “Using Command Line Utilities to Migrate,” on page 140](#)

16.4.1 Using the Migration Tool to Migrate

- 1 Access the Migration Tool by using the steps detailed in [Section 5.2, “Launch the Migration Tool Utility,” on page 39](#).
- 2 Authenticate to the source and target servers.
- 3 Select *Novell AFP*, then click *Configure*. The AFP configuration window is displayed.
- 4 From the list, select the password policies to which the AFP users are assigned.
Click *OK* to finish the configuration and go back to the migration screen.

16.4.2 Using Command Line Utilities to Migrate

To run the AFP migration utility through the command line, run `migafp` with the following parameters:

Table 16-1 *migafp* Command Line Parameters

Parameter	Description
-h	Prints a summary of the migration process
-s	IP address of the source server
-u	DN of the source tree admin. For example : <code>cn=user, o=company</code>)
-w	Admin password to authenticate to the source server
-b	DN of the destination tree. For example: <code>cn=user, o=company</code>)
-x	Admin password to authenticate to the destination server
-q	Port number of the target LDAP server

Parameter	Description
-t	Use 1 as a parameter for secure authentication and 0 as a parameter for non-secure authentication
-f	Full path of file containing the password policy DN's. Each entry should be separated by a new line

For example:

```
migaftp -s 10.10.10.1 -u cn=sourceadmin.o=novell -w password -b
cn=targetadmin.o=novell -x password -q 689 -t 1 -f /tmp/passwordpolicyfdn.ldf
```

16.5 Verifying the Migration Process

- 1 Ensure that all the context details from `sys:/etc/ctxs.cfg` (NetWare context file) are migrated to `/etc/opt/novell/afptcpd/afpdircxt.conf` (OES 2 SP1 Linux server context file).
- 2 Check to see if the password policies specified during AFP migration have the proxy user added as a user to read the passwords of users:
 - 2a Click *Passwords > Password Policies*. Select the AFP Password policy from the list.
 - 2b Select *Universal Password > Configuration Options*. Ensure that the following options are enabled:
 - Enable Universal Password*
 - Allow User to retrieve password*
 - 2c Under *Allow the following to retrieve passwords* list, select the AFP proxy user.

16.6 Cross-Platform Issues

AFP on Linux uses Universal Password as the authentication mechanism instead of the Simple Password authentication mechanism on NetWare. During migration from NetWare to Linux, the simple passwords on the NetWare system are synchronized to the Universal Password, so that the user can authenticate seamlessly to the AFP service on the Linux server.

This feature is restricted based on the following conditions:

- ♦ The first-time login by the user should use the Diffie Hellman Exchange or clear-text authentication methods. The automatic password synchronization does not happen if the user authenticates by using the Random Exchange or Two-way Random Exchange method of authentication.
- ♦ When the Diffie Hellman Exchange or clear-text authentication methods are used, the eDirectory service (ndsd) should be started with the environment variable `NDSD_TRY_NDSLOGIN_FIRST` set to `TRUE`.

If the above conditions are not met, all the users with Simple Passwords are required to manually authenticate to the AFP server on NetWare after they are enabled for Universal Password, in order to trigger the password synchronization to Universal Password.

Migrating Novell Archive and Version Services from OES 1 NetWare to OES 2 SP1 Linux

This section provides information on how to migrate Novell Archive and Version Services running on NetWare® 6.5 SP7 or later to Open Enterprises Server (OES) 2 SP1 Linux. In this section, the Netware server is referred to as the source server and the OES 2 SP1 Linux server is referred to as the target server.

For general information on the OES 2 Migration Tool, see [Chapter 1, “Overview of the Migration Tools,” on page 15](#)

- ♦ [Section 17.1, “Prerequisites,” on page 143](#)
- ♦ [Section 17.2, “Migration Scenarios,” on page 143](#)
- ♦ [Section 17.3, “Migration Procedure,” on page 144](#)
- ♦ [Section 17.4, “Post-Migration Procedure,” on page 147](#)

17.1 Prerequisites

Before proceeding to migrate, meet the following prerequisites:

- ♦ The Archive server is installed on NetWare 6.5 SP7 or later. For more details, refer the *OES 2: Novell Archive and Version Services 2.1 for NetWare Administration Guide*.
- ♦ Install the NSS file system on the OES 2 SP1 Linux server.
- ♦ The Archive server and the Primary volume must reside in the same eDirectory™ tree.
- ♦ The Archive server, PostgreSQL database, and Archive volume must be installed on the same machine.

17.2 Migration Scenarios

The supported scenarios for Archive and Versions Services are as follows:

- ♦ [Section 17.2.1, “Consolidate - Same Tree,” on page 143](#)
- ♦ [Section 17.2.2, “Transfer ID - Same Tree,” on page 144](#)
- ♦ [Section 17.2.3, “What Is Migrated,” on page 144](#)

17.2.1 Consolidate - Same Tree

In the Consolidate scenario, the data and configuration on the source server is overwritten.

17.2.2 Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. On successful completion of Transfer ID, the target server functions with the same credentials (such as IP address and hostname) as the source server and source server node is no longer available in the network.

17.2.3 What Is Migrated

The following data is migrated from the source server to the target server:

- ♦ The Archive volume that contains the versions of your files.
- ♦ The configuration details stored in `ArkConfig.xml` file.
- ♦ Database records from the MySQL* database to the PostgreSQL database.

17.3 Migration Procedure

- 1 Install the OES 2 SP1 Linux server as the target server for the Archive and Version Services into the same edirectory tree as the source server.

For more information on installing Novell Archive and Version Services, see “[Setting Up Archive and Version Services](#)” in the *OES 2 SP1: Novell Archive and Version Services 2.1 for Linux Administration Guide*.

- 2 To stop the Archive and Version Services on source server and continue to run the MySQL database, enter

```
arkstop
```

- 3 To stop the Archive Service on the target server, enter

```
rcnovell-ark stop
```

This command stops the Archive server and the default instance of the PostgreSQL database.

- 4 If you have configured the Archive server with the default configuration, restart the PostgreSQL database with the following command:

```
/opt/novell/arkmanager/bin/pg_restart.sh
```

- 5 Migrate data from Archive volume on the NetWare server to the OES 2 SP1 server.

The migration is from the NetWare NSS source volume to the OES 2 SP1 Linux NSS target volume, where the source and target servers are in the same eDirectory tree. For more information, refer to the *OES 2: NSS File System Administration Guide* (http://www.novell.com/documentation/oes2/stor_nss_lx_nw/index.html?page=/documentation/oes2/stor_nss_lx_nw/data/bt8gbxo.html).

IMPORTANT: You need to migrate the Archive volume before migrating the Archive and Version Service; otherwise, versions of files created on the NetWare server are unusable on OES 2 SP1 Linux server.

- 6 (Optional) Migrate data from the Primary volume on the NetWare server to the OES 2 SP1 Linux server, using either command line utilities or the GUI interface. For more information, refer to the *OES 2: NSS File System Administration Guide* (http://www.novell.com/documentation/oes2/stor_nss_lx_nw/index.html?page=/documentation/oes2/stor_nss_lx_nw/data/bt8gbxo.html).

- 7 Decide how to migrate Archive and Version Services.

The Migration Tool GUI has a plug-in architecture and is made up of command line utilities with a GUI wrapper. You can migrate Archive and Version Services by using either of the following methods:

- ♦ “Using the Migration Tool GUI” on page 145
- ♦ “Using the Command Line” on page 146

17.3.1 Using the Migration Tool GUI

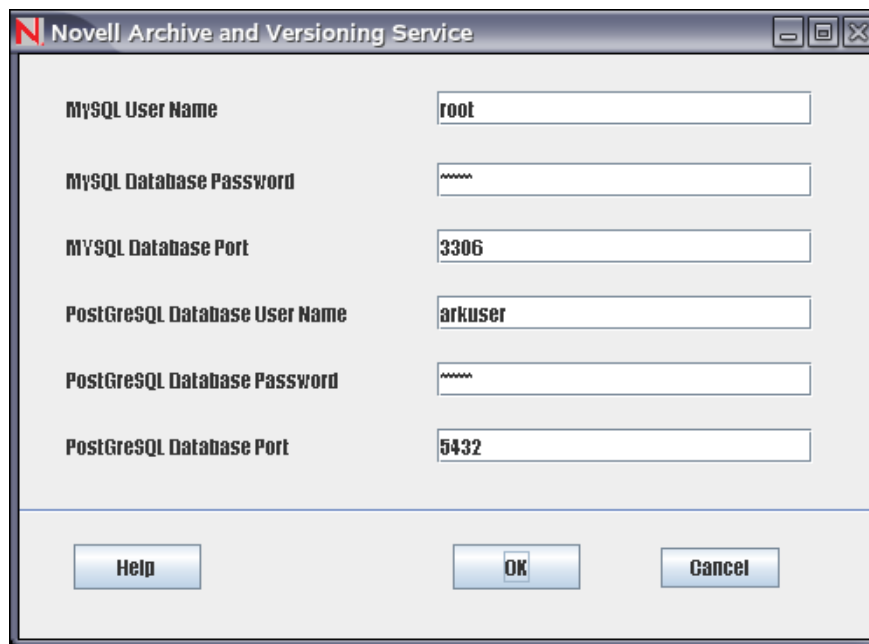
- 1 Click *Computer > More Applications > System > Novell Migration Tools* to launch the Migration Tool GUI.

For more information on using the Migration Tool GUI, refer to [Chapter 5, “Using the Migration Tool GUI,” on page 39](#).

- 2 Authenticate to the source and target server. Archive and Version Services is listed in the *Service* panel.

Select the *Migration Type* as *Consolidate* for migrating Archive service, or to Transfer ID for Transfer ID scenario.

- 3 In the *Services to Migrate* panel, click *Add* and select *Novell Archive and Versioning Services*. The *Status* of the service is *Not Configured*.
- 4 Select *Novell Archive and Versioning Service* and click *Configure*.



- 5 Fill in the fields, using the information in the following table:

Parameter	Description
MySQL User Name	Specify a username for the administrator of the MySQL database on the source server.

Parameter	Description
MySQL Database Password	Specify a password for the MySQL user.
MySQL Database Port	Specify a port number used for the archive database communications on the source server. Port 3306 is the default.
PostgreSQL Database User Name	Specify a username for the administrator of the archive database (the PostgreSQL database for the archived data) on the OES 2 SP1 Linux server.
	IMPORTANT: The Postgres user must be an unprivileged user, not the root user.
PostgreSQL Database Password	Specify a password for the PostgreSQL user.
PostgreSQL Database Port	Specify a port number to use for the archive database communications on the OES 2 SP1 server. Port 5432 is the default.

6 Click *OK*.

The *Status* of the service is *Ready*.

7 Click *Start* to proceed with migration. The *Status* is *Migrating*.

In the *Status* pane, *Service* tab, you can view the progress of migration. On completion of migration, the *Status* changes to *Migrated*.

NOTE: If you encounter any errors during migration, check the *Logs* tab in the *Service* pane. After resolving the errors, execute the migration procedure again.

17.3.2 Using the Command Line

1 To run the Archive and Version migration utility through command line, run `/opt/novell/migration/bin/migark.sh` with the following details:

Option	Description
<code>--mysqldb-user=<opt></code>	Specify a username for the administrator of the MySQL database.
<code>--mysqldb-passwd=<opt></code>	Specify a password for the MySQL user.
<code>--mysqldb-port=<opt></code>	Specify a port number used for the archive database communications on NetWare server. Port 3306 is the default.
<code>--hostname=<opt></code>	Specify the host name or IP address of the NetWare server on which Archive and Version Services resides.
<code>--username=<opt></code>	Specify the fully distinguished eDirectory name and context of the administrator user. For example, <code>cn=admin.o=novell</code>
	NOTE: Use the dot (.) format for specifying the eDirectory name and context, not the comma (,) format.
<code>--password=<opt></code>	Specify a password for the Admin user.

Option	Description
<code>--pg_db-user=<opt></code>	Specify a username for the administrator of the archive database (the PostgreSQL database for the archived data) on the Novell OES 2 SP1 server. IMPORTANT: The Postgres user must be an unprivileged user, not the root user.
<code>--pg-db-passwd</code>	Specify a password for the PostgreSQL user.
<code>--pg_db-port=<opt></code>	Specify a port number to use for the archive database communications on the OES 2 SP1 Linux server. Port 5432 is the default.

For example:

```
/opt/novell/migration/bin/migark.sh --mysqldb-user=root --mysqldb-passwd=novell --mysqldb-port=3306 --hostname=192.168.1.255 --username=cn=admin.o=novell --password=novell12 --pg_db-user=arkuser --pg_db-passwd=novell12 --pg_db-port=5432
```

NOTE: If you encounter any errors during migration, check the `archive_migration.log` file in the `/var/opt/novell/log/migration/` folder. After resolving the errors, execute the migration procedure again.

17.4 Post-Migration Procedure

1 Before restarting the Archive server, ensure the following:

- ♦ Migration of the Archive volume is successful.
- ♦ (Optional) Migration of Primary volume is successful. In the `ArkConfig.xml` file under the `job` tag, ensure that the server name and context reflect the configuration details of the target machine.
- ♦ The migrated data from the volumes and database is consistent.
- ♦ Edit `ArkConfig.xml` to update the Archive volume path under `archivePath` tag on the OES 2 SP1 Linux server.
- ♦ Ensure that the admin is a part of the `novlxtier` group. For more information, refer to “[Caveats on Upgrading from OES 1 to OES 2 SP1](#)” in the *OES 2 SP1: Novell Archive and Version Services 2.1 for Linux Administration Guide*.
- ♦ Ensure that the admin is LUM-enabled on the target server running Archive and Version Services.
- ♦ Ensure that the read only attribute is not set on the ARK volume.

To check if the ARK volume has the read only attribute, enter `attrib /media/nss/ARK`. The output of the above command includes the read only (`ro`) attribute.

To delete the read only attribute, enter `attrib -c ro /media/nss/ARK`

2 To restart the Archive Service on OES 2 SP1 Linux server, enter:

```
rcnovell-ark start
```

17.4.1 Verifying Migration

To verify that migration completed successfully, check the availability of file versions by using the NSS File Version Utility.

Migrating CIFS from NetWare to OES 2 SP1 Linux

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The NetWare® to Open Enterprises Server (OES) 2 Linux CIFS migration process is either initiated from the Migration Tool or through a command line utility. For detailed information on migration through the Migration Tool, see [Chapter 1, “Overview of the Migration Tools,” on page 15](#) and for information on the command line utility, see [Section 18.6, “Man Page for Migration,” on page 157](#).

Migrating CIFS means migrating CIFS shares, contexts, and server configuration information. The following sections give you more detail on the CIFS migration procedure for OES 2 SP1 Linux:

- ♦ [Section 18.1, “Migration Prerequisites,” on page 149](#)
- ♦ [Section 18.2, “Migration Scenarios,” on page 149](#)
- ♦ [Section 18.3, “Migration Procedure,” on page 150](#)
- ♦ [Section 18.4, “Post-Migration Procedure,” on page 156](#)
- ♦ [Section 18.5, “Verifying the Migration,” on page 156](#)
- ♦ [Section 18.6, “Man Page for Migration,” on page 157](#)

18.1 Migration Prerequisites

For the migration to happen successfully:

- ♦ The CIFS server is installed and configured on the source server in one of the following platforms:
 - ♦ NetWare 5.0
 - ♦ NetWare 6.0
 - ♦ NetWare 6.5 SP7 or SP 8

For details about CIFS on a NetWare server, see the *OES 2 SP1: AFP, CIFS, and NFS for NetWare (NFAP) Administration Guide*.

- ♦ The CIFS server is installed and configured on the target server (OES 2 SP1 Linux). For details, see “[Installing a CIFS Server on OES 2 SP1 Linux](#)” in the *OES 2 SP1: Novell CIFS for Linux Administration Guide*.
- ♦ NSS file system migration from the source to the target server is completed.

18.2 Migration Scenarios

The CIFS migration scenarios are explained in this section:

- ♦ [Section 18.2.1, “Consolidate - Same Tree,” on page 150](#)
- ♦ [Section 18.2.2, “Consolidate - Different Tree,” on page 150](#)
- ♦ [Section 18.2.3, “Transfer ID - Same Tree,” on page 150](#)
- ♦ [Section 18.2.4, “What Is Migrated,” on page 150](#)

18.2.1 Consolidate - Same Tree

Only CIFS shares and contexts of the source servers are consolidated. The remaining server configuration information is not consolidated. The target server configuration is overwritten with the source server configuration. For details on consolidation migration, see [Section 1.3, “Migration Scenarios,” on page 17](#).

18.2.2 Consolidate - Different Tree

CIFS consolidation for Different Tree is not supported. However, it can be achieved by using the following procedure:

- 1 Migrate the file system by using the Different Tree scenario. For details, see [Section 14.3.2, “Migrating Data to a Server in a Different Tree,” on page 106](#).
- 2 Re-configure CIFS on the target server. For details on configuring CIFS, see “[Setting the CIFS Server and Authentication Properties](#)” in the *OES 2 SP1: Novell CIFS for Linux Administration Guide*.

18.2.3 Transfer ID - Same Tree

In this scenario, the target is installed into the same tree with a temporary name and IP address. At the end of the procedure, the source server name and IP address are swapped for the target server name and IP address. For details on Transfer ID migration, see [Part IV, “Transfer ID Migration,” on page 51](#).

18.2.4 What Is Migrated

The following table gives you a quick overview of what is migrated from NetWare CIFS to OES 2 SP1 Linux CIFS for the different scenarios:

Table 18-1 Migration Support for CIFS service

Service supported	Consolidation		Transfer ID	
	Same Tree	Different Tree	Same Tree	Different Tree
Migrating CIFS shares	✓	✗	✓	✗
Migrating CIFS contexts	✓	✗	✓	✗
Migrating server configuration information	✗	✗	✓	✗

18.3 Migration Procedure

Follow the instructions in either of these sections to perform the CIFS migration.:

- ♦ [Section 18.3.1, “Using the Migration Tool,” on page 151](#)
- ♦ [Section 18.3.2, “Using the Command Line,” on page 154](#)

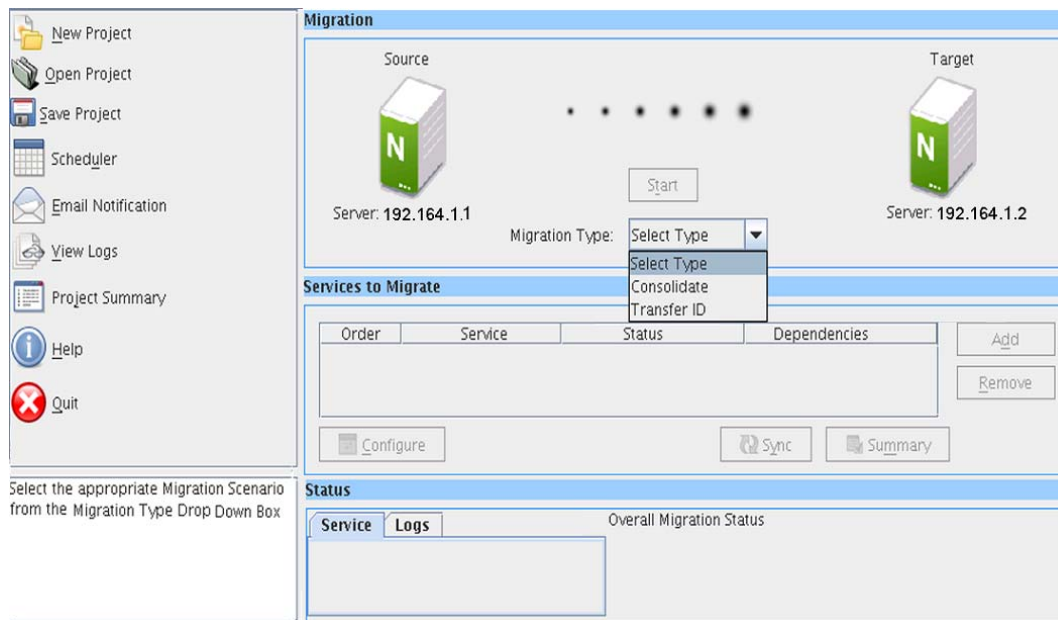
18.3.1 Using the Migration Tool

- 1 Launch the Migration Tool on the target server in one of the following ways:

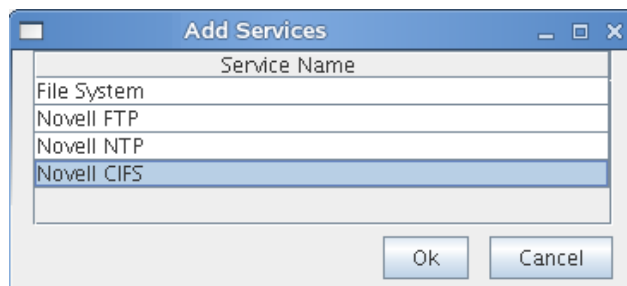
Desktop: Click *Computer > More Applications > System > Novell Migration Tools*.

Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

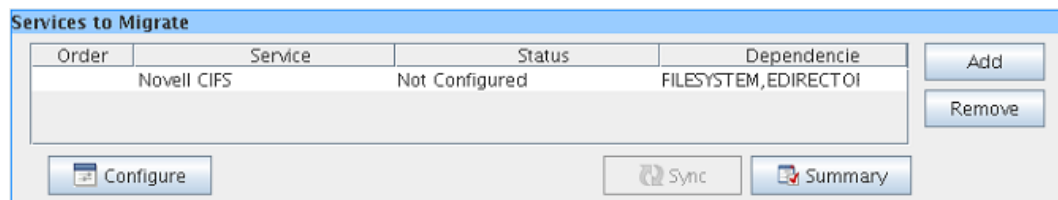
For details on configuring source and target Server information, selecting a migration type, opening a project, and all the tool buttons, see [Chapter 2, “Overview of the Migration GUI,” on page 21](#).



- 2 Click *Add*, select *Novell CIFS* to migrate, and click *OK*.



The *Status* is displayed as *Not Configured*.



- 3 Select *Novell CIFS* and click *Configure* to configure the migration parameters.

Select the Volume from Source drop down list and Browse to give its path on Target.

Source: V1:

Target: /media/nss/V1

Source List	Target List
-------------	-------------

Buttons: Browse, Add, Update, Delete, Help, OK, Cancel

- 4 Under *CIFS Shares*, select the *Source* and *Target* shares for migration. Use *Browse* to browse for target shares. Use *Add* to add more source and target share mappings. Use *Update* to modify the configuration. Use *Delete* to remove the share mappings.

When you have filled in the information, the dialog will be similar to the following:

Select the Volume from Source drop down list and Browse to give its path on Target.

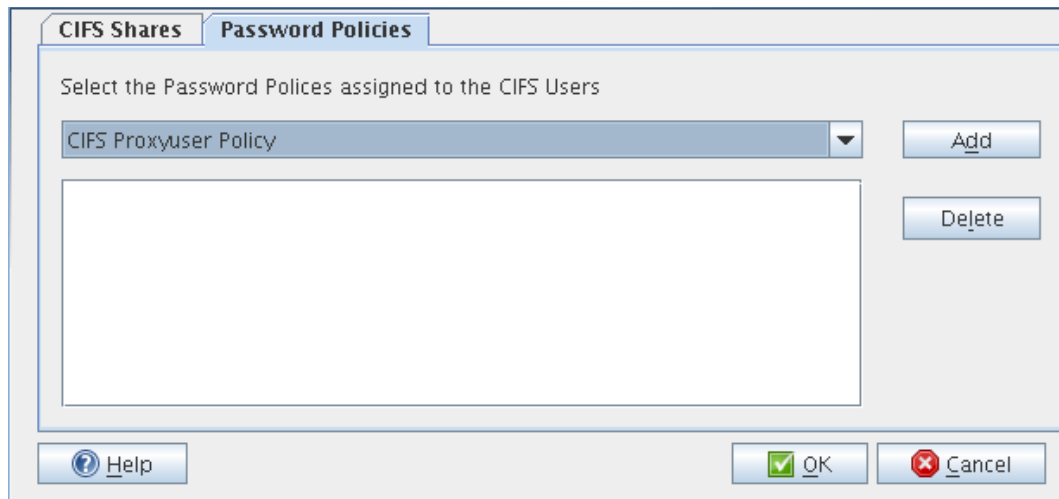
Source: VOL1

Target:

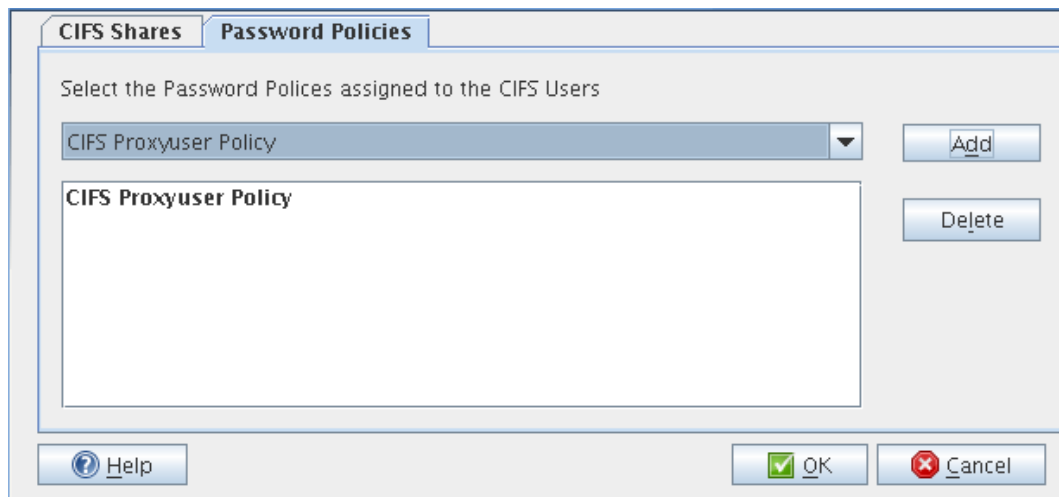
Source List	Target List
ark	/media/nss/ARK
primary	/media/nss/PRIMARY
CIFS	/media/nss/CIFS
VOL1	/media/nss/VOL1

Buttons: Browse, Add, Update, Delete, Help, OK, Cancel

- 5 Under *Password Policies*, select and add password policies to be associated with the proxy user to enable CIFS share access. Use *Add* to attach additional password policies. Use *Delete* to detach the password policies.



When you have filled in the information, the dialog will be similar to the following:

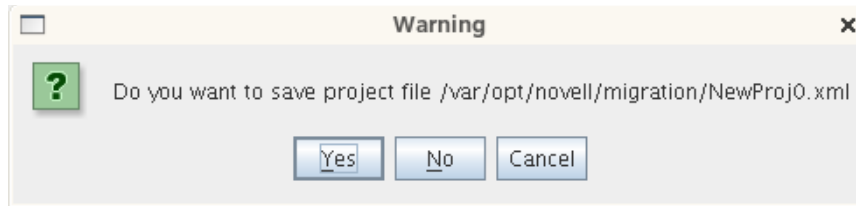


- 6 Click *OK* to complete the configuration.

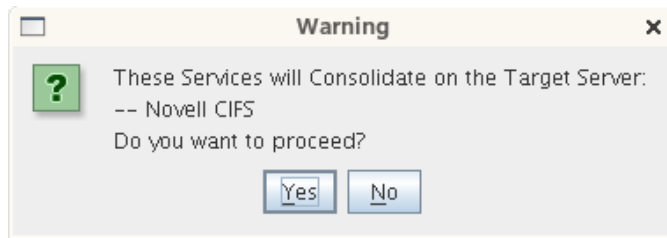
The *Status* is displayed as *Ready*.

Services to Migrate			
Order	Service	Status	Dependencies
	Novell CIFS	Ready	FILESYSTEM, EDIRECTORY

- 7 Click *Start* to start the migration process. When you are prompted to save the project, click *Yes*.

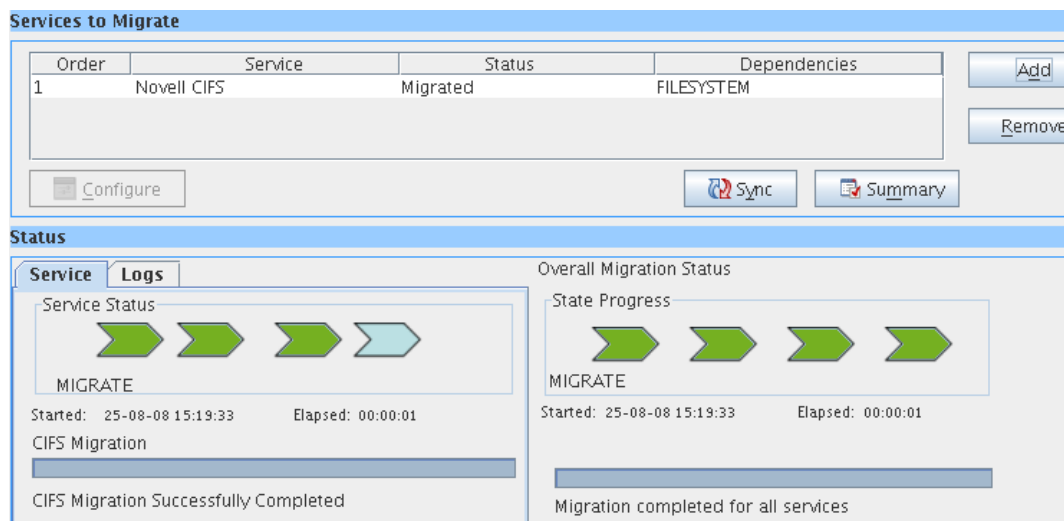


8 In the next dialog box, click *Yes* to proceed with the migration.



Wait for the migration to be completed. The *Status* changes to *Migrated*. The message *CIFS Migration Successfully Completed* is displayed.

NOTE: Use the *Status > Logs* tab to verify for errors during migration. If there are errors, fix them and restart the migration procedure.



18.3.2 Using the Command Line

CIFS migration requires the complete source and target server details. Run the `migCifs` utility on the target server for migrating. An example `migCifs` command is shown below. For details on the command, see [Table 18-2](#) and see “`migCifs`” in [Section 18.6, “Man Page for Migration,” on page 157](#).

```
migCifs -s <sourceIPAddr> -p <sourceportnum> -a <sourceFDN> -w <passwd> -f
<sec/nonsecConn> -d <targetIPAddr> -q <targetportnumber> -b <targetFDN> -x
<passwd> -g <secure/nonsecureconn> -S <MigrationType> [-m
<cifsshare mappings>] [-n <cifspasswordpolicies>]
```

```

migCifs -s <sourceIPAddr> -p <sourceportnum> -a <sourceFDN> -w <passwd> -f
<sec/nonsecConn> -d <targetIPAddr> -q <targetportnumber> -b <targetFDN> -x
<passwd> -g <secure/nonsecureconn> -S <MigrationType> -c

migCifs -s <sourceIPAddr> -p <sourceportnum> -a <sourceFDN> -w <passwd> -f
<sec/nonsecConn> -d <targetIPAddr> -q <targetportnumber> -b <targetFDN> -x
<passwd> -g <secure/nonsecureconn> -S <MigrationType> [-m <sourcecifsshare>]
-r

```

Table 18-2 *migCifs Command Details*

Command Option	Description
-s <sourceIPAddr>	Source server IP address. For example, -s 192.168.0.1.
-p <sourceportnum>	Port number of the source server. For example, -p 636.
-a <sourceFDN>	Source server FDN. For example, -a cn=admin,o=novell.
-w <passwd>	Password for the source server FDN. For example, -w mysrc.
-f <sec/nonsecConn>	Secure (SSL) or non-secure (Non-SSL) connection type of the source server. 1 for SSL and 0 for Non-SSL. SSL is preferred. For example, -f 1 or -f 0.
-d <targetIPAddr>	Target server IP address. For example, -d 192.168.0.2.
-q <targetportnum>	Port number of the target server. For example, -q 636.
-b <targetFDN>	Target server FDN. For example, -b cn=admin,o=novell.
-x <passwd>	Password for the target server FDN. For example, -x mytgt.
-g <sec/nonsecConn>	Secure (SSL) or non-secure (Non-SSL) connection type of the target server. 1 for SSL and 0 for Non-SSL. SSL is preferred. For example, -g 1 or -g 0.
-S <MigrationType>	One of the migration types, such as Same Tree, Different Tree, Transfer ID, or Consolidation. 0 for Same Tree, 3 for Transfer ID, and 5 for Consolidation. For example, -S 0 or -S 3 or -S 5.
-m <cifsSharesmap>	CIFS source to the target share mapping file. This is an optional command. Create the file using any text editor. Separate individual sharemaps by a line. <ol style="list-style-type: none"> 1. Open a new file in the text editor. 2. Specify sourcesharename#targetsharepath. For example, share1#CIFSv1:linuxshare1 share2#NSSvol:linuxshare2/cifsshare 3. Specify the required number of share details and save the file.

Command Option	Description
-n <cifsPasswordPolicies>	File containing the list of password policies. Specify each policy on a separate line and save. This is an optional command.
-c	Synchronizes the migration after consolidation. Only the CIFS context is synchronized. CIFS shares and server configuration information are not synchronized.
-r	Removes the shares related to the source (NetWare) server from the target server after a Transfer ID migration. Pass the source only CIFS share file. The source shares are listed and each share terminated with a #. For example, /media/nss/CIFSV1:#. Do not pass the CIFS Password Policies files with this option.

18.4 Post-Migration Procedure

Restart CIFS for the service to take effect on the target server. Use `renovell-cifs restart` from your command prompt to restart CIFS.

18.5 Verifying the Migration

After migration is complete, the CIFS server on the target server must be available and running as it used to be on your NetWare server. This verifies that the migration has been successfully completed.

If the CIFS server is not running after migration, see “[CIFS Migration Issues](#)” in the *OES 2 SP1: Novell CIFS for Linux Administration Guide*.

After a successful migration:

- ♦ All the CIFS shares are migrated and listed on the target server.
- ♦ All the CIFS contexts are migrated to the target server.
- ♦ The source server proxy admin is attached to the selected CIFS user policies and context on the target server.

You can verify these steps for a successful migration by using either iManager or command line options.

- ♦ [Section 18.5.1, “Using iManager to Verify the Migration,” on page 156](#)
- ♦ [Section 18.5.2, “Using CLI to Verify the Migration,” on page 157](#)

18.5.1 Using iManager to Verify the Migration

- 1 Open iManager on the target server.
- 2 Go to *File Protocols > CIFS*.
- 3 Browse or specify the OES 2 SP1 Linux server.
- 4 Click *OK*.

- 5 Click *Start*. This displays the CIFS status as *Running*.
- 6 Click *Shares*. You must be able to list the sharepoints that were running on your NetWare and now migrated to OES 2 SP1 Linux server.

For details on CIFS administration through iManager, see “[Using iManager to Manage CIFS](#)”.

18.5.2 Using CLI to Verify the Migration

- 1 On the target server console, enter the command `rcnovell-cifs status`.
- 2 If the status is not `running`, enter the command `rcnovell-cifs start` to start the server.
- 3 If the status is `running`, enter the command `rcnovell-cifs restart` to restart the server.
- 4 Enter the command `novcifs [-sl | --share --list]` or `novcifs [-sln sharename | --share --list --name=sharename]`

This displays the list of sharepoints that were available on NetWare and are now migrated to the OES 2 SP1 Linux server.

For details on CIFS administration through command line utilities, see “[Using the Command Line to Manage CIFS](#)” in the *OES 2 SP1: Novell CIFS for Linux Administration Guide*.

18.6 Man Page for Migration

To access this man page with the command information, enter `man migCifs` at the command prompt.

- ♦ “[migCifs\(8\)](#)” on page 158

migCifs(8)

Name

migCifs - A command line utility that communicates with the source and target servers for migrating CIFS configuration information from NetWare to Novell OES 2 Linux. The command must be run on a target server.

Syntax

Migrating the CIFS Service from NetWare to OES 2 Linux

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> [-m <mapfilename>] [-n
<pswdpolicyfilename>]
```

Synchronizing after Consolidation

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> -c
```

Repair after Transfer ID

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> [-m <sourcesharefilename>]
-r
```

Options

Usage Options:

-s <sourceIP>

Source server IP address.

-p <portnumber>

Port number of the source LDAP server.

-a <sourceFDN>

Fully distinguished name (FDN) of the source server tree admin.

-w <password>

Source server tree admin password.

-f <sec/nonsecConnType>

Enable or disable SSL connection for the source LDAP server. 1 for SSL and 0 for non-SSL connection.

-d <targetIP>

Target server IP address.

-q <portnumber>

Portnumber of target LDAP server.

-b <targetFDN>

Fully Distinguished Name (FDN) of the target server tree admin.

-x <password>

Target server tree admin password.

-g <sec/nonsecConnType>

Enable / disable SSL connection for the target LDAP server. 1 for SSL and 0 for non-SSL connection.

-S <MigType>

Set the migration type. 0 for Consolidation, 3 for Transfer ID.

-m mapfilename

File containing source and target server share mappings.

-n pswdpolicyfilename

File containing the names of the Password policies assigned to the users.

-c

Synchronizes only the CIFS context after consolidation. CIFS shares and server configuration information are not synchronized.

-r

Removes the shares related to the NetWare server from the target server after a Transfer ID migration.

Help Options

-h | --help

Displays the help information of the command and syntax.

-u | --usage

Displays the usage information of the command.

Files

/etc/opt/novell/cifs/cifs.conf

CIFS configuration file.

/etc/opt/novell/cifs/cifsctxs.conf

CIFS context file.

`/etc/opt/novell/cifs/.cifspwdfile`

Encrypted CIFS proxy user file.

`/var/opt/novell/log/cifs.log`

CIFS server log file.

`/var/opt/novell/migration/Newproj[n]/log/cifs.log`

CIFS migration log file.

Example

```
migCifs -s 192.168.0.1 -p 636 -a cn=admin,o=novell -w novell -f 1 -d 192.168.0.2 -q 636 -b  
cn=admin,o=novell -x novell -g 1 -S 0 -m cifsShares.tmp -n cifsPasswordPolicies.tmp
```

Authors

Copyright 2008, Novell, Inc. All rights reserved. <http://www.novell.com>.

See Also

`novcifs(8)`

Report Bugs

To report problems with this software or its documentation, visit <http://bugzilla.novell.com>.

Migrating DHCP from NetWare to OES 2 SP1 Linux

19

Migration refers to the process of migrating the Novell® DHCP Services running on NetWare® 5.1 or later to Open Enterprise Server (OES) 2 SP1 Linux.

For general information about the OES 2 Migration Tool, see the *OES 2 SP1: Migration Tool Administration Guide*.

- ♦ [Section 19.1, “Migration Requirements,” on page 161](#)
- ♦ [Section 19.2, “Migrating DHCP,” on page 161](#)
- ♦ [Section 19.3, “Migration Scenarios,” on page 171](#)
- ♦ [Section 19.4, “Migrating a Cluster,” on page 172](#)
- ♦ [Section 19.5, “Post-Migration Procedures,” on page 173](#)
- ♦ [Section 19.6, “Verifying the Migration,” on page 173](#)

In these sections, the NetWare server is referred to as the source server and the OES 2 SP1 Linux server as the target server.

19.1 Migration Requirements

Make sure your setup addresses the following requirements before you migrate DHCP to the new platform.

- ☐ An eDirectory™ integrated DHCP server installed and configured on the target machine. This takes care of the schema extension on the target server tree and creation of the dhcpLocator and DHCPGroup objects.
- ☐ The user running DHCP Migration requires read and write permissions on the target machine for the following folders:

```
/opt/novell/migration/dhcpmigration/tmp  
/opt/novell/migration/dhcpmigration/dhcp
```

Recommended: Run DHCP Migration as the root user.

- ☐ The target and source servers should have their time synchronized, or the leases might not function properly.
- ☐ Use NetWare 5.1 or later as the source platform for the migration process.

19.2 Migrating DHCP

To migrate the DHCP Services, you can use the Migration Tool or the command line interface.

- ♦ [Section 19.2.1, “Understanding the Migration Process,” on page 162](#)
- ♦ [Section 19.2.2, “Using the Migration Tool to Migrate Servers,” on page 163](#)
- ♦ [Section 19.2.3, “Using the Command Line to Migrate Servers,” on page 170](#)

19.2.1 Understanding the Migration Process

Make sure that you install the OES 2 SP1 Linux server as the target server for the DHCP Services. For more information on installing Novell DHCP Services, refer to “[Installing and Configuring DHCP](#)” in the *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.

During migration, the NetWare DHCP configuration objects are read and mapped to the corresponding configuration objects on Linux DHCP. This helps in retaining the same functionality after the migration process.

- ❑ **Subnets:** All the subnets associated with the NetWare DHCP server are migrated to the new platform. If there is at least one address range associated with the NetWare DHCP server inside the subnet, the subnet is migrated with all the associated address ranges. The subnet object is created inside the dhcpService object on Linux. After migration, the subnet is identified by its IP address.
- ❑ **DHCP Server:** After migration, the Linux DHCP server is prefixed with the string “OES”. For example, if the source server on NetWare is named DHCP_NWServer, after migration the server is identified on Linux as OESDHCP_NWServer.
- ❑ **DHCP Service:** During a server-level or tree-level migration, a dhcpService object is created on the target server corresponding to each source NetWare DHCP server. This is the container object that contains all the DHCP configuration data associated with DHCP server. The dhcpService object is created inside the context specified in the *BaseDN* field during migration. The dhcpService object is prefixed with “dhcpService_OES”. For example, if the DHCP server on NetWare is named DHCP_NWServer, then the corresponding dhcpService on Linux will be identified as dhcpService_OESDHCP_NWServer.

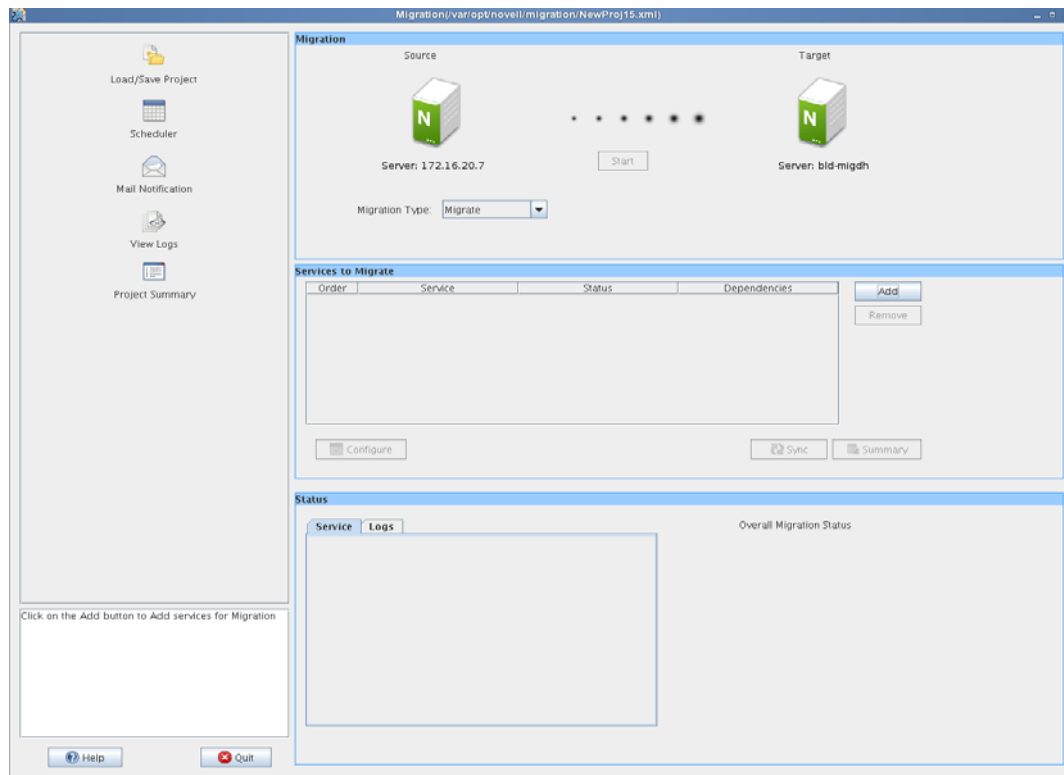
For a subnet-level Migration, the subnets are created inside an existing dhcpService object on target server. Specify the existing dhcpService object in the *BaseDN* field.

- ❑ **Address Range:** After the migration process, all the address range objects are mapped to pool objects on Linux.
- ❑ **Zone:** After the migration, all the zone objects retain the same name as they had on the NetWare platform. Zone objects are also created inside the dhcpService object.
- ❑ **Subnet Pool:** On the Linux platform, subnet pools on NetWare are mapped to the Shared Network objects.
- ❑ **IP Address (manual):** All manually defined IP addresses are migrated as hosts inside the subnet object. The hosts are identified by their IP addresses. For example, if the address of an IP address object on NetWare is 1.1.1.1, on Linux it is identified as 1_1_1_1.
- ❑ **IP Address (dynamic):** Information on all the dynamically leased IP addresses is maintained in the `/var/opt/novell/dhcp/leases` file. This lease file contains details for every IP address leased. The lease file is prefixed with the name of the corresponding DHCP server. For example, if the server name is DHCP_SERVER, the lease file is named as `DHCP_SERVER.leases`.
- ❑ **Comments:** Any comments that exist on the NetWare platform are not migrated to the Linux platform.
- ❑ **Excluded Hardware Addresses:** Excluded hardware addresses on NetWare after migration are mapped to `class-excluded_hosts` on Linux.
- ❑ **Included Hardware Addresses:** Included hardware addresses on NetWare after migration are mapped to `class-included_hosts` on Linux.

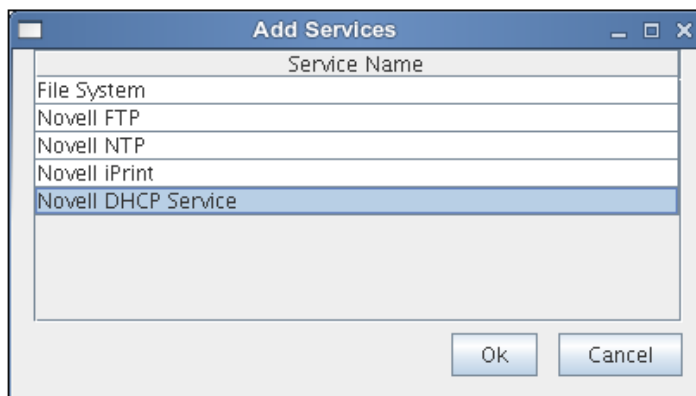
NOTE: If the name of any object contains a space, the space is replaced by an underscore “_” during migration.

19.2.2 Using the Migration Tool to Migrate Servers

- 1 Open the Migration Tool GUI using the “[Launch the Migration Tool.](#)” on page 39.



- 2 Authenticate the source and target servers.
- 3 Select the type of migration from the *Migration Type* drop-down list.
For more information about migration types, see [Section 1.3, “Migration Scenarios,”](#) on page 17.
- 4 Click *Add* in the *Services to Migrate* panel, then select the *Novell DHCP Service*.



5 Click *OK*, then click *Configure*. The DHCP configuration window displays.

6 DHCP provides migration at the following three levels:

- ♦ “Tree Level” on page 164
- ♦ “Server Level” on page 167
- ♦ “Subnet Level” on page 169

The following table lists the fields in the DHCP configuration window:

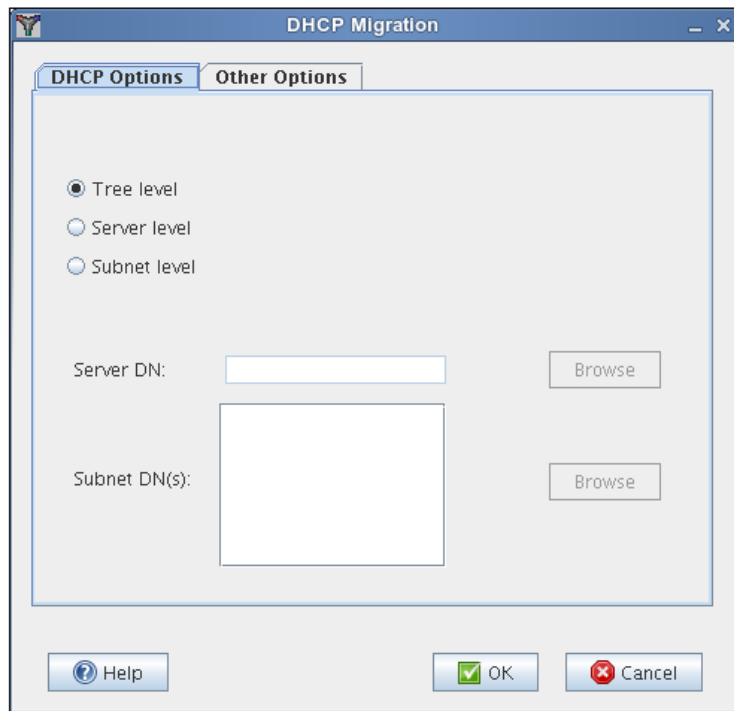
Table 19-1 *DHCP Configuration fields*

Field	Description
<i>Server DN</i>	The distinguished name of the DHCP server to be migrated.
<i>Subnet DN</i>	The distinguished name of the subnet to be migrated.
<i>Base DN</i>	<p>The distinguished name of the container on the target tree where the configuration is to be migrated.</p> <hr/> <p>NOTE: For tree-level and server-level migration, Base DN is a container such as Organization, Organization Unit, or Domain.</p> <p>For subnet-level migration, Base DN is a DHCP Service object only. When you browse for the Base DN, it appropriately displays all the available service objects.</p>
<i>Locator DN</i>	<p>The distinguished name of the dhcpLocator object in the target tree.</p> <hr/> <p>NOTE: Not applicable for a subnet-level migration.</p>
<i>Group DN</i>	<p>The distinguished name of the DHCPGroup object in the Target tree.</p> <hr/> <p>NOTE: Not applicable for a subnet-level migration.</p>
<i>Lease file</i>	<p>The path and filename for the leases to be migrated. All the dynamic IP addresses on NetWare are mapped to a lease file entry in this file.</p> <hr/> <p>NOTE: Not applicable for tree-level and server-level migration.</p>

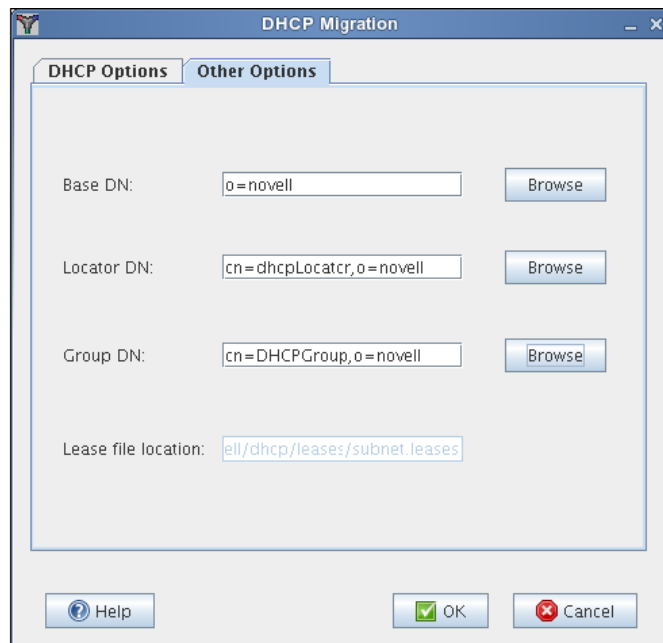
Tree Level

NOTE: Refer to [Table 19-1 on page 164](#) for DHCP configuration field descriptions.

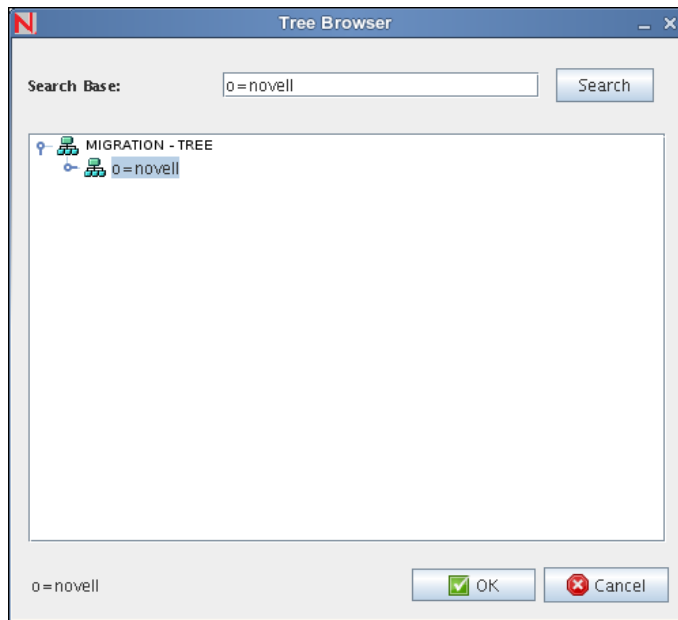
1 In the *DHCP Options* window, select the *Tree level* option.



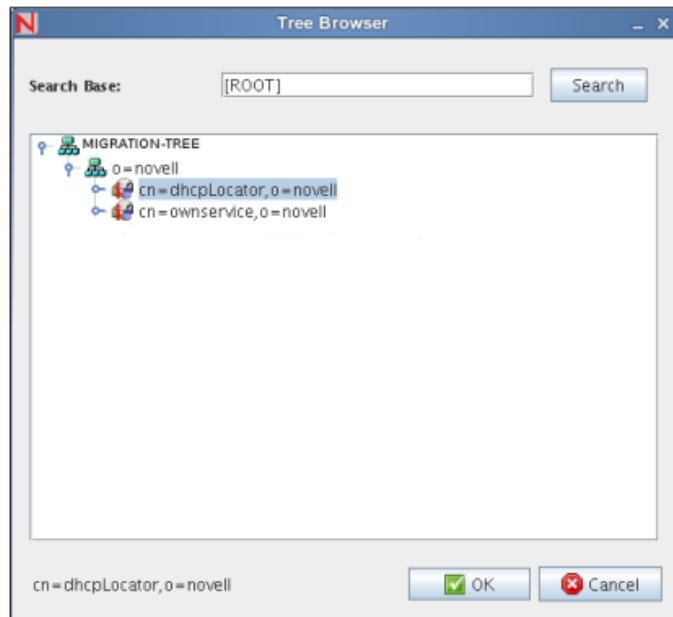
2 In the *Other Options* window, click *Browse* to select *Base DN*.



The Tree Browser window appears when you click *Browse* in the Other Options window.



3 Click *Browse* to select the *Locator DN*.

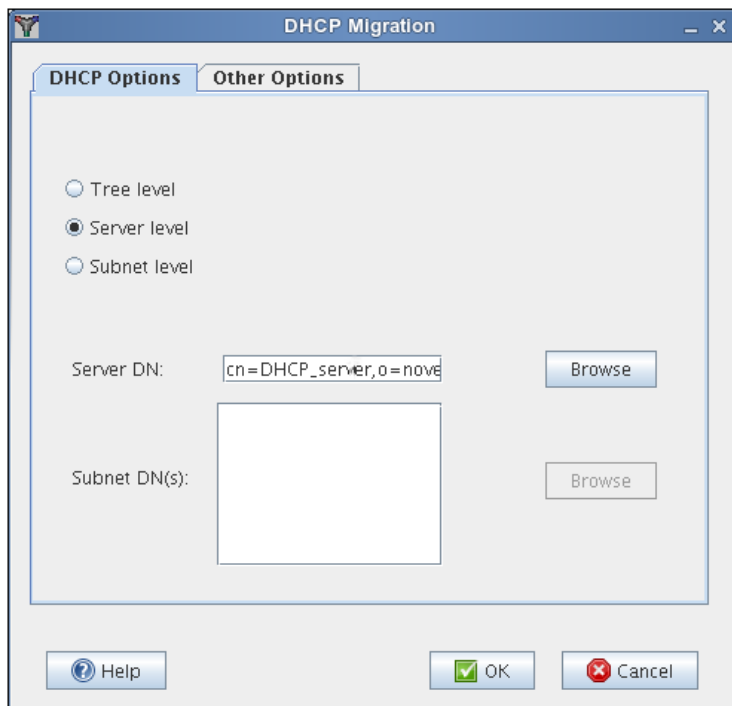


- 4 Click *Browse* to select the *Group DN*.
- 5 Click *OK* to complete the configuration.
- 6 Click *OK* to return to the main migration screen.
- 7 Continue configuring other services, or click *Migrate* to start the migration process.

Server Level

NOTE: Refer to [Table 19-1 on page 164](#) for DHCP configuration field descriptions.

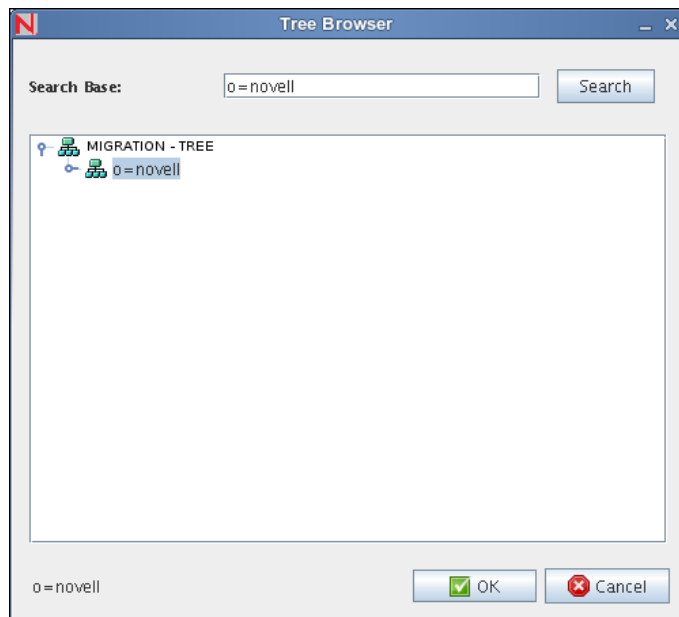
- 1 In the *DHCP Options* window, select the *Server level* option.



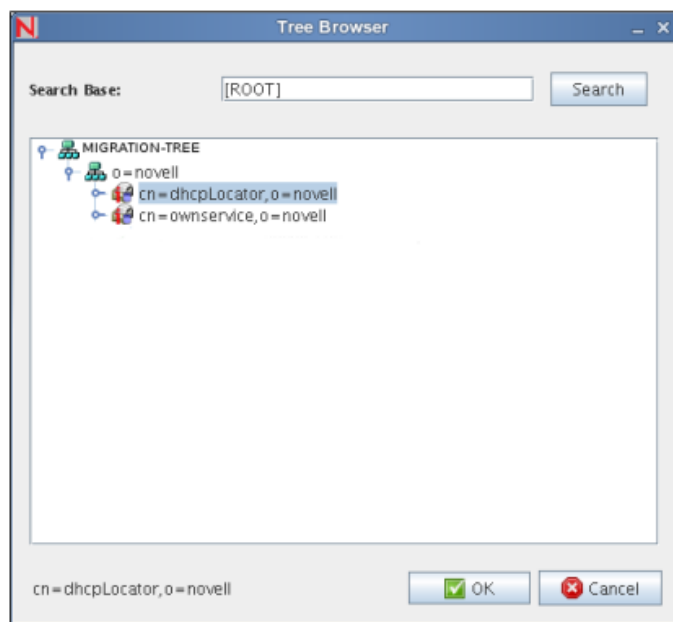
- 2 Click *Browse* to select the *Server DN*
- 3 In the *Other Options* window, click *Browse* to select the *Base DN*.



The Tree Browser window appears when you click *Browse* in the Other Options window.



4 Click *Browse* to select the *Locator DN*.



5 Click *Browse* to select the *Group DN*.

6 Click *OK* to complete the configuration.

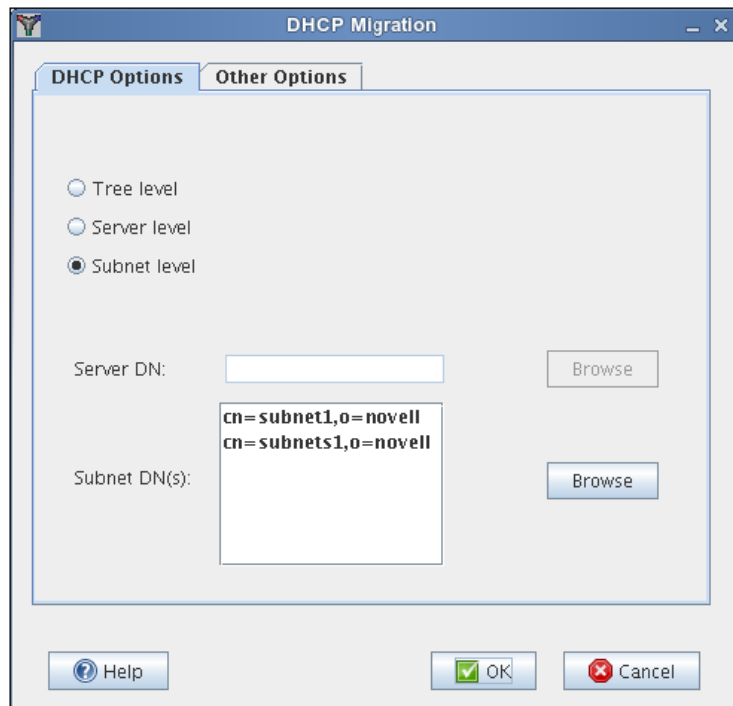
7 Click *OK* to return to the main migration screen.

8 Continue configuring other services, or click *Migrate* to start the migration process.

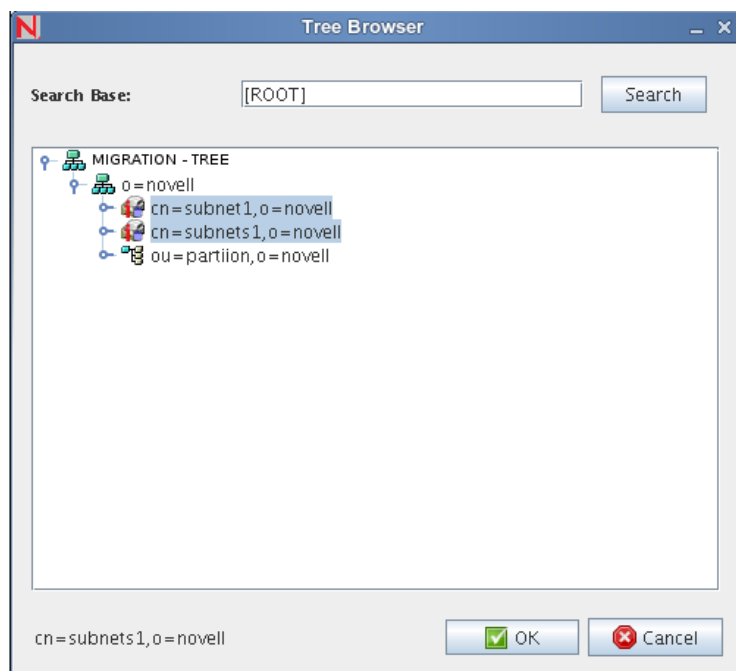
Subnet Level

NOTE: Refer to [Table 19-1 on page 164](#) for DHCP configuration field descriptions.

- 1 In the *DHCP Options* window, select the *Subnet level* option.



- 2 Click *Browse* to select the *Subnet DN*. Use the Ctrl key to select multiple subnets.



- 3 In the *Other Options* tab, click *Browse* to select the *Base DN*.
- 4 Specify the *Lease file Location*.

The screenshot shows a window titled "DHCP Migration" with two tabs: "DHCP Options" and "Other Options". The "Other Options" tab is active. It contains four input fields, each with a "Browse" button to its right:

- Base DN:** The text box contains "cn=ownservice,o=novell".
- Locator DN:** The text box is empty.
- Group DN:** The text box is empty.
- Lease file location:** The text box contains "ell/dhcp/leases/subnet.leases".

At the bottom of the dialog, there are three buttons: "Help" (with a question mark icon), "OK" (with a green checkmark icon), and "Cancel" (with a red X icon).

- 5 Click *OK* to complete the configuration.
- 6 Click *OK* to return to the main migration screen.
- 7 Continue configuring other services, or click *Migrate* to start the migration process.

19.2.3 Using the Command Line to Migrate Servers

- 1 To run the DHCP migration utility through the command line, run `/opt/novell/migration/bin/migdhcp` with the following parameters:

Option	Description
-h	Print this summary.
-k	Level of migration (subnet tree server).
-i	Verbose mode - on or off.
-d	Debug mode - on or off.
-s	IP address of the source LDAP server.
-p	Port number of the source LDAP server.
-a	DN of the admin user in the source tree.
-t	IP address of the target LDAP server.
-q	Port number for the target LDAP server.

Option	Description
-b	DN of the admin user in the destination tree.
-l	DN of the dhcpLocator object in the destination tree (Required only for server-level or tree-level migration).
-g	DN of the DHCPGroup object in the destination tree (Required only for server-level or tree-level migration).
-e	DN of the server to be migrated (Required only for server-level migration).
-n	Base DN of the container in the destination tree where you want to migrate the servers. For subnet-level migration, specify the ServiceDN.
-r	1 for source SSL bind, 0 for source non-SSL bind.
-u	1 for destination SSL bind, 0 for destination non-SSL bind.
-f	Absolute path of the file containing the DNs of the subnets that you want to migrate. (Required only for subnet-level migration). Enter the subnet DNs in the following format: cn=subnet1,o=novell cn=subnet2,ou=novell1,o=novell cn=subnet3,ou=novell2,o=novell
-c	Absolute path of the file where you want to store the lease file information (Required only for the subnet-level migration).

Examples for Command Line Migration

Tree Level: /opt/novell/migration/bin/migdhcp.sh -k tree -i on -d on -s 192.168.13.1 -p 636 -a cn=admin,o=novell -t 182.155.13.8 -q 636 -b cn=admin,o=novell -l cn=dhcpLocator,o=novell -g cn=DHCPGroup,o=novell -n o=novell -r 1 -u 1

Server Level: /opt/novell/migration/bin/migdhcp.sh -k tree -i on -d on -s 192.168.13.1 -p 636 -a cn=admin,o=novell -t 182.155.13.8 -q 636 -b cn=admin,o=novell -l cn=dhcpLocator,o=novell -g cn=DHCPGroup,o=novell -e cn=DHCP_SERVER,o=novell -n o=novell -r 1 -u 1

Subnet Level: /opt/novell/migration/bin/migdhcp.sh -k subnet -i on -d on -s 192.168.13.1 -p 636 -a cn=admin,o=novell -t 182.155.13.8 -q 636 -b cn=admin,o=novell -n cn=DHCPService,o=novell -r 1 -u 1 -f /somelocation/filewithsubnetdns -c /somelocation/filename

19.3 Migration Scenarios

DHCP migration supports two scenarios:

- ♦ [Section 19.3.1, “Transfer ID,” on page 172](#)
- ♦ [Section 19.3.2, “Consolidation,” on page 172](#)

For more information about these scenarios, see [“Supported Service Migration” on page 19](#).

19.3.1 Transfer ID

In this scenario, the identity of the target server is swapped with the source server. The IP address and the machine name of the target server change to the source IP address and machine name. The target should be installed in the same tree as the source server. The target should be a non-replica tree.

Based on the level of migration (subnet, server, or tree), the configuration objects are created for the Linux DHCP server on the target tree inside the dhcpService object created during migration.

19.3.2 Consolidation

In this scenario, the configuration data associated with the source server is associated to a single target server. DHCP Consolidation migration can be performed at the tree, server, or subnet-level.

19.4 Migrating a Cluster

There are two scenarios for migrating clusters:

- ♦ [Section 19.4.1, “NetWare and Linux Clusters Attached to the Same Tree,” on page 172](#)
- ♦ [Section 19.4.2, “NetWare and Linux Clusters Attached to Different Trees,” on page 172](#)

19.4.1 NetWare and Linux Clusters Attached to the Same Tree

Run the migration tool from one of the Linux nodes. Perform the tree-level migration with the source and target servers on the same tree.

This ensures that all NetWare DHCP configuration data is available for Linux DHCP.

In this scenario, both the NetWare server and the OES 2 SP1 Linux server are on the same eDirectory tree. The NetWare source server must be running NetWare 5.1 or later. The Linux target server must be running SUSE® Linux Enterprise Server (SLES) 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.

19.4.2 NetWare and Linux Clusters Attached to Different Trees

Run the migration tool from one of the Linux nodes. Perform the tree-level migration with the source server (the tree to which NetWare clustered nodes are attached) on one tree and the target server (the tree to which the Linux clustered nodes are attached) on another tree.

This ensures that all NetWare DHCP configuration data is available for Linux DHCP.

In this scenario, the NetWare server and the OES 2 SP1 Linux server are on different eDirectory trees. The NetWare source server must be running NetWare 5.1 or later. The Linux target server must be running SUSE Linux Enterprise Server (SLES) 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.

19.5 Post-Migration Procedures

- 1 In the `/etc/dhcpd.conf` file, change `ldap-base-dn` to reflect the context of the migrated DHCP Server and change `ldap-dhcp-server-cn` to reflect the name of the migrated DHCP Server.
- 2 Copy the `DHCP_SERVER.leases` file from `/var/opt/novell/dhcp/leases/` folder to the `/var/lib/dhcp/db` folder and rename it to `dhcpd.leases`.
- 3 Start the OES2 SP1 Linux DHCP server by using the `rcdhcpd start` command.
- 4 Continue with [Section 19.5.1, “Cluster Migration from NetWare to Linux,” on page 173](#) and [Section 19.5.2, “Running a Preexisting DHCP Server,” on page 173](#) as necessary.

19.5.1 Cluster Migration from NetWare to Linux

On the node where you ran the migration:

- 1 Open the `<mountpath>/etc/dhcpd.conf` file.
The `<mountpath>` parameter indicates the target directory in the shared volume where DHCP-specific directories are created.
Inside the `/etc/dhcpd.conf` file, which is located in the shared volume, change the `ldap-dhcp-server-cn` attribute to the migrated server cn.
- 2 Copy the `migrated_server.leases` file from the `/var/lib.dhcp/bd` folder to the `<mountpath>/var/lib/dhcp/db/` folder and rename it to `dhcpd.leases`.

19.5.2 Running a Preexisting DHCP Server

After migration, the DHCP server and service objects are created in the tree. You can run a preexisting DHCP server along with the migrated NetWare server's configuration.

- 1 Log in to the tree by using iManager.
- 2 Click to expand DHCP (OES Linux).
- 3 Select the service.
- 4 Select *View/Modify* service.
- 5 Select the service object that was created after migrating the NetWare server. The name of this service starts with the string *dhcpservice*.
- 6 Associate this service object with the existing DHCP server.

19.6 Verifying the Migration

To verify the migration, use iManager to go to the destination tree and locate the DHCP Server object and the corresponding DHCP Service object. All the DHCP server configuration is stored inside the corresponding DHCP Service object. For details, refer to “[Viewing or Modifying a Server](#)” in the *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.

Verify that leases are present:

- ☐ For tree-level or server-level migration, the lease file must be located at: `/var/opt/novell/dhcp/leases/`
- ☐ For a subnet-level migration, the lease filename and location are provided by the user. Make sure the expected files are present in the specified location.

Migrating DNS from NetWare to OES 2 SP1 Linux

20

Migration refers to the process of migrating DNS services from a NetWare® system to a Linux system. The OES Migration tools follow a source/target model. For the migration process, the source servers are NetWare and the target is an Open Enterprise Server 2 SP1 Linux server.

The following sections give you more information on the prerequisites and the procedure to migrate source servers based on different scenarios:

- ♦ [Section 20.1, “Planning Your Migration,” on page 175](#)
- ♦ [Section 20.2, “Migration Scenarios,” on page 176](#)
- ♦ [Section 20.3, “Migration Procedure,” on page 176](#)
- ♦ [Section 20.4, “Post-Migration Procedure,” on page 177](#)

20.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DNS to the new platform.

20.1.1 System Requirements

- ☐ An eDirectory™ integrated DNS server installed on the target machine.
- ☐ Schema extension is already done on the destination server tree and DNS-DHCP Group, and the RootServerInfo and DNS-DHCP Locator objects are created.
- ☐ The user running the migration process should have rights to update files on the target machine. This user should also be included in the DNS-DHCP group in eDirectory.

20.1.2 Supported Platforms

The following platforms are accepted as valid source platforms for the migration process:

- ☐ NetWare 6.5 SP5
- ☐ NetWare 5.1 SP8
- ☐ NetWare 6.0 SP5 and later versions

20.1.3 Coexistence

OES 2 SP1 Linux can coexist with the following operating systems:

- ♦ OES 1 NetWare
- ♦ SUSE® Linux Enterprise Server (SLES) 10
- ♦ SLES 10 SP1

20.2 Migration Scenarios

To migrate DNS to the new platform, you can use tools like iManager or the Java* Management Console. During migration, the configuration details as well as the data are migrated to the destination platform.

- ♦ [Section 20.2.1, “Migrating Servers within the Same eDirectory Tree,” on page 176](#)
- ♦ [Section 20.2.2, “Migrating Servers across eDirectory Trees,” on page 176](#)

20.2.1 Migrating Servers within the Same eDirectory Tree

In this scenario, both the NetWare server and the OES 2 SP1 Linux server are on the same eDirectory tree.

20.2.2 Migrating Servers across eDirectory Trees

In this scenario, the Netware server and the OES 2 SP1 Linux server are on different eDirectory trees, so the migration is across the trees.

Depending on your setup, you can choose to migrate a single server at a time or migrate all the servers at the same time.

20.3 Migration Procedure

- ♦ [Section 20.3.1, “Using iManager to Migrate Servers within the Same eDirectory Tree,” on page 176](#)
- ♦ [Section 20.3.2, “Using iManager to Migrate Servers across eDirectory Trees,” on page 177](#)

20.3.1 Using iManager to Migrate Servers within the Same eDirectory Tree

- 1 Launch iManager.
- 2 Identify the source NCP™ server and the corresponding DNS server object that should be migrated to target server.

The server and the server object will no longer exist on the NetWare server after migration. Make sure that the DNS Service is not running on this source NCP server.

To stop the service, see “[Stopping the DNS Server](#)” in the *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.
- 3 Use iManager to move the source DNS server. This task also migrates the primary zones in the tree.

For information about moving the DNS server, see “[Moving a DNS Server](#)” in the *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.
- 4 To migrate secondary zones, create a secondary zone on the target Linux server and specify the IP address of the master/primary name server.

To create a secondary zone, see “[Creating a Secondary Zone](#)” in the *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.

Ensure that the SOA number of the secondary zone is less than the SOA number of the corresponding zone on the master server. Ensure that both the primary and the secondary zones are identified by the same name. This is essential for a successful zone transfer.

20.3.2 Using iManager to Migrate Servers across eDirectory Trees

- 1 In iManager, use iManager to create the DNS server object. For details, see *OES 2 SP1: Novell DNS/DHCP Administration Guide for Linux*.
- 2 On the OES 2 SP1 Linux server, create a secondary zone and specify the zone master IP address as the IP address of the NetWare server where the primary zone exists. After the initial zone transfer, change the zone on the source NetWare server to secondary and make the zone on the target server to be the primary server.

Migrate primary zones on the OES 2 SP1 Linux server by creating a secondary zone and specifying the zone master IP address as the IP address of the NetWare/OES server where the primary zone exists.
- 3 Load the DNS servers on primary and secondary server to initiate zone transfer.
- 4 After the initial zone transfer, change the zone on the source NetWare server to secondary and make the zone on the target server to be the primary server zone.
- 5 To migrate secondary zones, create a secondary zone on the Linux server and specify it to be the secondary zone to the target primary zone that is on the OES 2 SP1 Linux server. Ensure that both the primary and the secondary zones use the same name. This is essential for a successful zone transfer.

NOTE: This method of migration is limited to migrating the zone data only.

20.4 Post-Migration Procedure

- 1 Use iManager or the Java Management Console to check for the existence of the following objects:
 - ♦ DNS-DHCP
 - ♦ DNSDHCP-GROUP
 - ♦ RootServerInfo
 - ♦ DNS Server object
- 2 Load `novell-named` and check to see if the `/etc/opt/novell/named.conf` file contains zone database files with valid information.
- 3 Start `named` with the `rcnovell-named start` command and use the `Nslookup` utility to query for records in zones.

Migrating FTP from NetWare to OES 2 SP1 Linux

21

Migration refers to the process of migrating FTP services from a NetWare[®] system to a Linux system. The Open Enterprise Server (OES) migration tools follow a source/target model. For the migration process, the source servers are on NetWare and the target is the OES 2 SP1 Linux server. The following sections give you more details on the migration procedure for FTP.

- ♦ [Section 21.1, “Planning the Migration,” on page 179](#)
- ♦ [Section 21.2, “Migration Scenarios,” on page 180](#)
- ♦ [Section 21.3, “Migration Procedure,” on page 180](#)
- ♦ [Section 21.4, “Mapping Parameters,” on page 181](#)

21.1 Planning the Migration

Make sure your setup addresses the following requirements before you migrate FTP to the destination platform.

- ♦ [Section 21.1.1, “System Requirements,” on page 179](#)
- ♦ [Section 21.1.2, “Source Servers,” on page 179](#)
- ♦ [Section 21.1.3, “Target Server,” on page 179](#)
- ♦ [Section 21.1.4, “Coexistence,” on page 179](#)

21.1.1 System Requirements

- ♦ Pure-FTPd

21.1.2 Source Servers

- ♦ NetWare 5.1 SP8
- ♦ NetWare 6.0 SP5
- ♦ NetWare 6.5 SP5 and later

21.1.3 Target Server

- ♦ OES 2 SP1 Linux

21.1.4 Coexistence

OES 2 SP1 Linux is compatible with the following operating systems:

- ♦ OES 1 NetWare

- ♦ SUSE® Linux Enterprise Server (SLES) 10
- ♦ SLES 10 SP1

21.2 Migration Scenarios

The following three scenarios are supported for FTP migration:

- ♦ Consolidation on the Same Tree
- ♦ Consolidation on a Different Tree
- ♦ Transfer ID on the Same Tree

For details on these three scenarios, see [Section 1.3, “Migration Scenarios,” on page 17](#).

Prerequisites

For all three scenarios, eDirectory™ should be running so eDirectory users can log in.

What Is Migrated

When the migration is complete, the FTP parameters on NetWare are mapped to the corresponding parameters in Pure-FTPd on Linux. For details on mapped parameters, see [Table 21-1 on page 181](#).

21.3 Migration Procedure

Migration of FTP configuration can be done from the Migration Tool or through the command line interface.

NOTE: Before you start the Pure-FTPd server, ensure that eDirectory is up and running on the target server. This is to ensure that all the eDirectory users can be used for Pure-FTPd access. For the Server ID Swap, all eDirectory objects are migrated as part of the DIB migration step. For complete details on eDirectory migration, read [Appendix 15, “Migrating eDirectory to OES 2 SP1 Linux,” on page 135](#).

- ♦ [Section 21.3.1, “Using the Migration Tool,” on page 180](#)
- ♦ [Section 21.3.2, “Using the Command Line,” on page 181](#)

21.3.1 Using the Migration Tool

- 1 Launch the Migration Tool in one of the following ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*

Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

- 2 Configure the source and target parameters.

For details on configuring source and target server information, selecting a migration type, and the Open, Save Project, and all other tool buttons, see [Chapter 2, “Overview of the Migration GUI,” on page 21](#).

- 3 Select *Novell FTP* from *Services* and click *Configure*. The status now changes from *Not Configured* to *Ready*.
- 4 When the status is *Ready*, click *Migrate* to start the migration process.

The status changes from *Migrating* to *Migrated* on success.

NOTE: Use the *Status > Logs* tab to check for errors during migration. Fix the errors and restart the migration procedure if necessary.

21.3.2 Using the Command Line

- 1 Run the FTP migration utility from the command line with the required parameters:

```
migftp -s <source_server>
```

For example:

```
migftp -s 192.168.1.54
```

If the migration is successful, a message indicating success is displayed.

- 2 Start the eDirectory server to allow eDirectory users to log in.
- 3 Start the FTP server by using the `rcpure-ftpd start` command.

21.4 Mapping Parameters

Parameters are mapped from NetWare to Linux during FTP migration:

Table 21-1 NetWare Linux FTP FTPd Mapping Parameters

NetWare FTP Parameters	Linux Pure FTPd Parameters
SECURE_CONNECTIONS_ONLY	TLS
PASSIVE_PORT_MIN	PassivePortRange
PASSIVE_PORT_MAX	PassivePortRange
MAX_FTP_SESSIONS	MaxClientsNumber
HOST_IP_ADDR	Bind
FTP_PORT	Bind
FORCE_PASSIVE_ADDR	ForcePassiveIP
ANONYMOUS_ACCESS	AnonymousOnly
IDLE_SESSION_TIMEOUT	MaxIdleTime

NOTE: If `SECURE_CONNECTIONS_ONLY` is set in NetWare and an FTP migration certificate does not exist on Linux, a default FTP certificate (`/etc/ssl/private/pure-ftpd.pem`) is created, using either an eDirectory certificate (`/etc/ssl/servercerts/eDircert.pem`) of the target server or the server certificate (`/etc/ssl/servercerts/servercert.pem`). If neither of them exists, the migration creates a certificate with default parameters. The admin can replace this by creating a new certificate using the steps listed in “Create Certificate Procedure” (<http://download.pureftpd.org/pub/pure-ftpd/doc/README.TLS>).

Novell iFolder Upgrade, Migration, and Coexistence

22

One of the top priorities in designing Novell® iFolder® 3.7 was to ensure that new iFolder services running on Novell Open Enterprise Server (OES) 2.0 Linux or later can bridge the gap between the Novell iFolder 2.x services and the iFolder 3.2 services that are currently running on OES 1.0.

This section familiarizes you with the migration and upgrade capabilities of iFolder 3.7. It also discusses using the Novell Migration Tool to introduce the iFolder 3.7 services into an existing network environment without disrupting existing Novell iFolder 2.x and iFolder 3.x services.

Migration: In this section, migration means the process of moving Novell iFolder 3.2 data running on OES 1 Linux and iFolder 2.x on OES 1 Linux or on Netware® to Novell iFolder 3.7 running on the OES 2 SP1 Linux platform.

Upgrade: Upgrade means the process of changing to a new version of iFolder on the same platform, such as from iFolder 3.2 and iFolder 3.4 on OES 1 Linux and iFolder 3.6 on OES 2 Linux to Novell iFolder 3.7 running on OES 2 SP1 Linux.

- ♦ [Section 22.1, “Migrating iFolder 2.x,” on page 183](#)
- ♦ [Section 22.2, “Migrating iFolder 3.2,” on page 190](#)
- ♦ [Section 22.3, “Upgrading iFolder 3.x,” on page 194](#)
- ♦ [Section 22.4, “Upgrading iFolder 3.6,” on page 196](#)
- ♦ [Section 22.5, “Coexistence of iFolder 3.7 and 2.x Servers,” on page 196](#)
- ♦ [Section 22.6, “Coexistence of the iFolder 3.7 Client with Novell iFolder 1.x and 2.x Clients,” on page 196](#)

22.1 Migrating iFolder 2.x

You can move iFolders and user data from an iFolder 2.x domain to iFolder 3.7. In the following sections, the iFolder 2.x server is referred to as the source server and the iFolder 3.7 server as the target server.

IMPORTANT: You cannot migrate encrypted iFolders. Use the client-side migration wizard to migrate the encrypted iFolders. For more information on the client-side migration, see “[Novell iFolder Migration And Upgrade](#)” in the *OES 2 SP1: Novell iFolder 3.7 Cross-Platform User Guide*.

- ♦ [Section 22.1.1, “Server Migration,” on page 183](#)
- ♦ [Section 22.1.2, “Client Migration,” on page 189](#)

22.1.1 Server Migration

This section helps you understand the server migration, its prerequisites, and the migration process.

- ♦ [“Supported Platforms” on page 184](#)
- ♦ [“Prerequisites” on page 184](#)

- ◆ “Planning” on page 184
- ◆ “Migration Scenarios” on page 185
- ◆ “iFolder Migration Procedure” on page 185
- ◆ “Multi-Server Migration” on page 188
- ◆ “What to Expect” on page 188
- ◆ “Verifying the Migration” on page 188
- ◆ “Post-Migration Procedures” on page 189

Supported Platforms

Table 22-1 *Supported Platforms*

Source Platform	Destination Platform
NetWare 6.5 SP6 and above	OES 2.0 SP1
OES 1.x Linux	OES 2.0 SP1

Prerequisites

Before proceeding to migrate, meet the following prerequisites:

- ☐ You must perform the File System Migration for the source data path.
For more information, see [Appendix 14.2, “Migrating a File System by Using the GUI Migration Tool,” on page 96.](#)
- ☐ Ensure that the iFolder 3.7 servers, the iFolder 3.7 Web Access server, and the eDirectory™ services are up and running.
The iFolder 3.7 Web Access server and the Web Admin server should be running on the target server.
- ☐ Ensure that the user objects are available in eDirectory and are accessible from the target server.

Planning

- ◆ **Novell iFolder Server:** Novell iFolder 3.7 has the capacity to manage 1000 connected users simultaneously on a single server. This can vary based on the server hardware and network capabilities. If there are more than 1000 users, you can use a multi-server setup. For details, see [“Deploying iFolder Server”](#) in the *OES 2 SP1: iFolder 3.7 Administration Guide*.
- ◆ **Web Access Server:** The Novell iFolder 3.7 Web Access console for end users must run on the target server.
- ◆ **Web Admin Server:** The Novell iFolder 3.7 Web Admin console for end users must run on the target server. You must ensure that the policies for disk quota, iFolder limit, and file filter are set at the system level, because these policies affect the storage availability on the server. For details on policies, see [“Configuring System Policies”](#) in the *OES 2 SP1: iFolder 3.7 Administration Guide*.

- ♦ **Multi-Server Setup:** If you have a predefined choice of servers for a set of users or LDAP Groups, you must provision them, and set the policies by using the iFolder 3.7 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.7 server uses the round-robin provisioning method to provision the users. Novell iFolder 3.7 has its own LDAP attribute for provisioning users and it does not use the iFolder 2.x LDAP attribute for provisioning. You can use the iFolder 3.7 LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users/groups.

Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services:

For general explanation of the scenarios supported in OES 2 SP1, see [Section 1.3, “Migration Scenarios,” on page 17](#).

- ♦ **Transfer ID:** In this scenario, the target server is installed into the same eDirectory tree as the source server, with a temporary hostname and IP address. The iFolder 2.x data is copied to the target machine to perform the basic operations, while the original copy is operational in the source machine until the move completes. When the move completes, the source and target servers swap and all the iFolder 2.x data on the source server is available on the target server. The target server functions with the same credentials (such as IP address and hostname) as the source server and the source server node is no longer available in the eDirectory tree.

IMPORTANT: In a Netware to OES2 SP1 Transfer ID scenario, ensure that the target server is installed in the same context as the source server.

- ♦ **Consolidate:** In this scenario, you can copy the iFolder data from any number of existing source servers to a target server. The source server must be running NetWare 5.1 or later versions. The target server must be running SUSE® Linux Enterprise Server 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Consolidate scenario, both Same Tree and Different Tree migration are possible.

- ♦ **Same Tree:** In the Same Tree migration, the source and target server are on the same eDirectory tree. The source server must be running NetWare 5.1 or later versions. The target server must be running SUSE Linux Enterprise Server (SLES) 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.
- ♦ **Different Tree:** In the Different Tree migration, the source server and the target server are on different eDirectory trees. The source server must be running NetWare 5.1 or later versions. The target server must be running SUSE Linux Enterprise Server 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.

iFolder Migration Procedure

This section helps you understand the server migration processes.

- ♦ [“Using the Migration Tool GUI” on page 185](#)
- ♦ [“Using Command Line Utilities” on page 187](#)

Using the Migration Tool GUI

- 1 Install, configure, and run iFolder 3.7 on the target server.

2 Open the Migration Tool GUI.

Desktop: Select *Computer > More Applications > System > Novell Migration Tools*.

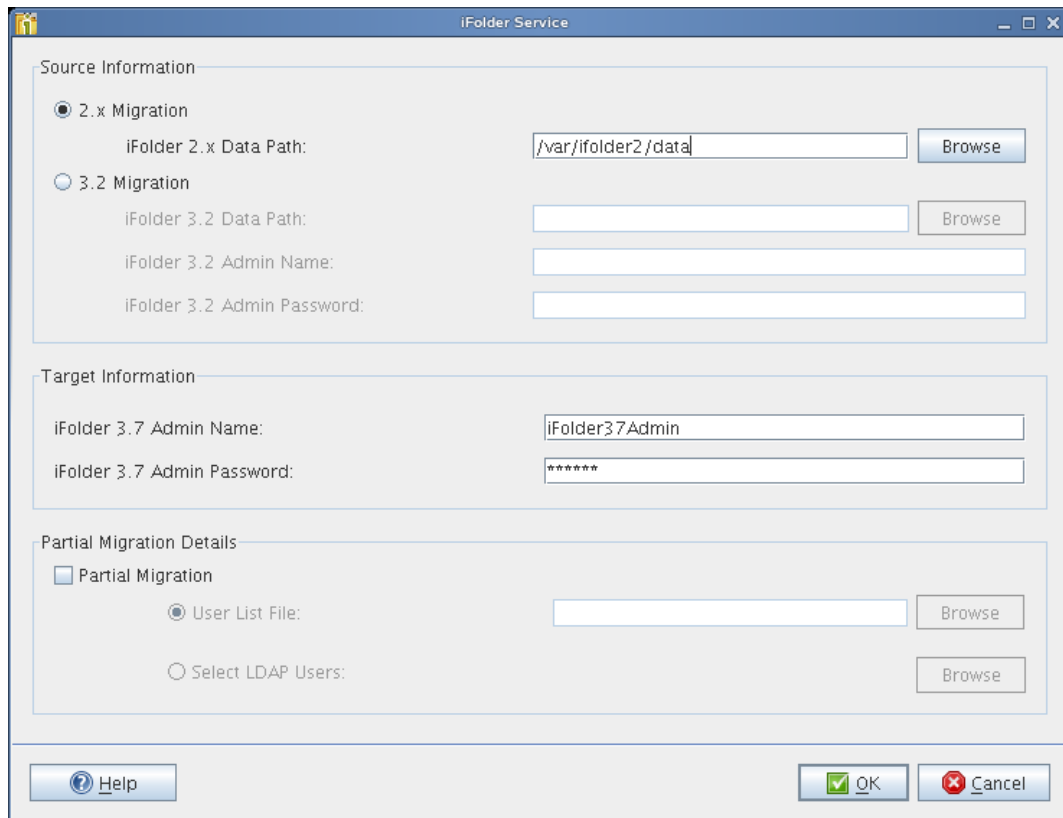
Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

3 Authenticate to the source and target servers. All the associated services are listed in the Services panel.

4 Select *Novell iFolder*, then click *Configure*. The iFolder configuration window displays as follows.

IMPORTANT: Ensure that you migrate the iFolder 2.x file system data by using the file system migration tools. For more information, refer to [Appendix 14.2, “Migrating a File System by Using the GUI Migration Tool,”](#) on page 96.

The default data path for iFolder 2.x is `/var/opt/novell/<ifolderdata>` for Linux. For NetWare, the data path is configurable.



The image shows the 'iFolder Service' configuration window. It is divided into three main sections: 'Source Information', 'Target Information', and 'Partial Migration Details'. The 'Source Information' section has two radio buttons: '2.x Migration' (selected) and '3.2 Migration'. Under '2.x Migration', there is a text field for 'iFolder 2.x Data Path' containing '/var/ifolder2/data' and a 'Browse' button. Under '3.2 Migration', there are text fields for 'iFolder 3.2 Data Path', 'iFolder 3.2 Admin Name', and 'iFolder 3.2 Admin Password', each with a 'Browse' button. The 'Target Information' section has text fields for 'iFolder 3.7 Admin Name' (containing 'iFolder37Admin') and 'iFolder 3.7 Admin Password' (containing '*****'). The 'Partial Migration Details' section has a checkbox for 'Partial Migration' (unchecked). Below it, there are two radio buttons: 'User List File:' (selected) and 'Select LDAP Users:'. Each has a text field and a 'Browse' button. At the bottom, there are three buttons: 'Help', 'OK', and 'Cancel'.

5 Fill in the following fields:

Parameter	Description
2.x Migration	<p>Select this option if you want to migrate the iFolder 2.x application to iFolder 3.7 on OES 2 SP1.</p> <p>iFolder Data Path: Specify the path where the iFolder 2.x system data is migrated to on the target server. This is the location on the iFolder target server where iFolder application files and the users' iFolders and files are migrated to. The path is case-sensitive.</p>
iFolder 3.7 Admin Name	Specify the username of the iFolder 3.7 administrator.
iFolder 3.7 Admin Password	Specify the iFolder 3.7 admin password.
Partial Migration	<p>Select this option if you want to perform a partial migration that allows you to migrate a selected set of users to an iFolder 3.7 domain. You can perform partial migration either by using a user list file or by browsing and selecting users from an eDirectory tree.</p> <p>User List File: Specify the location of the user list file. This is a text file that contains the list of user DNs for all the users selected for migration.</p> <p>Select LDAP Users: Browse the eDirectory tree and select the users for migration.</p>

6 Click *OK* to configure iFolder for migration.

7 In the main window, you can either configure other services, or click *Migrate* to start the migration process.

The Migration Tool takes care of the order in which each service migrates. Therefore, iFolder migration initiates only after file system migration completes.

Using Command Line Utilities

To run the Novell iFolder migration utility through the command line, run `/opt/novell/migration/sbin/migif2 --option value` with the following details:

Table 22-2 *Command Line Options*

Option	Description
--precheck	(Optional) Checks whether migration is possible with the given parameters.
--2xdatapath	Specifies the path where the iFolder system data is stored. This is the location where the iFolder source server stores iFolder application files and the users' iFolders and files. The path is case sensitive.

Option	Description
--serveripaddress	Specifies the IP address of the iFolder 3.7 server.
--adminname	Specifies the username of the iFolder 3.7 administrator.
--password	Specifies the password for the iFolder 3.7 administrator.
--workarea	(Optional) Specifies the location for the temporary migration files.
--userlist	(Optional) Specifies a text file that contains the list of users for migration. If you don't specify this, a complete migration is performed.
--sync	(Optional) Performs the sync operation during migration for any changes made on the source server.

Multi-Server Migration

To migrate user data to the master server, all the iFolder 3.7 servers must be up and running. The master server automatically provisions the home servers for each migrated user. Depending upon the user provisioning priority you have set, each user is provisioned in the appropriate iFolder 3.7 server. If you want to move each user from a single iFolder 2.x server to different iFolder 3.7 servers or from many iFolder 2.x servers to a single iFolder 3.7 server, you must set the provisioning with the iFolder 3.7 Web Admin console. By default, the round-robin provisioning method is used. For more information on using the Web Admin console, refer to the following sections in the *OES 2 SP1: iFolder 3.7 Administration Guide*.

- ♦ “Managing iFolder Services via Web Admin”
- ♦ “Managing iFolders”
- ♦ “Managing iFolder Users”

What to Expect

- ♦ The iFolder 2.x user data format is converted to that of iFolder 3.7. The flat directory structure of the 2.x data is changed to the hierarchical structure of iFolder 3.7 client.

NOTE: The 2.x configuration is not migrated.

- ♦ The 2.x encrypted iFolders are not migrated. This is because the passphrase for each user is not known to the administrator. Each user is expected to do a client-side migration.
- ♦ If the user list is provided, only those users specified in the user list are migrated.
- ♦ In the Transfer ID scenario, iFolder 3.7 updates the configuration files with the new server IP address after the migration is completed.

Verifying the Migration

You can find the migration logs at `/var/opt/novell/log/ifolder/checkpoint.log`. The `checkpoint.log` contains the status of the iFolder 2.x migration.

Post-Migration Procedures

Post-migration configuration: No additional configuration is required because only data is migrated and no policies are migrated from iFolder 2.x to iFolder 3.7. You must set the policies again for each user by using the Web Admin console, because the iFolder 2.x policies are not compatible with iFolder 3.7.

For more information on using the Web Admin console, refer to the following chapters in the *OES 2 SP1: iFolder 3.7 Administration Guide*.

- ♦ “Managing iFolder Services via Web Admin ”
- ♦ “Managing iFolders”
- ♦ “Managing iFolder Users”

Merge: Users can have a local copy of the 2.x iFolders that are already migrated to the server. When they connect the iFolder 3.7 client to the iFolder 3.7 server, the migrated iFolders are also available for download. Instead of downloading them and having a different copy on the same machine, they can simply merge the iFolders on the local machine to the migrated iFolders on the server. This also reduces the data transfer traffic and effort. For details on the merge functionality provided in the client, see “Merging iFolders” in the *OES 2 SP1: Novell iFolder 3.7 Cross-Platform User Guide*.

22.1.2 Client Migration

There is an automatic client-side migration from Novell iFolder 2.x to iFolder 3.7. The Migration Wizard provided for the user in the iFolder 3.7 client migrates the existing 2.x iFolder data to the iFolder 3.7 domain. The Migration Wizard appears soon after the installation of iFolder 3.7 client, and displays a message about the existence of previous version data and a request for a migration. This Wizard is also available on the *Preferences* menu so that it can be invoked at any time after installation.

IMPORTANT: The Novell iFolder 2.x client and the iFolder 3.7 client can run independently and concurrently on the same user machine. They are separate applications and should not be installed in the same directory. However, if you migrate the 2.x data to 3.7, you must remove the 2.x client when the client-side migration is complete.

Preparing for Migration

- ♦ The user must have both an iFolder 2.x account and a corresponding iFolder 3.7 account.
- ♦ The user must use only the Migration Wizard available in the iFolder client to migrate an existing 2.x iFolder to a 3.7 iFolder. The user should not perform iFolder 2.x to 3.7 conversion by any other means, such as using iFolder shell integration (Windows Explorer or Nautilus) or the iFolder 3.7 client upload mechanism from the thick client.
- ♦ If the user selects to make a copy of the iFolder 2.x data and move it to the iFolder 3.7 domain, ensure that you allocate sufficient space (at least 10 MB larger than the size of the iFolder 2.x data) on the hard disk (user’s Home directory for Linux and user’s Application Data directory for Windows) before performing migration. The additional space is used to store the iFolder database.

In this case, the user must log out of the 2.x client before performing the migration to avoid synchronization issues and related possible data corruption.

- ♦ If the user selects to migrate the iFolder and disconnect it from 2.x domain, the folder is not accessible through the 2.x account after the migration, because it is completely moved to the 3.7 domain and 2.x registry entries are removed in the client. It is possible that the same 2.x iFolder is available on another user desktop. If so, make sure that it is manually removed to avoid data inconsistency, because it is not under the control of iFolder 3.7 domain.

22.2 Migrating iFolder 3.2

You can move iFolders and the user data from an iFolder 3.2 domain to an iFolder 3.7 domain. In the following sections, the iFolder 3.2 server is referred to as the source server and the iFolder 3.7 server as the target server.

22.2.1 Supported Platforms

Table 22-3 *Supported Platforms*

Source Platform	Target Platform
OES 1.x Linux	OES 2 SP1 Linux

22.2.2 Prerequisites

Before proceeding to migrate, see [“Prerequisites” on page 184](#).

22.2.3 Planning

- ♦ **Novell iFolder Server:** Novell iFolder 3.7 has the capacity to manage 1000 connected users simultaneously in a single server. This can vary based on the server hardware and network capabilities. If there are more than 1000 users, you can use a multi-server setup. For details, see [“Deploying iFolder Server”](#) in the *OES 2 SP1: iFolder 3.7 Administration Guide*.
- ♦ **Web Access Server:** The Novell iFolder 3.7 Web Access console for end users is running on the target server.
- ♦ **Web Admin Server:** The Novell iFolder 3.7 Web Admin console is running on the target server. You must ensure that the policies for disk quota, iFolder limit, and file filter are set at system level, because these policies affect the storage availability in the server. For details on policies, see [“Configuring System Policies”](#) in the *OES 2 SP1: iFolder 3.7 Administration Guide*.
- ♦ **Multi-Server Setup:** If you have a predefined choice of servers for a set of users or LDAP Groups, you must provision them, and set the policies by using the iFolder 3.7 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.7 server uses the round-robin provisioning method to provision the users. Novell iFolder 3.7 has its own LDAP attribute for provisioning users and it does not use the iFolder 3.x LDAP attribute for provisioning. You can use iFolder 3.7 LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users and groups.

22.2.4 Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services:

For a general explanation of the scenarios supported in OES 2 SP1, see [Section 1.3, “Migration Scenarios,” on page 17](#).

- ♦ **Transfer ID:** In this scenario, the target server is installed into the same eDirectory tree as the Source server, with a temporary hostname and IP address. The iFolder 3.2 data is copied to the target machine to perform the basic operations, while the original copy is operational in the source machine until the move completes and all of the iFolder 3.2 data on the source server is available on the target server. The target server functions with the same credentials (such as IP address and hostname) as the source server and the source server node is no longer available in the eDirectory tree.
- ♦ **Consolidate:** In this scenario, you can copy the iFolder data from any number of existing source servers to a target server. The source server must be running NetWare 5.1 or later. The target server must be running SUSE Linux Enterprise Server 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Consolidate scenario, both the Same Tree and Different Tree migration are possible.

- ♦ **Same Tree:** In this scenario, the source server and target server are on the same eDirectory tree. The source server must be running OES1 Linux or later versions. The target server must be running SUSE Linux Enterprise Server (SLES) 10 SP2 with OES 2 SP1 on either 32-bit or 64-bit hardware.
- ♦ **Different Tree:** In this scenario, the source server and the target server are on different eDirectory trees. The source server must be running OES1 Linux or later versions. The target server must be running SUSE Linux Enterprise Server 10 SP2 with OES 2 SP1 either on 32-bit or on 64-bit hardware.

22.2.5 iFolder Migration Process

You can perform the migration through either the Migration Tool GUI or through the command line.

- ♦ [“Using the Migration Tool GUI” on page 191](#)
- ♦ [“Using Command Line Utilities” on page 193](#)

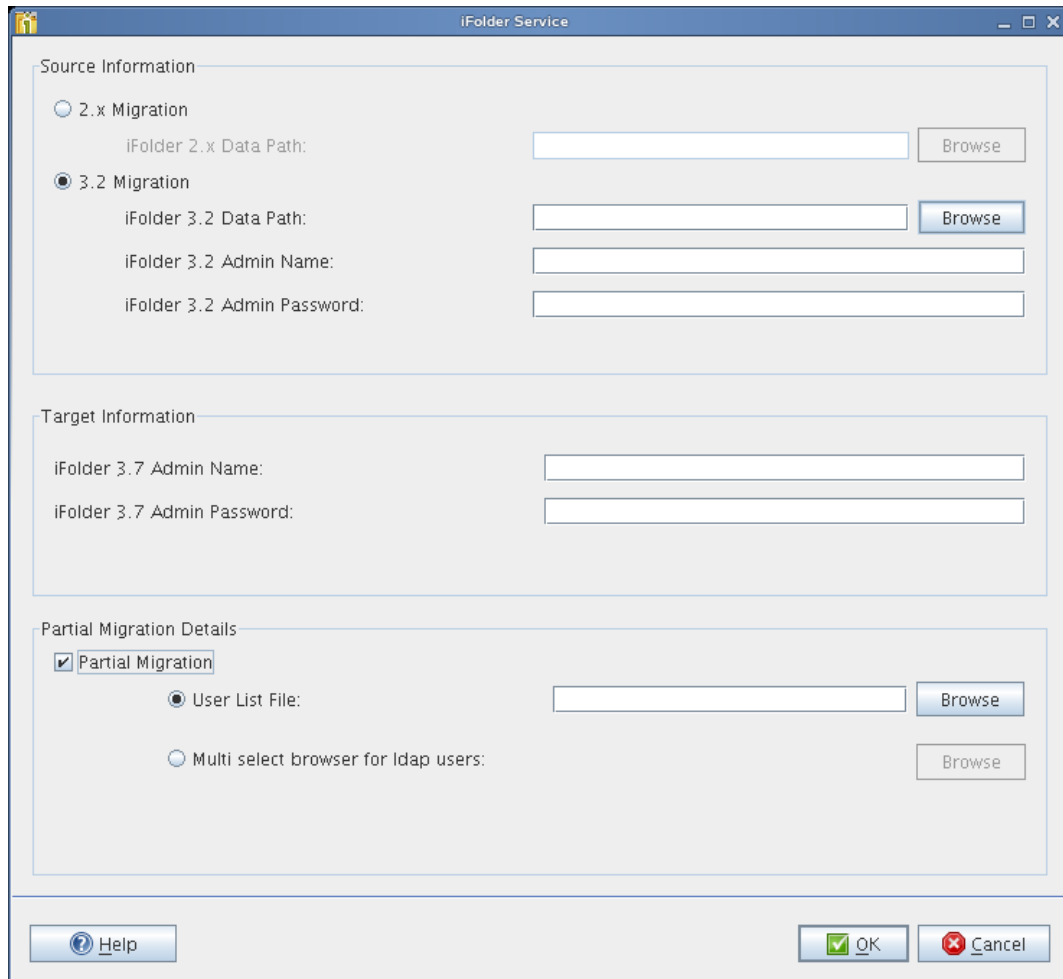
Using the Migration Tool GUI

- 1 Install, configure, and run iFolder 3.7 on the target server.
- 2 Copy the `simias.config` file from the source server to the location `/var/lib/wwwrun/.local/share/simias` in the target server.
- 3 Open the Migration Tool GUI.
Desktop: Select *Computer > More Applications > System > Novell Migration Tools*.
Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`
- 4 Authenticate to the source and target servers. All the associated services are listed in the Services panel.

- 5 You must configure the file system before configuring the iFolder 3.2 service. To configure NSS or NCP volumes, select *File System*, then click *Configure*. For any other file system, perform migration using Command Line Utilities. For more information on configuring file system, refer [Section 14.3, “Migrating the File System by Using the Command Line Utilities,” on page 104](#)
- 6 Select *Novell iFolder*, then click *Configure*. The iFolder configuration window displays as follows.

IMPORTANT: Ensure that you migrate the iFolder 3.2 file system data by using the file system migration tools. For more information, refer to [Appendix 14.2, “Migrating a File System by Using the GUI Migration Tool,” on page 96](#).

The default data path for iFolder is `/var/lib/wwwrun/simias` for Linux.

The image shows the 'iFolder Service' configuration window. It is divided into three main sections: 'Source Information', 'Target Information', and 'Partial Migration Details'. The 'Source Information' section has two radio buttons: '2.x Migration' and '3.2 Migration'. The '3.2 Migration' option is selected. Below it are four text input fields: 'iFolder 2.x Data Path:', 'iFolder 3.2 Data Path:', 'iFolder 3.2 Admin Name:', and 'iFolder 3.2 Admin Password:'. Each field has a 'Browse' button to its right. The 'Target Information' section has two text input fields: 'iFolder 3.7 Admin Name:' and 'iFolder 3.7 Admin Password:'. The 'Partial Migration Details' section has a checked checkbox labeled 'Partial Migration'. Below it are two radio buttons: 'User List File:' and 'Multi select browser for ldap users:'. Each has a 'Browse' button to its right. At the bottom of the window are three buttons: 'Help', 'OK', and 'Cancel'.

- 7 Fill in the following fields:

Parameter	Description
3.2 Migration	<p>Select this option if you want to migrate the iFolder 3.2 application to iFolder 3.7 on OES 2 SP1.</p> <p>iFolder 3.2 Data Path: Specify the path where the iFolder 3.2 system data is migrated to on the target server. This is the location on the iFolder target server to which iFolder application files and the users' iFolders and files are migrated. The path is case-sensitive.</p>
iFolder 3.2 Admin Name	Specify the username of the iFolder 3.2 administrator. This is the fully distinguished name of the iFolder admin user. For example: cn=admin,o=acme.
iFolder 3.2 Admin Password	Specify the iFolder 3.2 admin password.
iFolder 3.7 Admin Name	Specify the username of the iFolder 3.7 administrator. For example: admin.
iFolder 3.7 Admin Password	Specify the iFolder 3.7 admin password.
Partial Migration	<p>Select this option if you want to perform a partial migration, which allows you to select a set of users and migrate them to an iFolder 3.7 domain.</p> <p>User List File: Specify the location of the user list file. This is a text file that contains the list of user DNs for all the users selected for migration.</p> <p>Select LDAP Users: Browse the eDirectory tree and select the users for migration.</p>

8 Click *OK* to configure iFolder for migration.

9 In the main window, you can either configure other services, or click *Migrate* to start the migration process.

The Migration Tool takes care of the order in which each service migrates. Therefore, the iFolder migration initiates only after file system migration is completed.

Using Command Line Utilities

To run the Novell iFolder migration utility through command line, run `/opt/novell/migration/sbin/migif3 --option=value` with the following details:

Option	Description
--precheck	(Optional) Checks whether migration is possible with the given parameters.
--oldadminname	Specifies the username of the iFolder 3.2 administrator.
--newadminname	Specifies the username of the iFolder 3.7 administrator.
--oldadminpassword	Specifies the iFolder 3.2 admin password.
--previousserverurl	Specifies the IP address of the iFolder 3.2 server.

Option	Description
--newserverurl	Specifies the IP address of the iFolder 3.7 server.
--workarea	(Optional) Specifies the location for the temporary migration files.
--userlist	(Optional) Specifies a text file that contains the list of users for migration. If you don't specify this, a complete migration is performed.
--sync	(Optional) Performs the sync operation during migration for any changes made on the source server.

22.2.6 What to Expect

- ♦ The user data (iFolders) is migrated.
- ♦ If the user list is provided, only those users specified in the user list are migrated.
- ♦ In the Transfer ID scenario, the iFolder 3.7 updates the configuration files with the new server IP address after the migration is completed.

22.3 Upgrading iFolder 3.x

You can upgrade iFolder 3.x on OES 1 to iFolder 3.7 on OES 2 SP1. This is a single-server scenario, where the source and target servers reside on the same machine.

- ♦ [Section 22.3.1, “Server Upgrade,” on page 194](#)
- ♦ [Section 22.3.2, “Client Upgrade,” on page 195](#)

22.3.1 Server Upgrade

Ensure that the server-side data is backed up before you perform the upgrade.

You must use the YaST-based Novell iFolder configuration for the in-place upgrade. A YaST upgrade of OES 1 to OES 2 SP1 upgrades the configuration values of the iFolder enterprise server from the 3.x iFolder server to the 3.7 iFolder server.

For details on YaST-based configuration, see “[Deploying iFolder Server](#)” in the *OES 2 SP1: iFolder 3.7 Administration Guide*.

- 1 Install OES 2 SP1 by using YaST. For more information, see “[Installing iFolder on an Existing OES 2 Linux SP1 Server](#)”.
- 2 Select *Use Following Configuration* and click *Novell iFolder* to change the default configuration settings for iFolder.
or
If you decide to use default settings, click *Next* to start Novell iFolder 3 configuration.
For security reasons, it is recommended that you always change the default iFolder configuration settings.
- 3 Follow the YaST on-screen instructions to proceed through the Novell iFolder 3.7 configuration.

The table in the “[Configuring the iFolder Enterprise Server](#)” in the *OES 2 SP1: iFolder 3.7 Administration Guide* summarizes the decisions you make.

NOTE: In an upgrade scenario, the following fields in the YaST UI for iFolder are disabled so you don't need to specify them.

- ♦ *Path to the Server Data files*
 - ♦ *Install into Existing iFolder Domain*
 - ♦ *Private URL of Master server*
 - ♦ *Directory Server Address*
 - ♦ *iFolder Admin Password*
 - ♦ *Verify iFolder Admin password*
 - ♦ *LDAP Search Contexts*
 - ♦ *LDAP Naming Attribute*
 - ♦ *Require a secure connection between the LDAP server and the iFolder server*
-

22.3.2 Client Upgrade

- ♦ “[Understanding the Upgrade Process](#)” on page 195
- ♦ “[Preparing for the Upgrade](#)” on page 195
- ♦ “[Upgrade Procedure for the User](#)” on page 196

Understanding the Upgrade Process

With the client upgrade, binaries are upgraded with the new version of binaries and the client data is auto-upgraded.

Preparing for the Upgrade

Make sure that you perform the following server-side operations so that the user is notified of the new version of the iFolder client and prompted to accept the client upgrade.

IMPORTANT: You must ensure that the user backs up the Simias store before upgrading the client.

- 1 Enter `http:\\ IP address of iFolder server` in the browser to go to the OES 2.0 home page.
- 2 Download the client RPMs or executables from the OES 2.0 home page.
- 3 Place the RPMs under the respective platform directories in the path `ifolder_installDirectory/lib/simias/web/update/unix`

The latest client RPMs are installed only if they are present in the given path. The automatic installation happens when the user attempts to connect the 3.x or 3.4.1 client to the iFolder 3.7 server. The names of the platform-specific directories are in the `version.config` file in the same path. A script file named `install-ifolder.sh` in the `unix` directory contains the commands for upgrading the RPMs to the latest version.

Examples for `install-ifolder3.sh` are as follows:

```
rpm -Uvh <absolute path of simias rpm>
```

```
rpm -Uvh <absolute path of ifolder rpm>
rpm -Uvh <absolute path of nautilus-ifolder3 rpm>
```

- 4 Modify `version.config` to include entries for the directory where in the RPMs or the executables are placed.

Upgrade Procedure for the User

- 1 Connect the existing client to the server.

The client automatically prompts the user to accept the client upgrade when he or she attempts to connect an iFolder 3.x or 3.4 1 client to a 3.7 server. For details, refer to “[Automatically Upgrading to iFolder 3.7](#)” in the *OES 2 SP1: Novell iFolder 3.7 Cross-Platform User Guide*.

For instructions on performing a manual upgrade, refer to “[Manually Upgrading to iFolder 3.7](#)” in the *OES 2 SP1: Novell iFolder 3.7 Cross-Platform User Guide*.

22.4 Upgrading iFolder 3.6

- 1 On the OES 2 SP1 client Downloads page, click the *iFolder client for Linux* link to download the RPMs as desired.

For details, see “[Deploying iFolder Server](#)” in the *OES 2 SP1: iFolder Administration Guide*.

- 2 Follow the on-screen prompts to download the files to a directory on your machine.
- 3 Enter `cd <location where you have downloaded the files> .`
- 4 Run `rpm -Uvh *.rpm` to upgrade to iFolder 3.7.

22.5 Coexistence of iFolder 3.7 and 2.x Servers

If you use both iFolder 2.x and Novell iFolder 3.7 services, we recommend that you install each version on its own dedicated server. The OES 2.0 Linux services do not support iFolder 2.x services.

22.6 Coexistence of the iFolder 3.7 Client with Novell iFolder 1.x and 2.x Clients

Do not install the iFolder 3.7 client in the same application folder as a Novell iFolder 1.x or 2.x client.

The iFolder 3.7 client can coexist on the same workstation as the Novell iFolder 1.x client or 2.x client, with the following caveats:

- ♦ The iFolder 3.7 client and its iFolders work only with the Novell iFolder 3.7 enterprise server.
- ♦ The Novell iFolder 1.x or 2.x client and its iFolder on the workstation continue to work only with the assigned Novell iFolder server of the same release.
- ♦ The single iFolder created with the iFolder 1.x or 2.x client can coexist with the multiple iFolders created with the iFolder 3.7 client. The iFolders function independently on the workstation; they do not exchange information or data. However, you can manually transfer local data between old and new iFolder folders.
- ♦ You should not attempt to convert the Novell iFolder 1.x or 2.x folder to an iFolder to be managed by Novell iFolder 3.7 by any other means other than using the migration tool. Similarly, you should not convert parent folders of that iFolder to a next-generation iFolder.

For example, if *abc* is the parent directory of the *xyz* directory, you should not attempt to migrate *abc* to iFolder 3.7 while *xyz* still remains an iFolder of type 2.x or 1.x. In addition, you should not attempt to migrate *xyz* to iFolder 3.7 while *abc* still belongs to a 2.x or 1.x domain.

If the folder is no longer used by a prior version of the Novell iFolder client, such as after you uninstall the old client from the workstation, you can convert the folder or its parent folders to a next-generation iFolder.

Migrating iPrint from NetWare to OES 2 SP1 Linux

23

Migration refers to the process of migrating iPrint from a NetWare® system to a Linux system. For general information about the OES 2 Migration Tool, see [Chapter 1, “Overview of the Migration Tools,” on page 15](#).

The following sections give more details on the migration procedure for iPrint.

- ♦ [Section 23.1, “Prerequisites,” on page 199](#)
- ♦ [Section 23.2, “Migration Scenarios,” on page 200](#)
- ♦ [Section 23.3, “What Happens During Migration,” on page 201](#)
- ♦ [Section 23.4, “Migration Procedure,” on page 201](#)
- ♦ [Section 23.5, “Post-Migration Procedure,” on page 204](#)
- ♦ [Section 23.6, “Verifying Migration,” on page 205](#)
- ♦ [Section 23.7, “Cleaning Up Stale Objects,” on page 205](#)
- ♦ [Section 23.8, “Troubleshooting iPrint Migration,” on page 206](#)
- ♦ [Section 23.9, “iPrintmig Man Page,” on page 209](#)

23.1 Prerequisites

This section covers the migration prerequisites for all the migration scenarios supported by iPrint.

- ♦ [Section 23.1.1, “Platform Specifications,” on page 199](#)
- ♦ [Section 23.1.2, “General Prerequisites,” on page 200](#)

23.1.1 Platform Specifications

- ♦ [“Source Server Requirements” on page 199](#)
- ♦ [“Target Server Requirements” on page 200](#)

Source Server Requirements

- ♦ NetWare 5.1, 6.0, 6.5, Open Enterprise Server (OES) 1 Linux, OES 2 Linux

IMPORTANT: If your source server is OES 1 Linux, ensure you update the server with the `novell-iprint-server-5.1.20080415-1.i586.rpm` patch. If your source server is NetWare 6.5 SP 6, apply the `nw65sp7b` patch. After applying the patch, do the following:

1. Restart the active Print Manager.

2. Start the Web browser and open

`https://OES1_IPADDRESS/PsmStatus/Misc?backupDB=true`.

On the page, if the *Database XML File* field is not displaying `padbtxt.xml` file, click

Backup Database to re-generate the `padbtxt.xml` file. For more information about patching your server, see “[Patching an OES Linux Server](#)” in the *OES Linux Installation Guide*.

Target Server Requirements

- ♦ OES 2 SP1 Linux server with iPrint installed and the Driver Store configured. For more information, see “[Setting Up iPrint on Your Server](#)” and “[Creating a Driver Store](#)” in the *OES 2: iPrint for Linux Administration Guide*.

IMPORTANT: If your target server is in a non-replica eDirectory™ tree, for migration to be successful, both the target Driver Store and Print Manager must be active. Configure SLP to make these active. For details on SLP configuration, see “Configuration Parameters” in the *Novell eDirectory 8.8 Administration Guide* (<http://www.novell.com/documentation/edir88/edir88/data/akscitn.html>).

23.1.2 General Prerequisites

- ♦ Before starting the migration, ensure that the source and target Print Managers are running. If you are using command line tools for migration, ensure that the source Print Managers are running.
- ♦ Ensure that the file containing the printers to be migrated does not contain extra spaces or characters. For troubleshooting extra spaces, see “[Printers are not migrating with the -f option](#)” on page 207.
- ♦ Ensure that the driver paths are correct and accessible. For troubleshooting a Bad Driver assignment, see “[Invalid driver path assignments](#)” on page 207.
- ♦ Ensure that you retain the Print Agent redirection on the source servers.
 - ♦ For NetWare source servers, follow the instructions in “[Setting Up DNS for the Print Manager](#)” in the *OES 2 SP1: iPrint Administration Guide for NetWare*.
 - ♦ For Linux source servers, follow the instructions in “[Creating a Print Manager](#)” in the *OES 2: iPrint for Linux Administration Guide*.
- ♦ Ensure that the user has the following rights and permissions assigned explicitly on the source server so that the user can access and execute the `psminfo.nlm`, even if there is a mismatch of source server and container admin credentials for the user:
 - ♦ Read permission to `sys:ndps` folder on the migration source server.
 - ♦ Add the user as a trustee with supervisor rights to the source server NCP server object.
- ♦ Back up the Print Manager database files on the source server prior to migration for any changes. For NetWare, see “[Understanding the Print Manager Database](#)” in the *OES 2 SP1: iPrint Administration Guide for NetWare*. For Linux, see “[Understanding the Print Manager Database](#)”.

23.2 Migration Scenarios

iPrint supports the following migration scenarios:

- ♦ Migrating servers within the same eDirectory tree
- ♦ Migrating servers across different eDirectory Trees

- ♦ Migrating servers through Consolidation
- ♦ Migrating servers through a Server ID swap (Transfer ID)

For more information about these scenarios, see [Section 1.3, “Migration Scenarios,” on page 17](#)

23.3 What Happens During Migration

During the migration process, the following objects are transferred seamlessly from the source server to the target server:

- ♦ Printers
- ♦ Drivers
- ♦ Banners
- ♦ Printer Pools
- ♦ Redirected Printers
- ♦ ACL
- ♦ Printer Profiles
- ♦ The `iPrint.ini` file (Only if the source server is NetWare 5.1, 6.0, or 6.5)
- ♦ iPrint Client Management (only if the source and target servers are in same tree and are sharing a common user)

23.4 Migration Procedure

Migration of iPrint configuration can be done through the Migration Tool or through the command line interface.

- ♦ [Section 23.4.1, “Using the Migration Tool,” on page 201](#)
- ♦ [Section 23.4.2, “Using the Command Line Utility,” on page 203](#)

23.4.1 Using the Migration Tool

- 1 Launch the Migration Tool on the target server in one of the following ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*.

Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

For details on configuring source and target Server information, selecting a migration type, opening a project, and all the tool buttons, see [Chapter 2, “Overview of the Migration GUI,” on page 21](#).

- 2 Authenticate to the source and target servers.
- 3 Select *Novell iPrint*, then click *Configure*. The iPrint configuration window is displayed.
- 4 Specify the following parameters to proceed with the migration process:

Tab Name	Parameter	Description
<i>Print Objects</i>	Source Print Manager	Specify the active Print Manager on the source server. Click the <i>Browse</i> button to open the Object Selector. Search and select a Print Manager. The source Print Manager can be either an NDPS™ manager (for NetWare 5.1 or 6.5) or iPrint Manager (for OES 1 and OES 2 Linux). To directly go to a context of your choice, specify the context in the <i>Search Base</i> and click <i>Search</i> . The objects in the specified context are displayed.
	Target Print Manager	Specify the Active Print Manager on the target server. Click the <i>Browse</i> button to open the Object Selector. Search and select a Print Manager. The target Print Manager must be an iPrint Manager. To directly go to a context of your choice, specify the context in the <i>Search Base</i> and click <i>Search</i> . The objects in the specified context are displayed.
	Get Printers	Click this button to fetch printer objects from the Source Print Manager.
	Printer Objects	Displays all the printers of the Active Print Manager available on the source server. The printers that already exist on the target server are indicated by an asterisk (*).
	Select All	Select this option to automatically choose all the printers listed in the Printer Objects dialog box.
	Create target printer objects in Source Printer Context	Select this option if you want to maintain the contexts of the source printers on the target server.
	Create target printer objects in Target Printer Context	Select this option if you want the contexts of the source printers to be created under a different context on the target server. This option does not maintain the context hierarchy of the source printer. Click the <i>Browse</i> button to open the Object Selector. Search and select a context. To directly go to a context of your choice, specify the context in the <i>Search Base</i> and click <i>Search</i> . The objects in the specified context are displayed
	Do Not Migrate Existing Printers	Select this option to avoid migrating the same printers, if the printer names on source server match the existing printer names on the target server under the same context. Otherwise, the target printer properties and attributes are overwritten by the source printer properties and attributes. The printers that already exist on the target server are indicated by an asterisk (*)

Tab Name	Parameter	Description
<i>Other Options</i>	Target IDS DN	Specifies the distinguished name for the Driver Store of the target server. Click the <i>Browse</i> button to open the Object Selector. Search and select a Driver Store. To directly go to a context of your choice, specify the context in the <i>Search Base</i> and click <i>Search</i> . The objects in the specified context are displayed.
	Do Not Migrate Printer Drivers	Select this option if you do not want the printer drivers to be migrated. If drivers are not present in target Driver Store, clients cannot install printers.
	Overwrite Printer Drivers on Target	If the driver names are same on the source Driver Store and the target Driver Store, the target drivers are overwritten.
	Do Not Migrate Printer Drivers Profile	Printer driver profiles are not migrated. If driver profiles are not present on the target server, clients cannot install printers.
	Overwrite Existing Printer Drivers Profile	If the profiles are the same on the target server as the source server, the target profiles are overwritten.

5 Click *OK* to finish the configuration and go back to the migration screen.

23.4.2 Using the Command Line Utility

You use `iprintmig` to migrate iPrint. For more information, see [iPrintmig Man Page \(page 209\)](#).

1 Use one of these methods to migrate to an OES 2 SP1 Linux server.

- ♦ From a terminal prompt on the target server, run `iprintmig` to migrate the printers on the source server to the target server. Before running the utility set the environment variable for safely transferring the password.

For safe transmission of passwords to the script via an environment variable or via the `-P/-T` options, see [“Using Passwords” on page 213](#).

IMPORTANT: This method is safe and recommended.

Syntax: `iprintmig -s source_server -u source_username_only -U target_username_only -a -x psminfo.xml -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us`

- ♦ From a terminal prompt on the target server, run `iprintmig` to migrate the printers on the source server to the target server by providing the password.

IMPORTANT: The password is visible to users in this method.

Syntax: `iprintmig -s source_server -u source_username_only -p source_password -U target_username_only -t target_password -a -x psminfo.xml -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us`

Migrating One Printer at a Time

Example: `iprintmig -s source_server_name -u source_admin -U target_admin -n printer1 -x psminfo.xml -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us -N`

Migrating a Few Printers at a Time

Example: `iprintmig -s source_server_name -d target_server_name -u source_admin -U target_admin -x psminfo.xml -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us -n printer1 -n printer2 -n printer3 -n printer4 -L`

Migrating all Printers

Example: `iprintmig -s source_server_name -d target_server_name -u source_admin -U target_admin -x psminfo.xml -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us -a -N`

Migrating Printers by Using SSL

Example: `iprintmig -s source_server -u source_username -U target_username -a -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us -ssl -port LDAP port -N`

Migrating Printers without SSL

Example: `iprintmig -s source_server -u source_username -U target_username -a -I cn=ids,o=example,c=us -i ids.example.com -c ou=iPrint,o=example,c=us -port LDAP port -N`

23.5 Post-Migration Procedure

With the new server in place, review the following items before the users start the new iPrint system.

- ♦ Using the target server's IP address, load the iPrint Printer List Web page (http://server_IP_address/ipp) and test the new print system.
- ♦ Decide which access methods you want users to use for the new system:
 - ♦ **Configure redirection on the source server:** Using iManager, you can enable redirection for the printers on the source server to printers on the new server. For a NetWare source server, see “[Enabling Printer Agent Redirection](#)” in the [OES 2 SP1: iPrint Administration Guide for NetWare](#).

IMPORTANT: This method causes the existing printer to be uninstalled and the new printer installed on the client workstation.

This method lets you move groups of printers rather than the entire system. If you discover a printer that isn't working correctly, you can disable redirection on the source server and enable redirection on the target server, thereby allowing users to continue to print until you fix the new printer.

- ♦ **Change the DNS Service to point to the new server:** If you want to use the same DNS name for your print server, complete the following procedure:
 1. On the target server, edit the `ipsmd.conf` file by changing the value of the `PSMHostAddress` field to the DNS name you are currently using.
 2. Down the target server.
 3. Down the source server.
 4. Update your DNS tables to reflect the target server's address.
 5. Start the target server.

23.6 Verifying Migration

After migration is complete, the desired Print Manager on the target server must be active. This ensures that the migration has been successfully completed. Use the procedures in this section to check for the Print Manager and printers.

- ♦ [Section 23.6.1, “Using iManager,” on page 205](#)
- ♦ [Section 23.6.2, “Using the Command Line,” on page 205](#)

IMPORTANT: If the print manager is in the down state after migration, see [Section 23.8, “Troubleshooting iPrint Migration,” on page 206](#).

23.6.1 Using iManager

- 1 Open iManager on the target server
- 2 Go to *iPrint > Manage Print Manager*
- 3 Specify the *iPrint Manager name* or *NDPS Manager name*.
- 4 Click *OK*. The print manager status must be *Active*.
- 5 Click *Printer Agents*. This displays the printers on the target server.

23.6.2 Using the Command Line

- 1 At the console, enter the command `iprintman psm -l -u admin`
- 2 Enter the admin password when prompted.
This displays all of the Print Managers with their status. Ensure that the desired Print Manager is *Active*.
- 3 At the console, enter the command `iprintman printer -l -u admin`
- 4 Enter the admin password when prompted.
This displays the printers on the target server.

23.7 Cleaning Up Stale Objects

Clean up stale iPrint objects by using the `/opt/novell/iprint/bin/iprintcleanup.pl -s <source_server> -u <source_user(FDN format)> --ssl --port <LDAP_Port> -f <filename>` command.

Table 23-1 *Script Usage Options*

Option	Description
-h --help	Print the summary.
-s --src <source_server>	Source server IP address.
-u --src-user <user>	Admin user FDN for source server. For example, cn=admin,o=novell.
-p --src-pass <pswd>	Password of the source server admin user.
-f --renamed-printers-file <filename>	Filename to clean up. For example, /etc/opt/novell/iprint/conf/renamed_printer_objects.
--ssl	Use this option if SSL is enabled on the server.
--port	LDAP enabled port.

23.8 Troubleshooting iPrint Migration

- ♦ “Printers are not migrating to the OES 2 Linux Server” on page 206
- ♦ “Target server authentication fails in a cluster environment” on page 207
- ♦ “Printers are not migrating with the -f option” on page 207
- ♦ “Invalid driver path assignments” on page 207
- ♦ “Printers are not migrating in the same eDirectory tree under same context” on page 208
- ♦ “Migration fails even after a pre-check is passed” on page 208
- ♦ “Migration fails when a printer is assigned to a Print Manager” on page 208
- ♦ “Migration fails for container admin credentials on the source server” on page 208
- ♦ “Migration fails with an error message” on page 208
- ♦ “Driver Store and Print Manager not initialized after migration on the target server” on page 209
- ♦ “Printers not coming up after Transfer ID migration” on page 209

Printers are not migrating to the OES 2 Linux Server

Explanation: Occasionally the status of the iPrint migration is successful but the specified Print Manager is not active (Down), so printers are not migrated to the OES 2 Linux server.

Possible Cause: Some other Print Manager is active or is already loaded on the OES 2 Linux server.

Action: On OES 2 Linux server:

- 1 Search for the ipsmgd daemons by executing the `ps ax | grep ipsmgd` command. This displays two running ipsmgd processes.
- 2 Kill the individual ipsmgd daemons by executing `kill -9 pid_of_ipsmgd`
- 3 Restart the migration by executing `iprintmig`.

Target server authentication fails in a cluster environment

Explanation: The loopback address is not authenticated.

Possible Cause: The loopback address is not being resolved to the target server's IP address in the cluster environment.

Action: The user should enter the target server's IP address or DNS name.

Printers are not migrating with the -f option

Explanation: `iprintmig` skips adding printers from the file containing the printers list

Possible Cause: If the file with the printers to be migrated contains extra spaces or characters, the file is skipped by the utility.

Action: Delete the extra spaces or characters and restart the migration process.

Invalid driver path assignments

Explanation: Specific printers are not being migrated, and you see an error message
`XMLToDoCIMInstance::doWork(): CIMException encountered (general error) <Operating System Name> GetDriverInfo failed:<Printer Name> during migration.`

Possible Cause: The printers are associated with deleted or missing drivers.

Possible Cause: The driver is associated to a remote path that no longer exists. The path can be a remote server or an unmounted volume.

Action: Verify the driver path and generate a report to correct the driver assignment:

- 1 From iManager, select *Manage Print Manager*.
- 2 Select a *NDPS Manager*.
- 3 Click *OK*.

NOTE: If the Print Manager is down, click *Startup* to make it *Active*.

1. Click *Printer Agents Configuration Report*.
2. Select one or more *Configuration Options* for the operating system name displayed in the error message.
3. Click *Generate Report*.
The driver assignment path is displayed for individual Printer Agents in the report.
4. Verify that the complete driver path is a valid assignment.
5. (Conditional) If the path is invalid, select *Manage Printer*.
 - a. Choose a required printer under *NDPS Printer Name*.
 - b. Click *OK*.
 - c. Select the specific operating system for which the assignment is invalid under the *Drivers* tab. A message window appears with a message `The current driver does not exist`.
 - d. Click *OK*.
 - e. Select either *NONE* or a suitable driver.

Printers are not migrating in the same eDirectory tree under same context

Explanation: Printers are not being migrated, and you see an error message:
`CIMException encountered (general error): Creation of printer 'CN=<PrinterName>,o=<organization>' object failed. Object exists, but failed to get iPrintPrinterManager value.`

Possible Cause: The migration was in the same eDirectory tree, and the source Print Manager and the target Print Manager were under the same context.

Action: Use iManager to create a Print Manager on the target server in a different context. Restart the migration with the target Print Manager as the newly created Print Manager.

Migration fails even after a pre-check is passed

Explanation: On restarting the source server, the migration fails if the Print Manager unload is not successful.

Possible Cause: The eDirectory attributes for the unloaded PSM are not cleaned up.

Action: Restart the Print Manager.

Migration fails when a printer is assigned to a Print Manager

Explanation: The migration fails with an error message: `CIMException encountered (general error): Creation of printer <Printer FDN> (Eg: cn=Printer1,o=novell) object failed. Object exists, iPrintPrinterManager value indicates that the printer is associated with another ipsmd.`

Possible Cause: Trying to reassign a printer to new Print Manager when an existing Print Manager assigned to this printer is down.

Action: Do not select the printer that is currently assigned to a Print Manager on the target server when it is down.

Migration fails for container admin credentials on the source server

Explanation: Printer objects with container admin credentials are not being migrated.

Possible Cause: There is a mismatch of source server and container admin credentials for the user. The source server might not be in the same container where the full access rights are defined.

Action: Ensure that the user has the following rights and permissions assigned explicitly, so that the user can access and execute the `psminfo.nlm`:

- ◆ Read permission to the `sys:ndps` folder on the migration source server.
- ◆ Add the user as a trustee with supervisor rights to the source server NCP Server object.

Migration fails with an error message

Explanation: Terminate called after throwing an instance of
`'OpenWBEM4::HTTPException' what(): Unable to process request: 401: Authentication failure Aborted.`

Possible Cause: The admin user is not correctly LUM-enabled.

Action: LUM-enable the admin user:

- 1 run `yast2 novell-lum` from the command prompt.
- 2 Click *Continue*.
- 3 Enter the admin password.
- 4 Click *Next* and follow the on-screen prompts.

Driver Store and Print Manager not initialized after migration on the target server

Explanation: The Driver Store and Print Manager are not initialized on the target server when the SLP configuration is used.

Possible Cause: Problems in the SLP configuration before starting migration.

Action: Enter the `slptool findsrvs service:ndap.novell | grep <TREE NAME>` command to list the TREENAME. If the tree name is not listed, fix the SLP configuration. For details, see [Section 4.1, “Prerequisites,” on page 37](#).

Printers not coming up after Transfer ID migration

Explanation: You migrate printers by using Transfer ID option, but printers are not coming up.

Possible Cause: Printers are not being associated with the Drivers after an ID swap (Transfer ID).

Action: Use the following procedure:

- 1 Run the `/opt/novell/bin/iprintman psm --xml-import /tmp/psmimport_idswap.xml -s <Server IP Address> -u admin -f -accept-cert` command on the OES 2 Linux console.
- 2 Enter the admin password.

23.9 iPrintmig Man Page

- ♦ [“iprintmig\(1\)” on page 210](#)

iprintmig(1)

Name

iprintmig - Migration utility for Novell iPrint

Syntax

This section contains iPrint commands and utilities used on the Linux platform.

```
iprintmig -s <server> -u <user> <options> -n <printer1>...<printerN>
```

```
iprintmig -s <options>
```

Description

iprintmig is a management tool used to migrate printers to OES Linux.

Options

-h, --help

Print this summary.

-v, -vv, -vvv, -vvvv, -verbose

Determines the level of detail to display about the execution of operations with -v displaying a minimum amount of detail and -vvvv displaying the most detail.

-V, --version

Print version information.

-s <server>, --src <server>

Source server hostname or address to migrate from.

-d <server>, --dst <server>

Target server hostname or address to migrate to.

-D <PSM DN>, --dst-dn <PSM DN>

Destination print manager DN to migrate to.

-u <user>, --src-user <user>

The FDN format admin for the source server, such as cn=admin, 0=example.

-U <user>, --dst-user <user>

The FDN format admin for the target server, such as cn=admin, 0=example.

-p <pass>, --src-pass <pass>

Password of the source server admin user.

-P <fd>, --src-pass-fd <fd>

File descriptor number to read the source admin password from???

-t<password>, --dst-pass <password>

Password of the user on the target server.

-T<fd>, --dst-pass-fd <fd>

File descriptor number to read the destination admin password from?????

-i<IDS_server>, --ids <IDS_server>

Target IDS server hostname or address. Defaults to dst.

-I<IDS_DN>, --ids-dn <IDS_DN>

Distinguished name of the target IDS.

-e<server>, --edir <server>

Server hostname or address of the eDirectory server for the target server to use.

-n<printer>, --printer-name <printer>

Name of the printer to migrate. Can be specified multiple times.

-f <file>, --printers-file <file>

File containing names of printers (1 per line) to migrate.

-F <fd>, --printers-fd <fd>

File descriptor number listing names of printers to migrate.

-a, --all

Migrate all printers from the source.

-c<DN>, --dst-container <DN>

DN of the container to create print objects in (conflicts with -S).

-S, --same-dn

Create objects on the target server with the same DN as the source server. Only valid when migrating to a new tree.

-H, --same-hostname

Create a manager on the target server with the same hostname as the source manager. Useful when migrating the entire print server.

-x<file>, --xml-outfile <file>

Save the XML migration processing file to <file>.

--srcversion

Indicates the version of the operating system on the source server.

--nodrivers

Do not migrate drivers. If drivers are not present in destination IDS, clients cannot install printers.

--overwrite-drivers

If the destination IDS has a driver with the same name as a corresponding driver on the source server, overwrite it.

--noacls

Do not migrate access control lists (ACLs).

--noprofiles

Do not migrate profiles. If profiles are not present on the target server, clients won't be able to install printers.

--overwrite-profiles

If the target server has a profile for a driver with the same name as a profile on the source server, overwrite it.

--nogo

Prepare but do not perform the migration. This option creates an output XML file and migrates drivers (unless `--nodrivers` was specified) but does not perform the migration.

--debug

Prints debug messages to a `/var/opt/novell/log/migration/iprintmig.log` file.

--update

This option synchronizes any changes that have occurred in the source server data with the target server after the migration process is completed. This option must be used in conjunction with the `-a` option.

--resume

Lets you resume the migration process from where it was suspended.

--precheck

Validates the parameters passed for the migration process and returns the status without actually starting the migration.

--consolidation

Use this option to aggregate services on a single target server from multiple source servers.

--ssl

Use this option to enable secure authentication.

--port

Indicates the LDAP port.

--treeflattening

Use this option if you want the contexts of the source printers to be created under a different context on the target server. The context of the target printer is specified by using the `-c<DN>`, `--dst-container <DN>` option.

--idswap

Use this option to migrate the printers from the source server to the target server without changing the identity.

Using Passwords

For security reasons, it's safest to transmit passwords to the script via an environment variable or via the -P/-T options, because any user of the system can view the password if it is on the command line (-p/-t options).

Instead, have the calling program set its environment with the following two variables:

```
IPRINTMIG_SRC_PASSWORD=examplePassword1
```

```
IPRINTMIG_DST_PASSWORD=examplePassword2
```

Then you can execute the following command, which migrates all the printers from server1.example.com to the server where the script was being run.

```
iPrintmig -s server1.example.com -u admin.example.us -U admin -a -x  
psminfo.xml -I cn=ids,o=example,c=us \-i ids.example.com -c  
ou=iPrint,o=example,c=us
```

Examples

The following example migrates a few printers at a time while explicitly specifying the hostname of the new print manager:

```
iPrintmig -s server1.example.com -d newserver.example.com -u admin.example.us  
-U admin -x psminfo.xml \-I cn=ids,o=example,c=us -i ids.example.com -c  
ou=iPrint,o=example,c=us -n printer1 -n printer2 \-n printer3 -n printer4
```

If a calling program specifies a large number of printers, there are three ways to do it:

- ♦ The -n (or --printer-name) option can be specified with a printer name one or more times, as in the example above. This can create a very long command line if many printers are being migrated, so this usage is discouraged.
- ♦ A file containing printer names, one per line, can be specified by using the -f (or --printers-file) option. For a calling program to use this file, the program must first write the list of printers to a temporary file.
- ♦ The calling program can avoid the use of a temporary file by using the -F (or --printers-fd) option, which allows the calling program to send the list of printer names over a pipe created (for example) with socketpair(). As with the -f (or --printers-file) option, printer names are read from the file descriptor one per line.

A simple example of this usage follows in C. Similar methods are available with the Mono[®] Mono.Posix.Syscall members.

```
char *printers[] = { "p1", "p2", "p3" };  
int fds[2], pid, rc;  
rc = socketpair(AF_UNIX, SOCK_STREAM, 0, fds);  
if (rc < 1)  
{  
    perror("Error creating socket pair");  
    exit(1);  
}  
pid = fork();  
switch (pid)  
{  
    case -1: //Error
```

```

        perror("Fork failed");
        exit(1);
    case 0: //Parent
        close(fds[1]);
        for (int i; i < (sizeof(printers)/sizeof(char**)); ++i)
        {
            write(fds[0], printers[i], strlen(printers[i]));
            write(fds[0], "\n", 1);
        }
        close(fds[0]);
        break;
    default: //Child
        close(fds[0]);
        //Set an environment that contains the password env vars
        //Make sure that close on exec isn't set for fds[1]
        //exec the iprintmig script with "-F" and fds[1] converted from an int
        to a string as arguments
    }
}

```

Notes

Most of the information that this program requires can be obtained from the eDirectory objects that the user selects. For example, to migrate all printers from a NetWare server to the new Linux server, the user needs to select the old PSM object, which contains the address of the server it is running on. Then the user needs to select the destination PSM, which has attributes for its network address, what eDirectory server it is using, which IDS it is using (and the corresponding IDS object has its own address).

There are some details that cannot be selected or discovered, but must be provided by the user, such as credentials, and whether or not to migrate profiles or drivers.

The user can select a destination container to hold the objects created during migration, or the user can choose to keep the same path for objects (which only works for a move from one tree to another, because the NetWare-style objects already exist in the source tree and would conflict with the new Linux versions of the objects).

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See Also

`iprintman`

Migrating Timesync/NTP from NetWare to NTP on OES 2 SP1 Linux

Migration refers to the process of migrating Timesync services from a NetWare[®] system to NTP on a Linux system. The OES Migration tool follows a source/target model.

The following sections give more details on the migration procedure for Timesync.

- ♦ [Section 24.1, “Planning the Migration,” on page 215](#)
- ♦ [Section 24.2, “Migration Scenarios,” on page 215](#)
- ♦ [Section 24.3, “Migration Procedure,” on page 215](#)
- ♦ [Section 24.4, “Post-Migration Procedure,” on page 216](#)

24.1 Planning the Migration

You can migrate the NTP services running on one of the following source platforms to the listed target platform:

Source Servers

- ♦ NetWare 5.1 SP8
- ♦ NetWare 6.0 SP5
- ♦ NetWare 6.5 SP5 and later

Target Server

- ♦ OES 2 SP1 Linux

24.2 Migration Scenarios

The following scenarios are supported for Timesync/NTP migration:

- ♦ Consolidation on the same tree
- ♦ Consolidation on a different tree
- ♦ Transfer ID on the same tree

For details on these three scenarios, see [Section 1.3, “Migration Scenarios,” on page 17](#).

24.3 Migration Procedure

Migration of NTP configuration can be done from the Migration Tool or through the command line.

The migration procedure reads the NetWare NTP/Timesync configuration file and maps its parameters to the equivalents in NTP Linux. During the migration process, the existing `ntp.conf` file is backed up and saved as `ntp.conf.old` in the `/etc` directory and the new parameters are saved in `/etc/ntp.conf`. If NTP is already configured on the target server while configuring eDirectory™, this configuration is overwritten.

- ♦ [Section 24.3.1, “Using the Migration Tool to Migrate Servers,” on page 216](#)
- ♦ [Section 24.3.2, “Using the Command Line to Migrate Servers,” on page 216](#)

24.3.1 Using the Migration Tool to Migrate Servers

- 1 Launch the Migration Tool in one of the following ways:

Desktop: Click *Computer > More Applications > System > Novell Migration Tools*

Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

- 2 Configure the source and target parameters.

For details on configuring source and target server information, selecting a migration type, loading and saving a project, and all buttons, see [Chapter 2, “Overview of the Migration GUI,” on page 21](#).

- 3 Select *Novell NTP* from *Services* and click *Configure*. The status changes from *Not Configured* to *Ready*.
- 4 Click *Migrate* to start the migration process. The status changes from *Migrating* to *Migrated*.

NOTE: Use the *Status > Logs* tab to check for errors during migration. Fix the errors and restart the migration procedure if necessary.

24.3.2 Using the Command Line to Migrate Servers

To run the NTP migration utility through the command line, run the following command on the target server with the required parameters:

```
migtime -s <source IP address>
```

For example:

```
migftp -s 192.168.0.54
```

24.4 Post-Migration Procedure

Load the XNTPD daemon by entering the following command at the prompt:

```
rcntp restart
```