Migration Tool Administration Guide

Open Enterprise Server 11 SP3

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Contents

About This Guide

This guide describes the functionality and usage of the Novell Open Enterprise Server 11 (OES 11) Support Pack 3 (SP3) Migration Tool. This guide covers the following topics:

Audience

This guide is intended for network administrators, installers, and consultants who are involved in migrating data and services to OES 11 SP3.

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.

Documentation Updates

For the most recent version of the *OES 11 SP3: Migration Tools Administration Guide*, visit the OES 11 documentation web site (http://www.novell.com/documentation/oes11).

OES 11 SP3 Migration Overview

1 Overview of the Migration Tools

Migration is the process of migrating services, file system data, and eDirectory information from an existing NetWare 6.5, Open Enterprise Server (OES) 1 Linux, OES 2 Linux or OES 11 server to an OES 11 SP3 server. The Migration Toolkit is designed to meet all your OES migration needs.

In this document, the NetWare, OES 1 Linux, OES 2 Linux and OES 11 servers are referred to as the source server, and the OES 11 SP3 server is referred to as the target server.

1.1 Migration Tool Enhancements

The Migration Tool has an enhanced graphical user interface (GUI), which enables you to migrate all the services from the 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 migration:

- Use a Transfer ID scenario to migrate the server identity
- Create a migration project to migrate multiple services
- Schedule and run the migration at your convenience
- Receive an email message indicating the success or failure of the migration process
- Display the status of the migrating service and display service-specific logs
- Display the overall progress of migration and display the 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 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:	To this physical or virtualized server:	Migration Tool	Chapter 2, "Overview of the Migration GUI," on page 21
◆ OES 11 SP3	◆ OES 11 SP3		
◆ OES 11 SP2			
◆ OES 11 SP1			
◆ OES 11			
◆ OES 2 SP3			
◆ OES 1 SP2 Linux			
◆ NetWare 6.5 SP8			
From any of these physical servers:	To this physical or virtualized server:	Server Consolidation Migration Toolkit 1.2	*Novell Server Consolidation and Migration Toolkit Administration Guide*
◆ NetWare 5.1 SP8	◆ NetWare 6.5 SP8		

1.3 Migration Scenarios

The Migration Tool supports the following scenarios:

1.3.1 Migrate

The Migrate 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 on new, 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.

Sample Scenarios

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

Basic Server Consolidation: Many-to-One

In this scenario (see Figure 1-1), you have three existing OES servers. You recently purchased a multiprocessor server and installed OES 11 SP3 on it. You want to copy the data from each of the three servers to the single OES 11 server. Instead of manually moving all the data or backing up the data on each of the three servers and then restoring it on the OES 11 server, you can use the Migration Tool to automate the process.

Figure 1-1 *Many-to-One Server Consolidation*
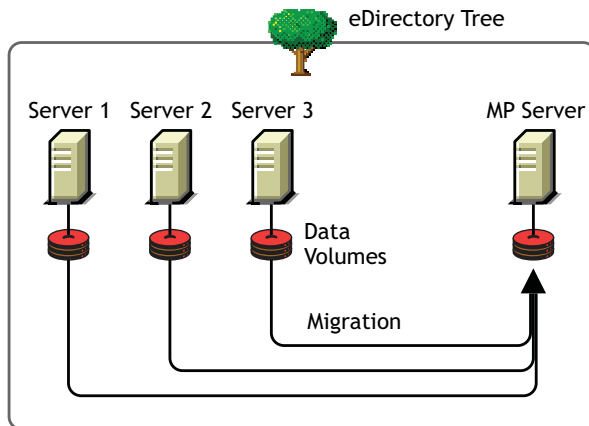
Although Figure 1-1 shows a consolidation scenario in which all servers are in the same eDirectory tree, you can also perform tree-to-tree consolidations.

Consolidating Data from Multiple Servers onto a Two-Node Cluster

In this scenario (see Figure 1-2), 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 decide to install OES 11 SP3 on the two-node cluster and to copy the data from each of the five servers to the SAN on the two-node cluster. Instead of 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 1-2 *Cluster Server Consolidation*
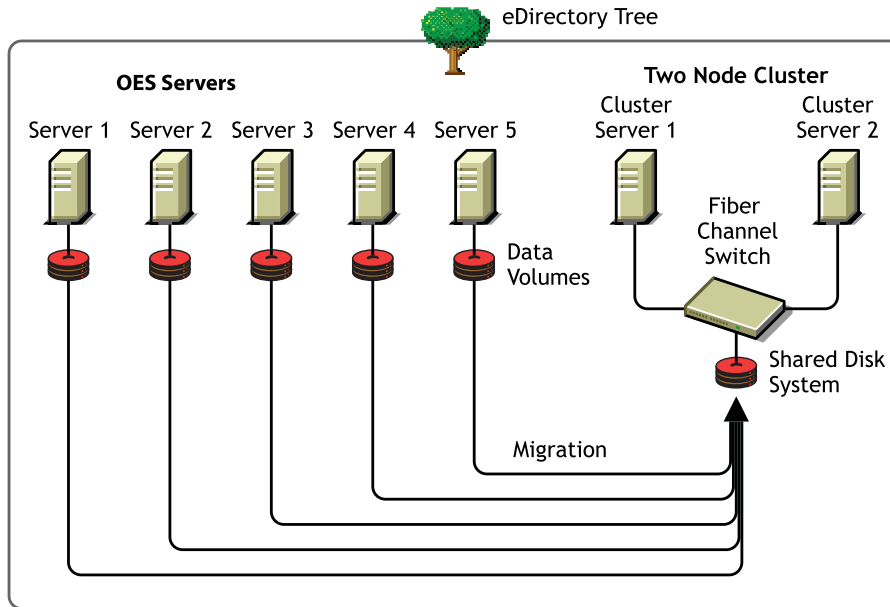
Cross-Platform Data Consolidations

The Migration Tool supports cross-platform data consolidations from NetWare, OES 1 SP2 Linux, OES 2 SP3, or OES 11 servers to an OES 11 SP3 server.

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. This scenario is only supported in same-tree migration.

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

1.4 Support Matrix for NetWare and OES Services

The Table 1-2 lists the support for the source platforms for OES 11 SP3 services.

Legend for the following table:

✓	Supported source platform
✗	Unsupported source platform
NA	Service is not available on that platform
*	iFolder 2
**	iFolder 3.2

Table 1-2   *Source Platform Support for OES 11 SP3 Services*

Services	NW 6.5 SP8	OES 1 SP2	OES 2 SP3	OES 11	OES 11 SP1	OES 11 SP2	OES 11 SP3
AFP	✓	NA	✓	✓	✓	✓	✓
Archive and Version Services	✓	NA	✓	✓	✓	✓	✓
CIFS	✓	NA	✓	✓	✓	✓	✓
DHCP	✓	✗	✓	✓	✓	✓	✓
DNS	✗	✗	✓	✓	✓	✓	✓
DSfW	✗	✗	✓	✓	✓	✓	✓
FTP	✓	✗	✓	✓	✓	✓	✓
iFolder	*	* **	✓	✓	✓	✓	✓
iPrint	✓	✓	✓	✓	✓	✓	✓
NetStorage	✗	✗	✓	✓	✓	✓	✓
NCP	NA	✓	✓	✓	✓	✓	✓
NSS	✓	✓	✓	✓	✓	✓	✓
NTP	✓	NA	NA	NA	NA	NA	NA
NetWare Traditional	✓	NA	NA	NA	NA	NA	NA
OpenSLP	✗	✗	✓	✓	✓	✓	✓
QuickFinder	✗	✗	✓	✓	✓	✓	✓

NOTE: If the source platforms are NW 5.1, NW 6.0 SP5, OES 2 SP1 or OES 2 SP2, you must upgrade to the latest supported source platform as listed in the table above.

For more information about configuring and migrating the services listed above, see Part VII, "Service Migration," on page 141.

2 Overview of the Migration GUI

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

Figure 2-1   *Migration Tool GUI*
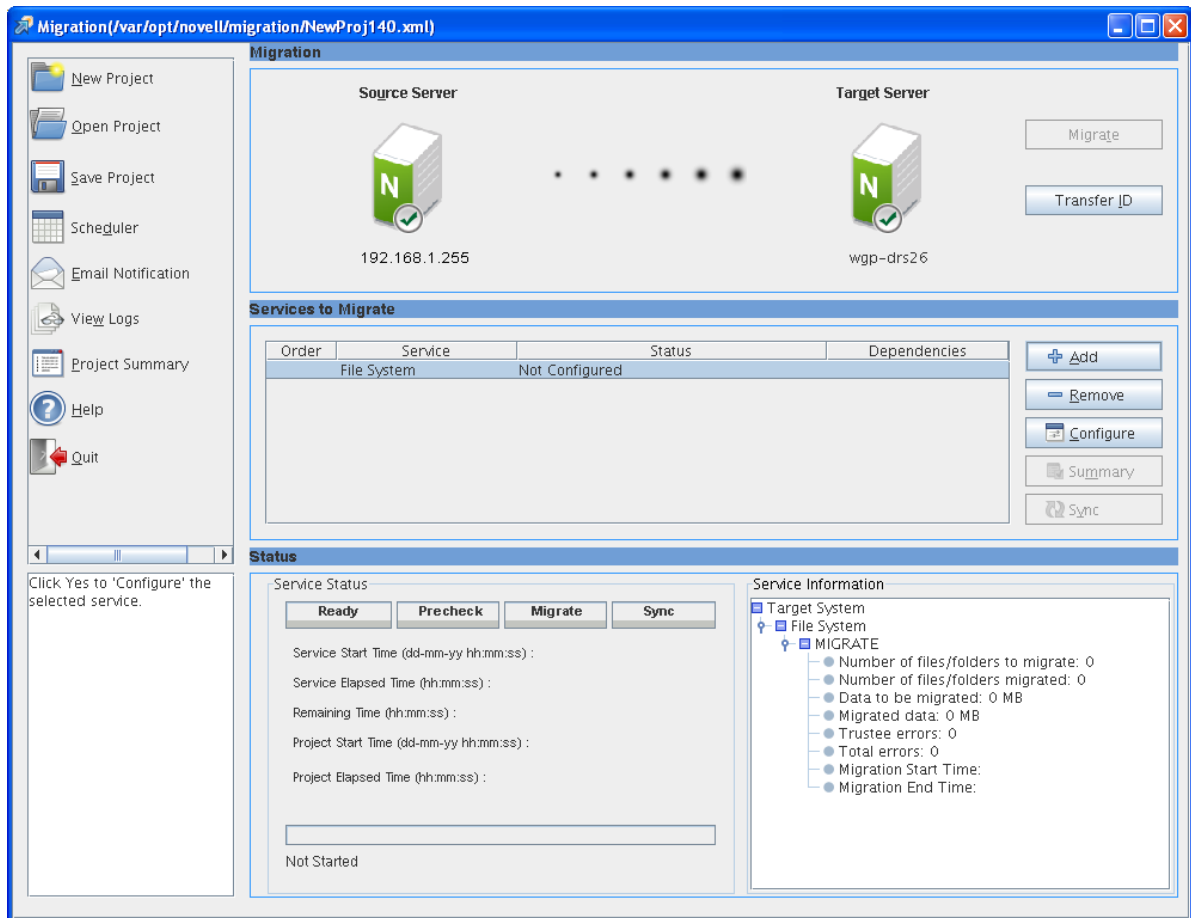
2.1   Project Pane

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

Figure 2-2   *Project Pane*

2.1.1   Create Project

When you start the Migration Tool GUI, a default project opens. You can save that project, create a new project or open an existing migration project.

- "New Project" on page 22
- "Load Project" on page 23
- "Save Project" on page 23

New Project

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

Figure 2-3   *New Project*
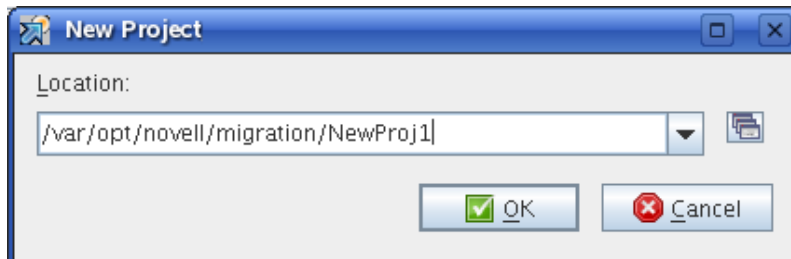
Load Project

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

Save Project

To save a migration project, click *Save Project*, then click *Yes.* Click *No* to save the project to a different 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 the migration project to run at your convenience.

Figure 2-4   Scheduler
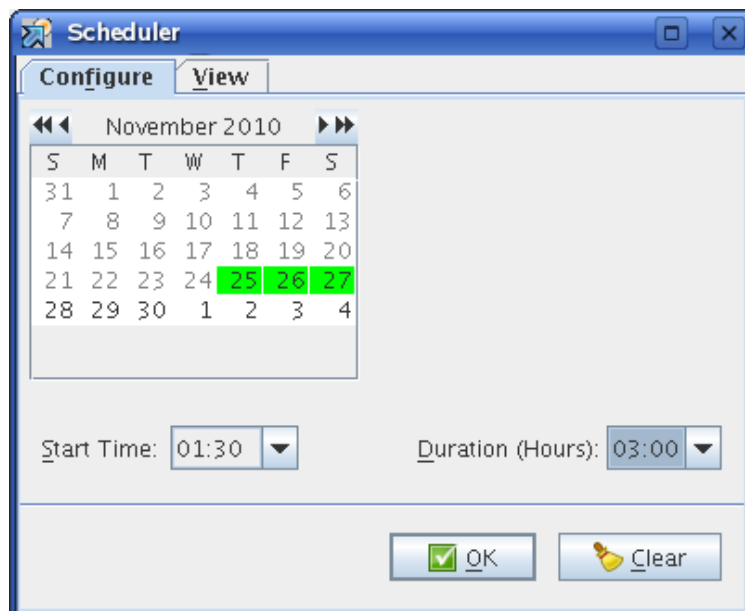
Use the scheduler to perform the following tasks:

Configure

You can 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.

5 In the main migration window, click Migrate to migrate the service; or click Sync to synchronize the data at the specified time.

The migration project runs on the scheduled date and time.

View

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

2.1.3 Email Notification

You can set email notifications for receiving the status of the migration.

Figure 2-5   Notification
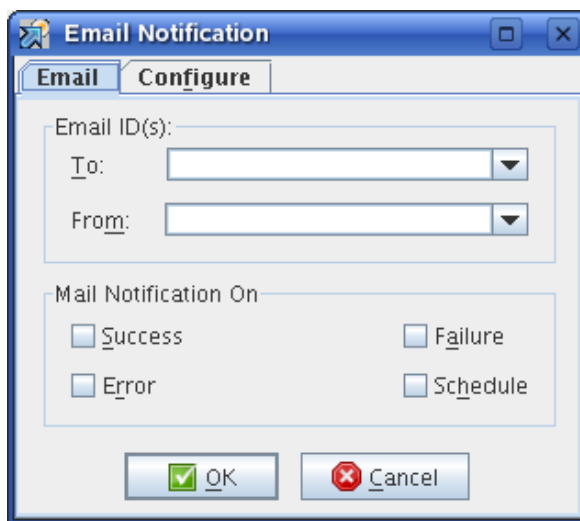
  ◆ "Email" on page 24
  ◆ "Configure" on page 25

Email

1 In the *To* field, type the email address of an individual or group to receive notifications. You can include multiple email addresses separated by a comma.

2 In the *From* field, type the email address that the notification email messages will be sent from.

3 Under *Mail Notification On*, select the option to generate mail.

If you select all the options, you receive notification through email, depending on the state of migration. For example, if the migration fails, you receive an email message notifying you that the migration has failed.

4 Click *OK* to save the settings.

Configure
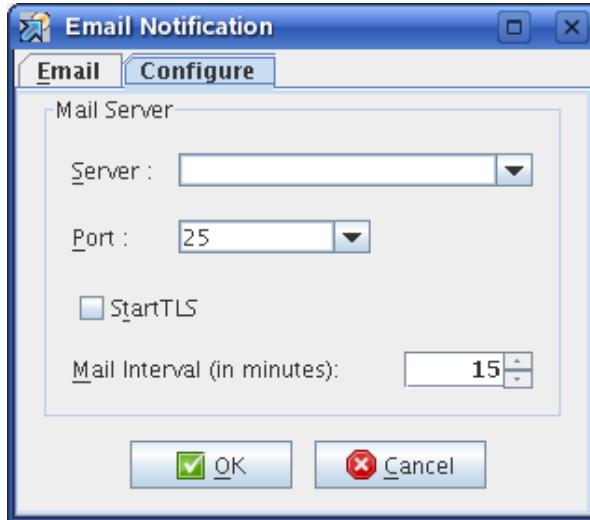
1 In the *Server* field, specify the hostname or IP address of the recipient's inbound mail queue.

2 Specify the port for the recipient's mail server. In non-secure mode the default port is 25.

3 To send an email message through a secure SMTP connection, select *StartTLS*.

   For example, to send an email to a Gmail account, the IP address is *gmail-smtp-in.l.google.com* and the port is *26*.

4 Specify the mail interval (in minutes) to send email messages for errors encountered. The default time is 15 minutes, but you can increase or decrease the interval as necessary. The email messages are sent only if error notification in the *Email* tab is set and if errors are encountered.

NOTE: To set default mail settings for multiple projects, update the details in the `migconf.properties` file.

The email settings can be set by using the `/opt/novell/migration/plugin/conf/migconf.properties` file. Update the values for the following parameters according to your requirements:

   ◆ mail_server_ip
   ◆ mail_server_port
   ◆ mail_to
   ◆ mail_from
   ◆ populate_values_from_httpstkd

However, if you want default email settings specified in `/etc/opt/novell/httpshkd.conf` file, set the populate_values_from_httpstkd parameter to *yes* in the `migconf.properties` file.

5 Click *OK* to save the settings.

2.1.4   View Logs

In the main Migration GUI, click *View Logs*. This displays the Migration Logs window with logs for overall migration and service-specific migration. You can select Migration or a service and use the search functionality to filter logs for a specific type of error messages or keywords. The results are displayed in a new search window. By default, only the last log file is filtered and results are displayed. You must select the *Include All Files* option to search all log files for a service.

Figure 2-6   *Migration Logs*
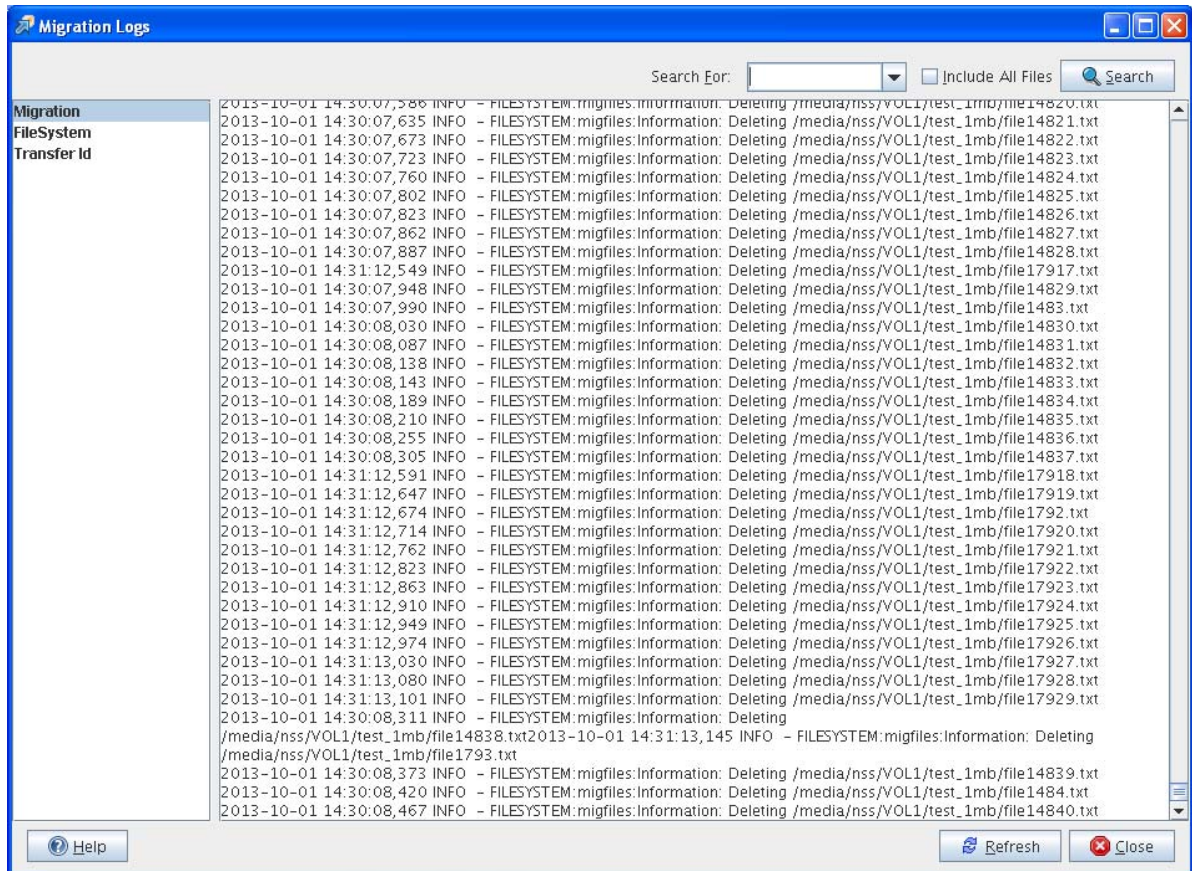
The overall progress of migration, sync, and errors are recorded in the common migration file, `migration.log`, and service-specific logs in the `servicename.log` file. A log directory is created in the same path as the migration project. The associated output and log files for the project are stored in this directory. For example, `/var/opt/novell/migration/NewProj123/log/migration.log`.

For example, if Migration is selected in the left pane, logs from the `migration.log` file are displayed in the right pane.

During migration, if a fatal error is encountered, migration is stopped and details are logged in the log files.

Search For: Select *Migration* or a service in the left pane. Specify a string in the *Search For* text box or select keywords for logs from the drop-down list, then click *Search*. A new window is displayed with the search results. To search all the log files for a project, select the *Include All Files* option.

The keywords are INFO, DEBUG, WARN, ERROR, and FATAL.

NOTE: The input string for search is case-sensitive for keywords.

Include All Files: By default, only the last log file is filtered. You must select the *Include All Files* option to search all the log files for a service.

Configuring Log Files

The log files are overwritten after they reach the maximum limit. You can increase the log file size or number of log files according to your log requirement. The changes can be applied to the values of the MaxFileSize and maxBackupIndex parameters in the configuration file at `/etc/opt/novell/migration/Log.xml`.

Customize the following parameters for each log file you want to modify:

Parameter	Description
MaxFileSize	Specifies the size of the *service.log* file (default: 10 MB) and migration.log and filesystem.log (default: 10 MB).
maxBackupIndex	Specifies the maximum number of files created before the first log file is overwritten.
	Default value: 10

For example, you can increase the file size of `filesystem.log` to 10 MB by editing the MaxFileSize value in the `Log.xml` file.

2.1.5 Project Summary

This displays a tree view of the options configured for all of the services selected for migration.

Figure 2-7   Project Summary
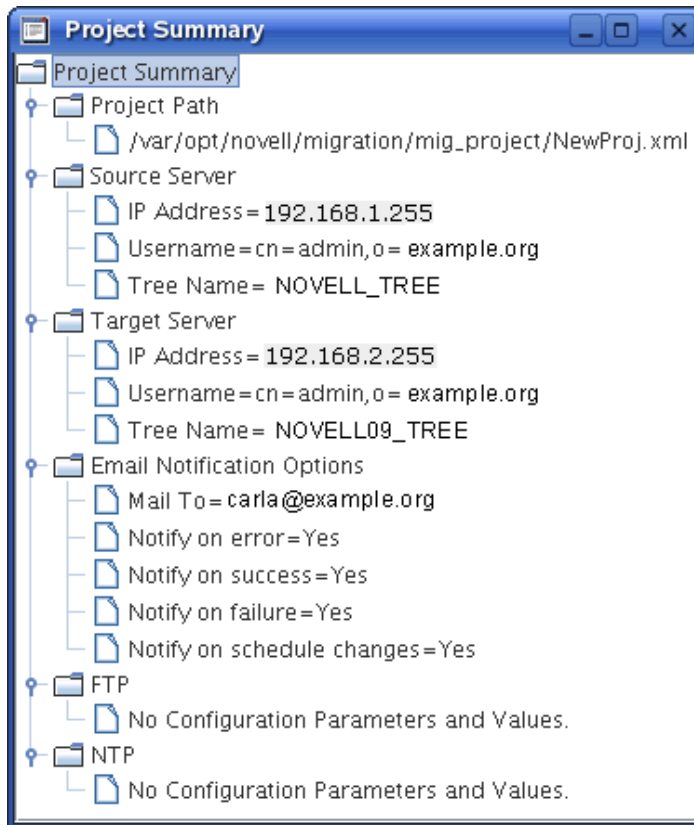
2.1.6 Help

This displays the help for the Migration Tool.

2.1.7 Quit

This closes the migration window and stops the migration process. If the migration project is not saved, you are prompted to save the project.

2.1.8 Whiteboard

This displays instructions and tips to perform a successful migration.

2.2   Migration Pane

This is the top pane of the Migration Tool GUI.

Figure 2-8
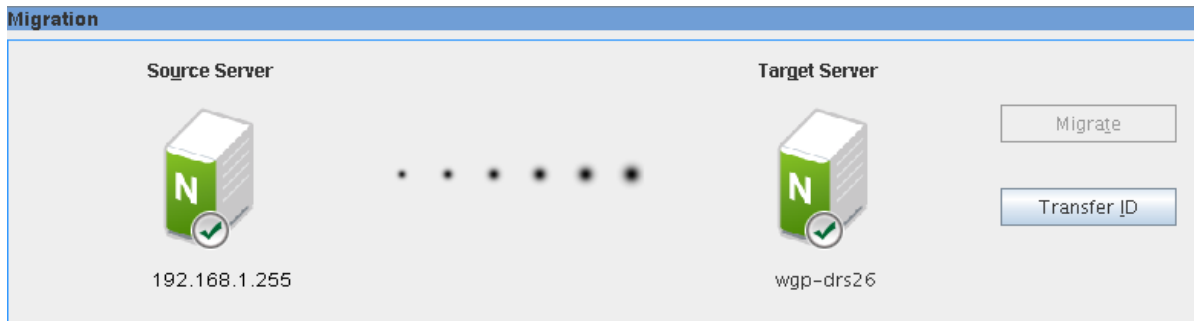
Use this pane to perform the following tasks:

 ◆ Authenticate the source server and target server credentials.
 ◆ Select the type of migration as Migrate or Transfer ID. The *Migrate* option is enabled only after configuring a service for migration. By default, only the Transfer ID option is enabled.

2.2.1   Authenticate Source Server and Target Server

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

Figure 2-9   Source Server Authentication Screen
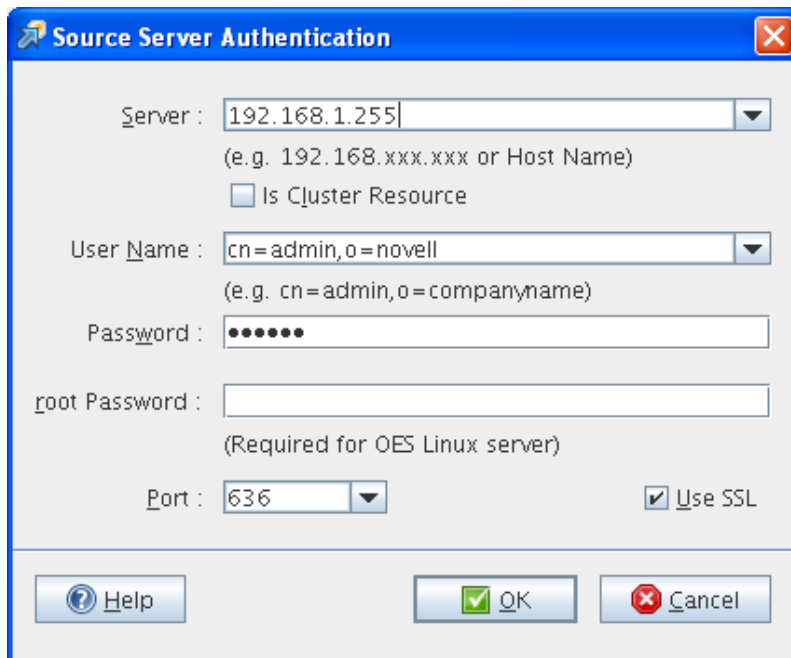
   1 In the *Server* field, specify the IP address or hostname of the source server.

The server IP, user name and port information are cached by the Migration GUI. When entering values in the *Server* or *User Name* field, Migration GUI auto-fills this information. To clear the cache entries, delete the entries from the `/opt/novell/migration/plugin/conf/migration.history` file.

(Optional) Is Cluster Resource: To migrate cluster volumes, specify the cluster resource IP in the *Server* field and select the *Is Cluster Resource* option. If you select this option, only the file system and iPrint services are migrated. This option supports only the Migrate scenario; it does not support Transfer ID.

For example, use the NSS Cluster Pool IP to migrate NSS cluster volumes and use the iPrint cluster IP to migrate iPrint.

Use the node IP address for migrating other services.

2 In the *User Name* field, specify the FDN of the admin user of the source server. Use the LDAP (comma-delimited) format. For example, cn=admin,o=novell.

3 In the *Password* field, specify the password for the admin user who is performing the migration.

4 If the source server is OES 1, OES 2 Linux, or OES 11, specify the password for authentication in the *Root Password* field.

5 In the *Port* field, specify the port number to use for the SSL connection on the source server. By default, port 636 is used for the SSL connection and port 389 for the non-SSL connection.

6 (Optional) To use a secure connection for LDAP authentication, select *Use SSL*.

7 Click *OK* to authenticate the credentials on the source server.

In the Target Server Authentication dialog box there is no field available to specify the IP address or the hostname because the Migration Tool is launched from the target server.

If the source and target servers are in the same tree, the credentials on the target server are automatically populated when the credentials on the source server are authenticated.

Figure 2-10   Target Server Authentication Screen
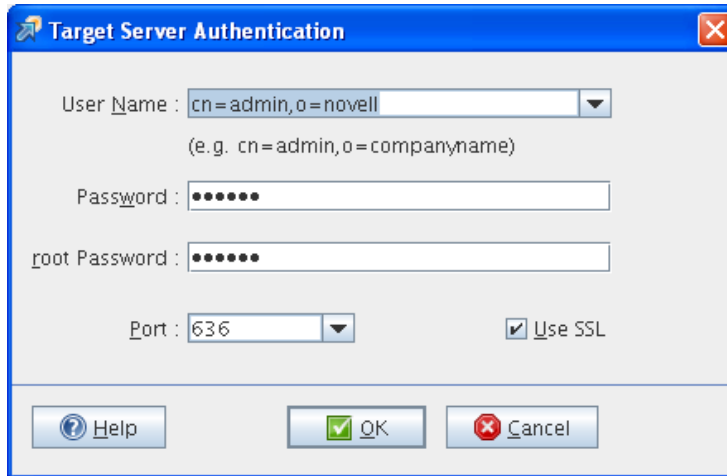
1 Specify the credentials of the administrator of the target server.

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

After 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.

1 Depending on your requirements, select the migration type:

- ◆ **Migrate:** 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. This option is enabled only after configuring a service for migration.

- ◆ **Transfer ID:** Select this option to transfer the server identity of the source server to the target server. The source server and the 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 31.

2.3 Services to Migrate Pane

This is the central pane. Use this pane to select the services that you plan to migrate and to configure the options. When multiple services are configured for migration, the order represents the sequence for migration of the services.
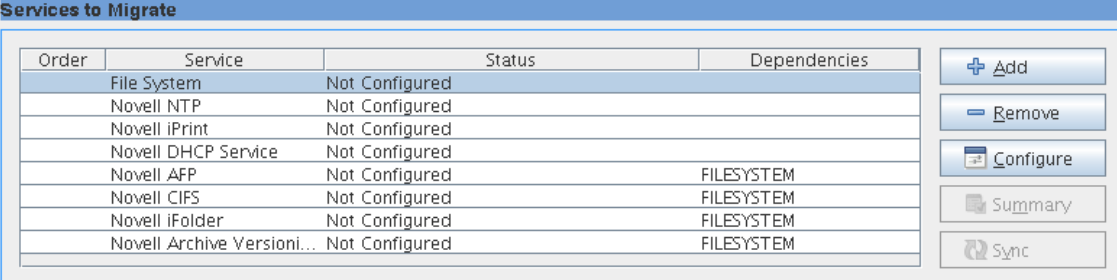
IMPORTANT: You must install all the services on the target server that you plan to migrate from the source server.

For a list of service migration chapters and their corresponding documentation, see Part VII, "Service Migration," on page 141.

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 2-11   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.

NOTE: If the Source server is OES, the *Add Services* dialog box displays only File System and iPrint. Only these two services can be migrated using the GUI.

Figure 2-12   List of Services to Migrate from NetWare Source Server
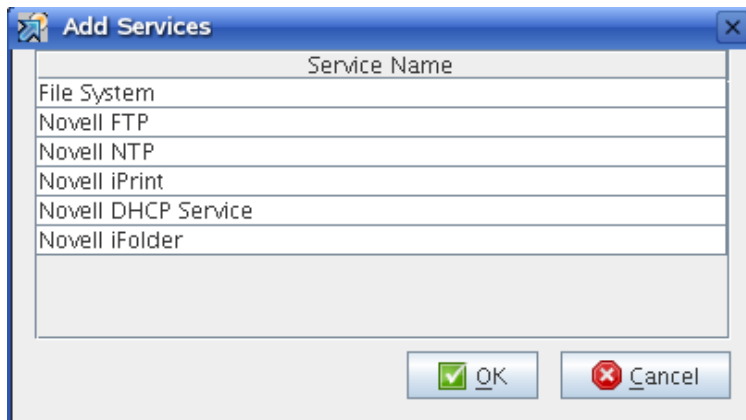
- ◆ **Remove:** In the *Services to Migrate* pane, select the service you do not want to migrate, then click *Remove*.
- ◆ **Order:** The number indicates the order in which each service migrates. The order is displayed by the Migration Tool; it cannot be edited.
- ◆ **Service:** Lists the name of the service to be migrated.
- ◆ **Status:** Displays the status of the service and the last executed date and time of migration or synchronization of a service.

  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.
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:** This option is enabled when you are synchronizing the file system, iFolder, or CIFS services. 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, then click *Sync*.
- ◆ **Summary:** A tree view that displays migration options configured for a selected service.

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, then click *Configure* to configure the migration options.

For more information about configuring and migrating the services, see.

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

2.4 Migration Status

Displays the service status and logs.

2.4.1 Status

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

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	The migrated service is being synchronized with the service on the source server.

Service Start Time: The date and the time when migration started for a specific service.

Service Elapsed Time: The execution time of service migration.

Remaining Time: The time remaining to complete migration of a service.

Project Start Time: The date and the time when migration started for a specific complete project.

Project Elapsed Time: The execution time of project migration.

Progress bar: The progress of migration for a service.

2.4.2 Service Information

The tree view displays the progress of migration and sync for each service.

Migrate - Tree View for All Services

Service State: The current state of migration for a service: Ready, Precheck, Migrate, or Sync.

Progress Status: The progress of migration for a service. For example, Successfully Completed.

Migration Status: The status of migration for a service. For example, Complete.

Migrate - Tree View for File System

Number of files/folders to migrate: The total number of files and folders on the source server that are to be migrated to the target server.

Number of files/folders migrated: The total number of files and folders successfully migrated to the target server.

Data to be migrated: The amount of data on the source server that is to be migrated to the target server.

Migrated data: The amount of data successfully migrated to the target server.

Trustee errors: The number of errors encountered when performing trustee migration. The error details are recorded in the `filesystem.log` file.

Total errors: The total number of errors encountered when performing migration. Click the link to display the service-specific log file.

Migration Start Time: The date and time when migration starts for a project.

Migration End Time: The date and time when migration is completed.

Sync - Tree View for All Services

Service State: The state of sync for a service.

Progress State: The progress of sync for a service.

Sync Status: The status of sync for a service.

Sync - Tree View for File System

Number of files/folders to sync: The total number of files and folders on the source server that are modified and need to be synced to the target server.

Number of files/folders synced: The total number of files and folders successfully synced to the target server.

Data to be synced: The amount of data on the source server that is to be synced to the target server.

Synced data: The amount of data successfully synced to the target server.

Trustee errors: The number of errors encountered when syncing trustees. The error details are recorded in the `filesystem.log` file.

Total errors: The total number of errors encountered when performing sync. Click the link to display the service-specific log file.

Number of files/folders deleted on target: The total number of files and folders that are deleted from the target server because those files and folders were deleted from the source server.

Sync Start Time: The date and time when synchronization of service starts for a project.

Sync End Time: The date and time when synchronization of services is completed.

3 What's New or Changed in the Migration Tool

This section describes enhancements and changes in the Migration Tool since the initial release of Novell Open Enterprise Server (OES) 11.

- Section 3.1, "What's New (OES 11 SP3)," on page 37
- Section 3.2, "What's New (OES 11 SP2)," on page 37
- Section 3.3, "What's New (OES 11 SP1)," on page 37
- Section 3.4, "What's New (OES 11)," on page 38

3.1 What's New (OES 11 SP3)

The Migration Tool in OES 11 SP3 has been modified to run on 64-bit SUSE Linux Enterprise Server (SLES) 11 SP4. Besides bug fixes, there are no other changes for this component.

3.2 What's New (OES 11 SP2)

The Migration Tool in OES 11 SP2 has been modified to run on 64-bit SUSE Linux Enterprise Server (SLES) 11 SP3. In addition to bug fixes, the Migration Tool provides the following enhancements and behavior changes in the OES 11 SP2 release.

Enhanced View of Migration Progress

The progress of the file system migration and sync now captures the total number of files and folders, and the size of the data to be migrated, along with migration start and end time. It also displays the total number of errors encountered during migration or sync, along with a link to view the logs.

For more information, see "Service Information" in the *OES 11 SP3: Migration Tool Administration Guide*.

Enhanced View of Migration Logs

The logs of all services are displayed in a single Migration Log window. You can select a service and use the search functionality to filter logs for specific types of error messages and keywords.

For more information, see "View Logs" in the *OES 11 SP3: Migration Tool Administration Guide*.

3.3 What's New (OES 11 SP1)

The Migration Tool in OES 11 SP1 has been modified to run on 64-bit SUSE Linux Enterprise Server (SLES) 11 SP2. In addition to bug fixes, the Migration Tool provides the following enhancements and behavior changes.

Linux to Linux Service Migration

You can now migrate services from OES 2 SP2, OES 2 SP3, OES 11, and OES 11 SP1 source servers to an OES 11 SP1 target server using service-specific migration scripts. For information, see "Service Migration" in the *OES 11 SP3: Migration Tool Administration Guide*.

Enhanced Sync Performance

The Migration Tool data synchronization feature has been enhanced. You must upgrade the source server with the latest patches before performing migration.

 * If the source server is NetWare, contact Novell Technical Support (NTS) for information on patching the server.

Copy Trustees Only At the Directory Level

Synchronizes trustees only at the directory level. Trustees at the file level are not synchronized.

Do Not Copy Trustees

Trustees on the source server are not synchronized to the target server; only data is synchronized.

3.4 What's New (OES 11)

The Migration Tool in OES 11 has been modified to run on 64-bit SUSE Linux Enterprise Server (SLES) 11 SP1. In addition to bug fixes, the Migration Tool provides the following enhancements and behavior changes:

Supervisory Rights for Container Admin

To perform transfer id using container admin, the container admin must have supervisory rights on the container the admin exists.

Common Proxy Repair Script

A new proxy script mignwproxy.sh has been added to repair common proxy on an OES 11 server.

II Getting Started

4 Planning for Migration

See the following topics to plan for your migration:

- Section 4.1, "Prerequisites," on page 41
- Section 4.2, "Preparing the Source Server for Migration," on page 42
- Section 4.3, "Preparing the Target Server for Migration," on page 42
- Section 4.4, "Installing and Accessing the Migration Tool," on page 43
- Section 4.5, "What's Next," on page 43

4.1 Prerequisites

- Section 4.1.1, "Source Server Requirements," on page 41
- Section 4.1.2, "Target Server Requirements," on page 42
- Section 4.1.3, "Unsupported Target Platforms," on page 42

The Migration Tool is installed as part of the Open Enterprise Server (OES) 11 SP3 installation. The source server and the target server must meet the requirements outlined in this section.

❒ **Platform Support for the Source Server:**

- OES 11 SP3
- OES 11 SP2
- OES 11 SP1
- OES 11
- OES 2 SP3 Linux on 32-bit or 64-bit
- OES 1 SP2 on 32-bit. Upgrade to eDirectory 8.7.3.*x*
- NetWare 6.5 SP8 and eDirectory 8.7.3.*x* or later

❒ **Platform Support for the Target Server:**

- OES 11 SP3

❒ **Time Synchronization:** The source and target servers must be using the same time synchronization method. For more information about time synchronization, see "Time Services" in the *OES 11 SP3: Planning and Implementation Guide*.

4.1.1 Source Server Requirements

The source server is a NetWare server, OES 1, OES 2, or OES 11 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, OES 1, OES 2, or OES 11, and eDirectory.

❒ Update the source server with the latest NetWare and OES Support Pack.

❒ Ensure that the user performing the migration has read/write/access rights on the source server.

4.1.2 Target Server Requirements

❐ Ensure that the user performing the migration has read/write/access rights on the target server.

4.1.3 Unsupported Target Platforms

Novell does not support the following as a Migration Tool target server:

 ◆ Novell Open Workgroup Suite - Small Business Edition

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 the 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 NetIQ eDirectory" in the *NetIQ eDirectory 8.8 SP8 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 NetIQ eDirectory" in the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

2. Ensure 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 the OES 11 SP3 (target server) server in the `/opt/novell/migration/sbin` folder. We recommend that you to set the screen resolution to 1024x768 before launching the Migration Tool GUI.

Log in as the `root` user and use one of the following methods to access the Migration Tool on your target server:

- **Desktop:** Click *Computer > More Applications > System > Novell Migration Tools.*
- **Console:** At the terminal prompt, enter:

  `miggui`

4.5 What's Next

To get started with the Migration Tool GUI, see .

5 Using the Migration Tool GUI

This section describes how to migrate data from an existing Novell NetWare, Open Enterprise Server (OES) 1 Linux, OES 2 Linux, or OES 11 server to an OES 11 SP3 server.

After you have completed the prerequisite procedures in Chapter 4, "Planning for Migration," on page 41, you are ready to perform the migration. To do this, complete the following tasks in the order listed:

- Section 5.1, "Getting Started," on page 45
- Section 5.2, "Launch the Migration Tool Utility," on page 45
- Section 5.3, "Migration Process," on page 45

5.1 Getting Started

The Migration Tool is automatically installed with OES 11 SP3 in the `/opt/novell/migration/sbin` folder.

IMPORTANT: To perform the migration, you must be a `root` user and an eDirectory administrator.

5.2 Launch the Migration Tool Utility

We recommend that you to set the screen resolution to 1024x768 before launching the Migration Tool GUI.

Log in as the `root` user and use one of the following methods to access the Migration Tool on your target server:

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

Console: At the terminal prompt, enter:

```
migdui
```

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*, specify the name of the project, then 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:

   ◆ Migrate: To perform migration, see Chapter 7, "Preparing for Server Migration," on page 53.

   ◆ Transfer ID: To perform a Transfer ID, see Part IV, "Transfer ID Migration," on page 59.

6 In the *Services to Migrate* pane, select the services to migrate from the source server to the target server.

   Only the 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 *Migrate* to proceed with migration. The status of the service changes to *Migrating*.

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

In *Status > Service Information,* the tree view displays the progress of migration for each service. The *Trustee errors* and *Total errors* displays the number of errors encountered during the migration. Click *Total errors* to view the service-specific log file.

6 Troubleshooting Issues

6.1 Source Server Authentication Fails in a Cluster Environment

If NCS is configured after the OES configuration, then SMS is not registered with NCS. This causes an authentication failure on the source server if the *IS Cluster Resource* option is selected.

To resolve this issue, restart SMDR or unload and load TSA components of SMS, then authenticate to the source server.

6.2 Clear User Name Entries Populated in the Source or Target Authentication Screen

The server IP, user name, and port details provided in the Source Server Authentication screen and the Target Server Authentication screen are cached by the Migration GUI. When entering a user name, the values are auto-filled by the Migration GUI. To clear these cache entries, delete the MIGFW_SOURCE_USERNAME and MIGFW_TARGET_USERNAME entries from the `/opt/novell/migration/plugin/conf/migration.history` file.

6.3 Unable to Authenticate to Source or Target Server Using Non-SSL Option

In the Source Server Authentication screen or the Target Server Authentication screen, if the *Use SSL* option is not selected, then authentication to the server fails.

- If you do not want to use a secure connection, deselect the *Use SSL* option.

  When this option is not selected, ensure that TLS is disabled for LDAP on the source server. In iManager, select *LDAP > LDAP Options > LDAP Group-server_name > Authentication Options,* then deselect *Require TLS for Simple Binds with Password*.

- To use a secure connection, select the *Use SSL* option (default setting).

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

6.4 Target Server Authentication Fails or Unable to Browse the eDirectory Tree in the Migration GUI

Description: If you execute the Migration GUI on a new OES 11 SP3 server, the target server authentication fails, the *Services* panel is unable to display eDirectory objects when browsing the tree, or LDAP secure bind fails and displays an empty eDirectory tree.

The Migration Tool creates a private Java certificate store with a first-time authentication to the target server. This store is used by Java Security Provider for all the SSL communications. When you launch the Migration Tool for the first time, the keystore does not exist and the LDAP bind fails during authentication or when performing an eDirectory search.

Action:

1 Save the migration project.
2 Close the Migration Tool GUI.
3 Start the Migration Tool GUI.
4 Start the migration project saved in Step 1.
5 Configure the service.

    eDirectory objects are now available in the service GUI.

6.5 The Authentication Dialog Box Is Blank

Description: When you switch from a desktop or any window to the Source Server Authentication or the Target Server Authentication dialog box, the Migration Tool displays a blank authentication dialog box.

This is an issue that occurs randomly. The authentication details are not lost, but you see a blank dialog box.

Action: Close the dialog box and open it again. All the details in the authentication dialog box are retained.
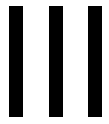
III Server Consolidations

7 Preparing for Server Migration

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

- Section 7.1, "Prerequisites," on page 53
- Section 7.2, "Migration Support Matrix," on page 53

7.1 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, "Support Matrix for NetWare and OES Services," on page 18.
- The target must be running Open Enterprise Server (OES) 11 SP3 with the following components enabled:
  - NetIQ eDirectory
  - Novell NCP Server for Linux
  - Novell Storage Management Services (SMS)

For more information about installing and configuring OES 11 SP3, see the *OES 11 SP3: Installation Guide*.

7.2 Migration Support Matrix

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

The Table 7-1 explains the behavior of the service when you select the Migrate 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 7-1 *Support Matrix*

Services	Migrate		Details
	Overwrites the existing configuration	Append to the existing configuration	
AFP	No	Yes	Section 18.1.2, "Migration Scenarios," on page 149
Archive and Version Services	Yes	No	"Migrate - Same Tree" on page 159

Services		Migrate	Details
CIFS	CIFS configuration	◆ Shares ◆ Context	"Migrate - Same Tree" on page 164
DHCP	No	Yes	"Consolidation" on page 184
FTP	Yes	No	Section 25.1.2, "Migration Scenarios," on page 201
iFolder 3	No	◆ User's iFolder ◆ Sharing information of iFolder 3.2	"Migration Scenarios" on page 214
iPrint	No	Yes	Section 27.2, "Supported Migration Scenarios," on page 225
NTP	No	Yes	Section 29.2, "Migration Scenarios," on page 255

8 Using the Migration GUI Tool

After you have completed the general prerequisites in Chapter 4, "Planning for Migration," on page 41 and the prerequisite procedures in Chapter 7, "Preparing for Server Migration," 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 8.1, "Launch the Migration Tool Utility," on page 55
- Section 8.2, "Create the Project File," on page 56
- Section 8.3, "Select the Source Server, Target Server, and Migration Type," on page 57
- Section 8.4, "Configure the Services," on page 58
- Section 8.5, "Run the Migration," on page 58

8.1 Launch the Migration Tool Utility

Log in as the `root` user and use one of the following methods to access the Migration Tool on your target server:

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

Console: At a terminal prompt, enter

```
miggui
```

Figure 8-1   *Migration Tool GUI*
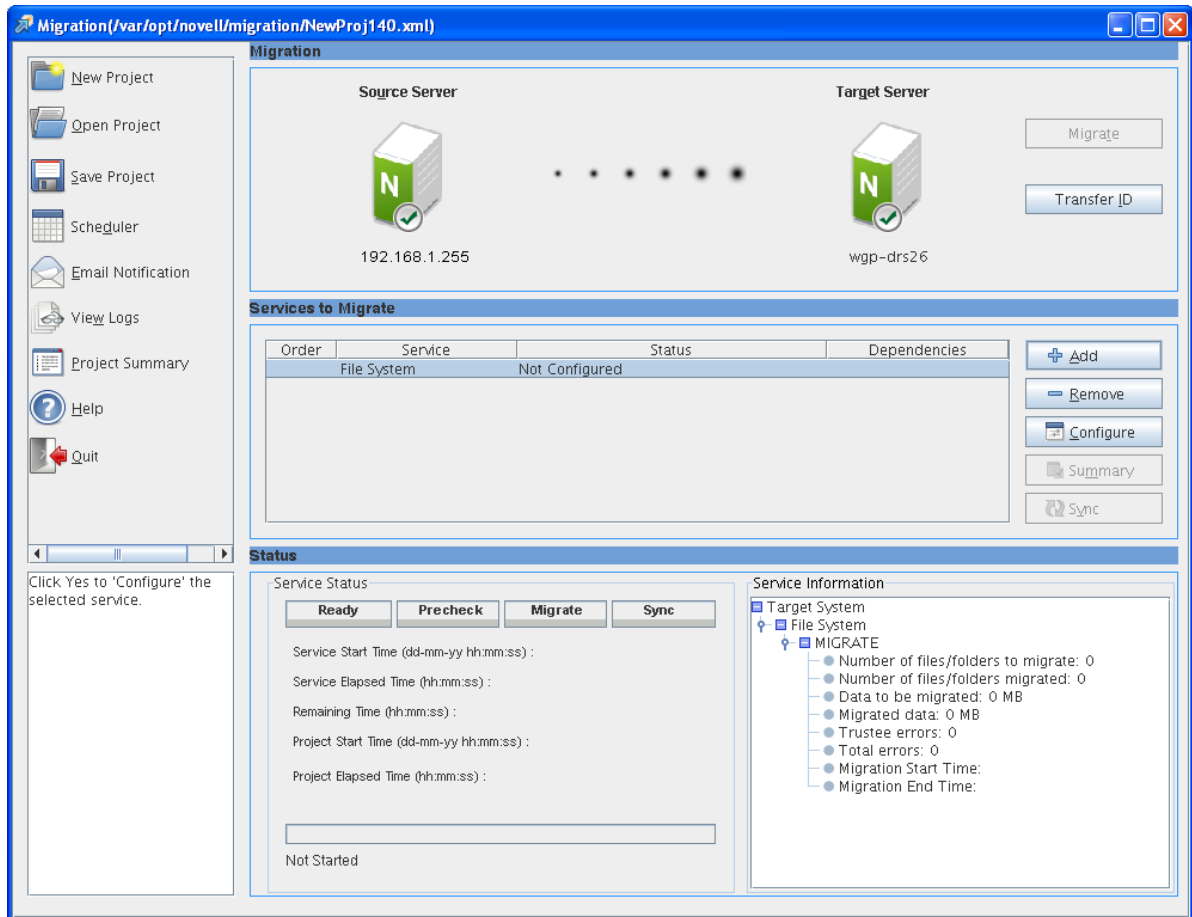
8.2   Create the Project File

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*.

The file name 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.

or

To open an existing migration project, click *Open Project*. Browse to the project and click *Open*.

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

2 (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*.

3 Continue with Section 8.3, "Select the Source Server, Target Server, and Migration Type," on page 57.

8.3 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*.

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

After successful authentication, both the servers change to green.

3 You must configure a service to enable the *Migrate* button. Continue with .

4 Click *Migrate*.

8.4   Configure the Services

1 In the *Services to Migrate* panel, click *Add* and select the services to migrate to the target server.

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

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

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

IMPORTANT: Before you proceed with the 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 *Part VII, "Service Migration," on page 141*.

---

3 Continue with Section 8.5, "Run the Migration," on page 58.

8.5   Run the Migration

1 Click *Migrate* to proceed with the migration.

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

◆ In the *Status* > *Service* Status tab, you can view the progress of migration. On completion of the migration, the *Status* of a service changes to *Migrated*.

◆ In the *Status* pane > *Service Information* tab, you can view the tree view of services migrating to the target system. The message *Migration completed for all Services* is displayed on completion of the migration.

NOTE: If you encounter any errors during migration, click *View Logs* in the left pane. After resolving the errors, execute the migration procedure again.

IV   Transfer ID Migration

9 Preparing for Transfer ID

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

9.1 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, "Support Matrix for NetWare and OES Services," on page 18.
- To perform transfer id using container admin, the container admin must have supervisory rights on the container where the admin exists.
- The source server and the target server must be in the same eDirectory tree.
- The source and target server must be in the same subnet and gateway.
- The source server can either be a replica or a non-replica server in the eDirectory tree.
- The target server must be a non-replica server in the eDirectory tree.

  To make the target server a non-replica server, select the *Novell Pre-migration Server* option while installing OES 11 SP3 on the target server.

- Verify the health of eDirectory by executing the `ndsrepair` command on Open Enterprise Server (OES) 11 with the following three options:
  - Unattended Full Repair, execute the command: `ndsrepair -U`
  - Time Synchronization, execute the command: `ndsrepair -T`

    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 about time synchronization, see "Time Services" in the *OES 11 SP3: Planning and Implementation Guide*.

    NOTE: The `ndsrepair` command locks the eDirectory database. This results in failure of the Transfer ID migration. Ensure that all the eDirectory operations are complete before performing a Transfer ID migration.

  - Report Synchronization Status, execute the command: `ndsrepair -E`

    All the eDirectory replicas are synchronized.

  For more information about DSRepair command, see Using DSRepair in the NetIQ eDirectory 8.8 SP8 Troubleshooting Guide.

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

- Ensure that the names and properties of the NSS pools and volumes on the target server are the same as on the source server.

- 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 the source server and target server are mapped correctly. The `/etc/hosts` file on the source server must contain correct entries for resolving the source server's DNS hostname to the IP address.

9.2 Preparing the Source Server for Migration

- Shut down any applications, products, or services (virus scan software, backup software, and so forth) running on the server to be migrated.
- (Recommended) Back up all the data of the source server, even though the source server data is not modified during migration.

    For information on creating a backup of eDirectory, see "Backing Up and Restoring NetIQ eDirectory" in the *NetIQ eDirectory 8.8 SP8 Administration Guide*.
- 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.
- Ensure that the NetWare server has a valid license. If Transfer ID is performed on the NetWare server with an evaluation license, it might fail due to insufficient user connections.
- If the source server is OES 1 Linux, OES 2 Linux, or OES 11, enable the SSH service. Ensure that you have copied the SSH keys to avoid multiple password prompts on execution of the *DIB Copy* step. For more information, see Step 1a on page 68.
- If the source server is NetWare, ensure that you comment the line "LOAD DSMETER" in the `SYS:\SYSTEM\autoexec.ncf` file and restart the NetWare server before performing Transfer ID.
- Ensure that the `/root/.ssh/known_hosts` file contains the entries of both the hostname and its corresponding IP address.

After successful Transfer ID, the identity of the source server is transferred to the target server container.

9.3 Preparing the Target Server for Migration

- Ensure that the *Novell Pre-migration Server* option is selected for the target server.

    When you install OES 11 on the target server for a Transfer ID migration and you reach the Software Selection window, ensure that you select the *Novell Pre-migration Server* option. This prepares eDirectory for the Transfer ID migration that you will perform later.

Figure 9-1   *Novell Pre-migration Server*
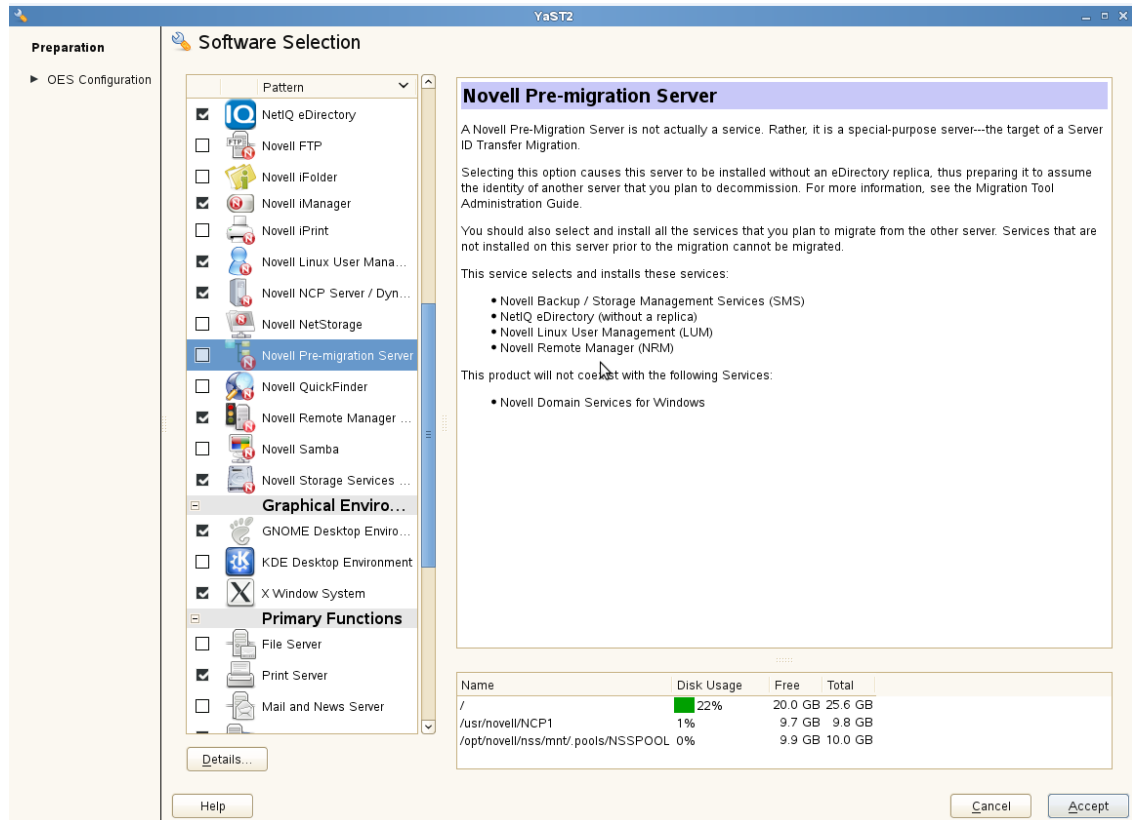
IMPORTANT: Select the *Novell Pre-migration Server* option at the start of the OES 11 installation; otherwise, an eDirectory replica is installed on the server and it cannot be the target server for Transfer ID migration. If the target server already has OES 11 installed, without the *Novell Pre-migration Server* option selected, then selecting this option later does not prepare the target server for Transfer ID migration until you reinstall OES 11 and select this option.

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

  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 NetIQ eDirectory" in the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

- If the source server is a VLDB replica, then the target server also must be a VLDB replica.

NOTE: Each DFS management context allows a maximum of two VLDB replicas. If your setup has a source server and a non-target server as a VLDB replica, ensure that you remove the non-target server as VLDB replica and make the target server a new VLDB replica.

10 Using the Migration GUI Tool for Transfer ID

After you have completed the prerequisite procedures in Chapter 9, "Preparing for Transfer ID," on page 61, you are ready to migrate the source server. To do this, complete the following tasks in the order they are listed:

10.1 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 and hostname, and the eDirectory DIB information from the source server.

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

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

10.1.1 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 10-1 *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 *Errors* text box.

Icon	Description
⬢	You can choose to skip this task in the GUI and perform it manually.

10.1.2 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).

- **Log Messages:** Log messages for each executed task and the overall Transfer ID.

- **Send Email Notification:** Select this option to receive an email for a main task. An email is sent only if you have already configured the *Email Notification* tab in the main Migration GUI screen. Email 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. 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 previously are not rolled back.

10.2 Launch the Migration Tool Utility

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

```
miggui
```

10.3 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, then click *Save*.

   The file name can include any characters 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.

   or

   To open an existing migration project, click *Open Project*. Browse to the project and click *Open*.

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

2 (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*.

10.4 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*.

If the *Is Cluster Resource* option is selected, the Transfer ID scenario is not available.

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

After successful authentication, both servers change to green.

3 You can either migrate all the services to an OES 11 server and then transfer the NetWare or OES server's identity, or only transfer NetWare or OES server's identity to an OES 11 server.

   3a To migrate services, continue with Section 10.5, "Configure the Services and Run Migration," on page 67.

   3b To transfer the NetWare or OES server's identity, click the *Transfer ID* button.

      3b1 Click *Yes* to perform identity transfer without migrating the services.

      3b2 Click *No* to configure and migrate services. See Section 10.5, "Configure the Services and Run Migration," on page 67.

10.5 Configure the Services and Run Migration

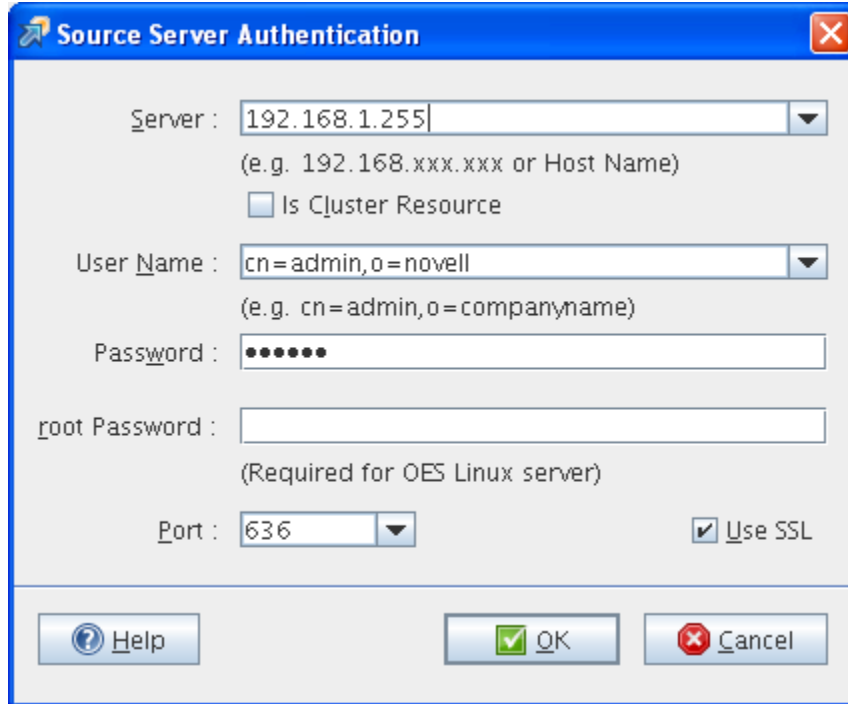**1** In the *Services to Migrate* panel, click *Add* and select the services to migrate to target server.

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

2 To configure a service for migration, click *Configure*.

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

NOTE: Before you proceed with the 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 Part VII, "Service Migration," on page 141.

---

3 Click *Migrate* to proceed with the migration.

The *Status* pane displays service-specific migration progress. On completion of the migration, the *Status* of a service changes to *Migrated*.

If you encounter any errors during the migration, click View *Logs* in the left pane. After resolving the errors, execute the migration procedure again.

In the *Status* pane > *Service Information*, you can view the progress of the overall migration. The message *Migration completed for all Services* is displayed when the migration is complete.

4 (Optional) We recommend that you to complete the synchronization of the services before proceeding with Transfer ID.

5 (Optional) Back up the eDirectory database and NICI keys. For more information, see Section 11.1, "Back up eDirectory Database and NICI Keys," on page 78.

6 Check the status of the migration. If migration is successful, then perform Transfer ID either by using GUI or CLI.

   ◆ To launch the Transfer ID GUI, click *Transfer ID*. For more information about performing the steps in the GUI, see Section 10.6, "Run Transfer ID," on page 68.

   ◆ To use the command line, see Chapter 11, "Using Migration Commands for Transfer ID," on page 71.

10.6 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 11.1, "Back up eDirectory Database and NICI Keys," on page 78.

IMPORTANT: Some of the steps for Transfer ID 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.

The Transfer ID GUI displays tasks you perform to complete the identity transfer.

1 eDirectory Precheck: Click *Next*.

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

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

   1a (Conditional) If the source server is OES 1 Linux, OES 2 Linux, or OES 11, ensure that you have copied the SSH keys to avoid multiple password prompts on execution of this step.

      1a1 Enable SSH on the source server and the target server.

      1a2 Enter the `# ssh-keygen -t rsa` command on the target server.

      1a3 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.

      1a4 When you are prompted to enter the passphrase (empty for no passphrase), press Enter.

         We recommend that you do not include the passphrase.

      1a5 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.

      1a6 Log on to the 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`

2 Preparation: 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 DIB Copy: Click *Next.*

The DIB Copy creates an eDirectory DIB (Directory Information Base) copy of the source server on 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: This command fails to execute if the replica ring is not in sync, or if the time is not synchronized among all the servers in the replica ring.

The eDirectory database on the source server is locked. The eDirectory database and the NICI files are copied to the target server.

4 Shutdown Source: Click *Next* to manually shut down the source server and disconnect it from the network.

4a You are prompted to confirm that the source server is shut down. Click *OK* and proceed with the next step, or click *Cancel* and shut down the source server.

5 DIB Restore: Click *Next* to restore the eDirectory database that was backed up from the source server in Step 3 on page 69 on the target server. This includes the NICI keys and the eDirectory related information.

WARNING: If the backup in Step 3 on page 69 was not successful, the *DIB Restore* step fails. A failure at this point might cause the target eDirectory server to be unusable.

6 IP Change: 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 information, see Chapter 14, "Troubleshooting Issues," on page 85.

If you are executing the Migration GUI by using a remote session, the Transfer ID wizard hangs and fails to proceed. For more information, see Chapter 12, "Running Transfer ID Remotely," on page 79.

- ◆ **System:** The target server IP address is overwritten with the source server IP address.
- ◆ **Services:** The configuration files of the migrated services are assigned with the new IP address of the target server.
- ◆ **Others:** The IP address change scripts located in the `nonplugin` folder are executed. 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/scripts/ipchange/nonplugin/` folder. If you need to change the IP address of any additional services, you must add the scripts to the `nonplugin` folder.

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

7 Hostname Change: Click *Next* to change the hostname of the system, services, and their configuration files to the source server hostname.

IMPORTANT: Failure of the script to change the hostname or terminating the operation manually might cause the system to hang. For more information, see Chapter 14, "Troubleshooting Issues," on page 85.

- ◆ **System:** The target server hostname is overwritten with the source server hostname.
- ◆ **Services:** The configuration files of the migrated services are assigned with the new hostname of the target server.
- ◆ **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/scripts/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 email is sent in this step, even if you have selected the settings to receive an email.

8 **Reinitialize Server:** Click *Next* to reinitialize the target server with the IP address and hostname of the source server. eDirectory is also restarted.

9 **Repair:** Click *Next* to repair eDirectory, certificates, 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.

- ◆ **eDirectory:** Checks to see if eDirectory is up and running on the target server. It also runs a repair on the eDirectory tree.
- ◆ **Certificates:** Repairs the target server certificate and the trusted root certificate.
- ◆ **LUM:** The following steps are performed during LUM repair:
  - ◆ Creates a Unix Workstation object.
  - ◆ Regenerates the certificate for LUM on the target server.
  - ◆ Associates LUM groups and users to the target servers's Unix Workstation object.
  - ◆ Refreshes the LUM cache.
- ◆ **Services:** Repairs the services that are migrated to the target server. If no services are configured for migration, the Migration Tool skips this step and the icon adjacent to *Services* changes to a green check mark.
- ◆ **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/scripts/repair/nonplugin/` folder. If you need to repair any additional services, you must add the scripts to the `nonplugin` folder.

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

10 **Restart Server:** Manually restart your target server for completion of Transfer ID.

The target server now runs with the source server identity.

Continue with Section 13, "Post Transfer ID Migration," on page 81.

11 Using Migration Commands for Transfer ID

Before running Transfer ID, ensure that you have met all the prerequisites and prepared your servers as described in Section 4.2, "Preparing the Source Server for Migration," on page 42 and Section 4.3, "Preparing the Target Server for Migration," on page 42.

Before you begin, keep in mind the following:

- 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 Transfer ID using CLI:

Parameters	Value	Description
sourceipaddress	172.16.100.101	The server whose identity is to be transferred to the target server.
projectpath	/var/opt/novell/migration/NewProj0	The path of the project created to perform Transfer ID.

1 **eDirectory Precheck:** Executes the prerequisites for the Transfer ID process.

   1a Use the following command to perform an eDirectory precheck:

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

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

   When prompted, enter the user name 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 or the target server.

   1b Check the availability of the hostname and IP address on the source server. The hostname or IP address can be resolved by using the DNS server, or using the `/etc/hosts` file on the source server (OES Linux), or using `SYS:etc\hosts` file on the NetWare server.

   1c The `nam.conf` file on the target server includes LUM settings that will be required later while performing the repair steps for migration. Create a backup of `the /etc/nam.conf` file on the target server by executing the following command:

   `cp /etc/nam.conf <Project_path>/nam.conf.target`

   For example, `cp /etc/nam.conf /var/opt/novell/migration/NewProj0/nam.conf.target`

   1d If the source server is OES 1, OES 2, or OES 11, create a backup of the `/etc/nam.conf` file on the source server.

   1e Retrieve and store the list of LUM-enabled groups:

   (Conditional) If the source server is NetWare, enter

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-grpmod.rb
-H <target server short hostname> -a <admindn> -S <ldap-server-ip> --ldap-
port <port number> -p <password> -l
```

This command displays the list of groups that are LUM-enabled on the target server. These same groups must be LUM-enabled on completion of Transfer ID.

1f If the source server is OES 1, OES 2, or OES 11, ensure that you have copied the SSH keys to avoid multiple password prompts on execution of this step.

To copy the SSH keys:

1. Enable SSH on the source server and target server.

2. Enter the following command on the target server: `# ssh-keygen -t rsa`

   You are prompted for the following:

   a. "Enter file in which to save the key (`/root/.ssh/id_rsa`)", then press `Enter`. The SSH keys are stored in the default location.

   b. "Enter passphrase (empty for no passphrase)", press then `Enter`. We recommend you not to include passphrase.

3. Copy the key value (that is, the output of the command above) to the source server:

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

4. Log in to the source server using `ssh` and add the key value to the list of authenticated keys.

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

1g If the source server is OES 1, OES 2, or OES 11, ensure that you copy the `.nss.dat` file to the target server. This file stores the nss user context information of the source server and is required when we repair the NSS admin object.

Enter the following command on the target server:

`scp <Source-IP>:/var/opt/novell/nss/.nss.dat /tmp/`

2 Preparation: 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.

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

`/usr/bin/namconfig rm -a <admindn>`

For the SSL connection, use the -1 option and specify 636 as the default port number.

2b To remove eDirectory from the target server, enter

```
/opt/novell/eDirectory/bin/ndsconfig rm -c -a <admindn dot format> -w
ADM_PASSWD --config-file /etc/opt/novell/eDirectory/conf/nds.conf
```

Use dot format when passing values for -a option. For example, -a admin.novell

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

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

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

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

3 DIB Copy: Creates a backup of the eDirectory DIB (Directory Information Base) of the source server 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 -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`

After executing the command above, you are prompted for the user name and password of the source server. Enter the admin credentials when prompted.

IMPORTANT: This command fails to execute if the replica ring is not in sync, or if 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 a NetWare server, reload the `DS.nlm` file. On an OES 1 Linux server, OES 2 Linux, or OES 11 server, restart `ndsd` daemon.

4 Shutdown Source: You need to shut down the source server.

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 that you back up the target eDirectory database and NICI keys. For more information, see Section 11.1, "Back up eDirectory Database and NICI Keys," on page 78.

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

```
migedir -R
```

After executing the command, you will be prompted for the administrator credentials for the source server.

WARNING: If the backup in Step 3 on page 72 was not successful, the *DIB Restore* step fails. A failure at this point might cause the eDirectory service on the target server to be unusable.

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

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

 • 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 `ipchange` folder contains a list of scripts that needs 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` folder:

   `<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`

   You also need to run the remaining scripts for other services in the same manner.

> **WARNING:** Failure of the script to change the IP address or terminating the operation manually might 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 the *IP Change* step, do the following:
>
> ```
> cp /etc/opt/novell/eDirectory/conf/nds.conf.orig /etc/opt/novell/
> eDirectory/conf/nds.conf
> ```

- ◆ To change the IP address in the configuration files of each service on the target server, enter the following in the `/opt/novell/migration/sbin/serveridswap/scripts/ipchange/nonplugin` folder:

  ```
  ipchange.sh <oldip> <newip> <oldremoteip> <newremoteip> yes
  ```

  Here, *oldip* is the IP address of the existing server and newip is the new IP address assigned to the server. The oldremoteip and newremoteip is the IP address of the Master Replica server. If the Master Replica server IP address is not changed, then *oldremoteip* and *newremoteip* can be same.

  For example, `ipchange.sh 172.16.200.201 172.16.100.101 172.16.200.200 172.16.200.200 yes`

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

7 **Host Name Change:** Host names of the services are changed to the source server hostname.

   7a To change the hostname of the server and the services, enter the following in the `/opt/novell/migration/sbin/serveridswap/scripts/hostchange` folder.

       ```
<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, `./iprinthostchange.sh oldhostname newhostname oldmasterhostname newmasterhostname`

       where *oldhostname* is the old server host name and *newhostname* is the new server host name. The master hostname is the hostname of the master server in the eDirectory tree. The *oldmasterhostname* and *newmasterhostname* can be the same if the master hostname is not changed during the Transfer ID migration.

> **WARNING:** Failure of the script to change the hostname or terminating the operation manually, might cause the system to hang. If a service-specific hostname script fails to change the hostname, replace the <service>.conf file with the <service>.orig file.
>
> For example, if iPrint authentication fails on completion of the *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
> ```

   7b On the console, enter

       hostname <sourceserver_name>

       This changes the hostname of the server when you relogin.

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`

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

9 Repair: Performs a repair of eDirectory, certificates, LUM, and services on the target server. The `ndsrepair` command is used to perform the eDirectory repair. The service-specific repairs run only for services that were migrated using the current project.

9a eDirectory: Performs a repair of eDirectory.

To repair eDirectory, enter

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

To restart eDirectory, enter

`/etc/init.d/ndsd restart`

Ensure that you fix all errors before proceeding with the next step.

9b Repair Certificates: 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`

9b1 To regenerate the certificate on the target server, enter

`/opt/novell/oes-install/util/getSSCert -a <new_ip_address> -t <treename> -u <admindn dot format>` - x <password>

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

The regenerated `SSCert.der` certificate is stored at the `/etc/opt/novell/certs` location.

9b2 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`

9b3 To verify the health of eDirectory, enter

`ndscheck -h <new_ip_address> -a <admindn dot format> -w <adminpass> -F <Project_path>`

For example, `ndscheck -h 172.16.100.101 -a cn=admin.o=novell -w novell -F /var/opt/novell/migration/Newproject1/ndscheck.log`

You must resolve all errors before proceeding to the next step. It is recommended that you backup the `name.conf` file before proceeding with the next step.

9b4 (Conditional) To remove the existing nam.conf, enter

`rm /etc/nam.conf`

9c LUM: Creates or modifies 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 <admindn comma format> -p <admin password> -S <ldap-
server-ip> --ldap-port <port number> -u <Unix_config_object-dn>
```

where *Unix_config_object-dn* is the value of the base-name parameter in the `nam.conf` file. A backup of the file was created in Step 1c.

ldap-server-ip is the value of the preferred-server parameter in the `nam.conf.target` file.

NOTE: If the value of the preferred-server parameter is the same as the IP address of the target server, then the value of the *ldap-server-ip* must be the same as the IP address of either the source server or the appropriate LDAP server.

 ◆ If the source server is OES 1 Linux, OES 2 Linux, or OES 11, the Unix workstation object is retained. To modify the Unix workstation object, enter the following command:

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-
reconf.rb -a <admindn comma format> -p <admin password> -S <ldap-
server-ip> --ldap-port <port number> -u <Unix_config_object-dn>
```

where *Unix_config_object-dn* is the value of the base-name parameter in the `nam.conf` file. A backup of the file was created in Step 1d.

ldap-server-ip is the value of the preferred-server parameter in the `nam.conf.target` file.

For example, `ruby /opt/novell/migration/sbin/serveridswap/scripts/
repair/nam-reconf.rb -a cn=admin,o=novell -p novell -S 172.16.200.201 -
-ldap-port 636 -u "o=novell"`

9c1 To copy the certificate for LUM operations, enter

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

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

9c2 (Conditional) If the source server is NetWare, run the command to modify the users and groups listed in Step 1e on page 71:

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-
grpmod.rb -H <source short hostname> -a <admin dn> -S <ldap-server-ip>
--ldap-port <port number> -p <password> --grp <group FDN> -l <LUM enabled
user and groups> [--check]
```

ldap-server-ip is the value of the preferred-server parameter in the `nam.conf.target` file.

Parameters	Description
-H	Specify the hostname of the source server.
-a	Specify the administrator's name in LDAP format.
-S	Specify the IP address of the preferred LDAP eDirectory server.
--ldap-port	Specify the port for LDAP server to listen on.
-p	Specify the administrator's password.
--grp	Specify the group to be modified.
-l	Specify the list of LUM-enabled user and groups in fully distinguished format.
--check	Verify LUM-enabled users and groups.

When prompted, enter the password for the administrator.

9c3 (Conditional) If the source server is OES 1 Linux, OES 2 Linux, or OES 11, modify the users and groups by entering the following command:

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-fix.rb
-H <new_server short hostname> -a <admindn_comma_format> -p <password>
-S <ldap-server-ip> --ldap-port <port number>
```

For example, ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-fix.rb -H mark-nov101 -a cn=admin,o=novell -p novell -S 172.16.100.101 --ldap-port 636

9c4 Refresh LUM Cache, then run the /usr/bin/namconfig cache_refresh to rebuild LUM cache.

9c5 (Conditional) If the source server is OES linux server, enter

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

You must change the ownership so that you can log in to iManager post-Transfer ID.

9d To repair pool and volume objects, enter

```
/opt/novell/migration/sbin/serveridswap/scripts/repair/volrepair.rb -a
<admindn_comma_format> -p <password> -f <project_path>/fs
```

For example, /opt/novell/migration/sbin/serveridswap/scripts/repair/volrepair.rb -a cn=admin,o=novell -p novell -f /var/opt/novell/migration/NewProj1/fs

9e Services: Execute the repair scripts for the services that were migrated before performing Transfer ID.

 ◆ To repair iPrint service, enter

```
/opt/novell/migration/sbin/serveridswap/scripts/repair/iprintrepair.sh
-s <new IP> -u <admindn comma format> -T <source type {-L|-N}> -p <ssl
port> -S
```

For example, /opt/novell...iprintrepair.sh -s 172.16.100.101 - u cn=admin,o=novell -T -L -p 636 -S

Specify the -S option only when the LDAP server is configured for SSL. Specify SSL port only if it is configured.

- To repair CIFS service, enter

```
sh /opt/novell/migration/sbin/migcifs.sh -s <new IP> -p <ssl port> -a
<admindn_ldap_format> {-f 1 <if ssl> | -f 0 <non-ssl>} -t <tree name> -
d <target server IP> -q <port> -b <admin name> {-g 1 <if ssl> | -g 0
<non-ssl>} -m <project_path>/cifs/cifsSourceShares.tmp -S 3 -r
```

9f Others: Execute the repair scripts for the services that are not included in the plug-ins of the Migration Tool.

- **NSS Admin Object:** To repair the NSS admin object, execute the following on the target server, depending on the source server (NetWare or OES):

```
/opt/novell/migration/sbin/serveridswap/scripts/repair/nss-
adminrepair.sh -a <admindn dot format> -p <admin password> -s <source
server [OES/NW]> -o <nssadmin object name with server context>
```

where -a, -p, -s are mandatory parameters. If the source server is NetWare (NW), the -o option is required to create a new NSS admin object.

For example: `nss-adminrepair.sh -a admin.sales.novell -p test -s NW -o nssAdminUser.sales.novell`

- **Common Proxy:**

  - If the source is NetWare, to repair the common proxy on the target OES 11 SP3 server, execute the following:

  ```
  /opt/novell/proxymgmt/bin/mignwproxy.sh -d <LDAP Admin FDN> -w
  <LDAP Admin Password> -i <LDAP-Server-IP-Address> -p <LDAP Secure
  Port>
  ```

  - If the source is Linux, to perform common proxy migration on the target OES 11 SP3 server, see Section 32.2.1, "Services that Are Using Common Proxy," on page 261.

- **NetStorage:** To repair NetStorage, enter the following commands:

```
/opt/novell/xtier/bin/xsrvcfg -D
```

```
/opt/novell/xtier/bin/xsrvcfg -d <ipaddress> -c <context>
```

where context is the value of the attribute CONFIG_XTIER_USERS_CONTEXT in the `/etc/sysconfig/novell/netstore11` file.

```
/usr/sbin/rcnovell-xregd restart
```

```
/usr/sbin/rcapache2 restart
```

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

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

11.1 Back up eDirectory Database and NICI Keys

Before performing Transfer ID, we recommend that you back up your eDirectory database and NICI keys on both the source server and the target server. If the Transfer ID fails or if 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 about backing up and restoring eDirectory, see the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

For more information about backing up and restoring NICI keys, see the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

12 Running Transfer ID Remotely

NOTE: We recommend that you perform Transfer ID from the target OES 11 machine instead of performing it remotely.

If you need to perform Transfer ID remotely, complete the prerequisite procedures in Chapter 9, "Preparing for Transfer ID," on page 61. When you perform Transfer ID remotely, after the IP address of the target server is changed with the IP address of the source server, the remote machine hangs. This happens because the IP address of the target server no longer exists. To perform Transfer ID remotely, use any of the following methods:

12.1 Using Two Network Interface Cards

To perform Transfer ID remotely:

1. Connect to the secondary IP address of the target machine using an SSH client or VNC client.
2. Follow Step 1 on page 68 to Step 10 on page 70.

The connection will never be terminated because only the primary IP address of the target server changes during Transfer ID.

12.2 Using VNC

To perform Transfer ID by using the VNC client (TightVNC):

1 Connect to the remote VNC client (TightVNC) running on the target server from your server or desktop by providing the IP address of the target server.

2 On the command prompt enter, `miggui` to launch the application.

3 Authenticate to both the source and target servers.

4 Select Transfer ID as the migration type.

You can either migrate all the services to an OES 11 server and then transfer the NetWare or OES server's identity, or only transfer the NetWare or OES server's identity to an OES 11 server.

5 Perform Step 1 on page 68 (eDirectory Precheck) to Step 6 on page 69 (IP Change) in Section 10.6, "Run Transfer ID," on page 68.

After changing the IP address, the TightVNC console will hang.

6 Close the VNC client and then relaunch it.

7 Connect to the VNC server by providing the new IP address from Step 5.

8 To complete Transfer ID, perform Step 7 on page 69 (Hostname Change) to Step 10 on page 70 (Restart Server) in Section 10.6, "Run Transfer ID," on page 68.

12.3 Using SSH

To perform Transfer ID by using the SSH console:

1 Connect to the target server using SSH.

2 On the command prompt enter, `miggui` to launch the application.

3 Authenticate to both the source and target servers.

4 Select the migration type as Transfer ID.

You can either migrate all the services to an OES server and then transfer the NetWare or OES server's identity, or only transfer the NetWare or OES server's identity to an OES server.

5 Save the project and close the Migration Tool GUI.

6 Run the scripts mentioned in Step 1 on page 71 (eDirectory Precheck) to Step 5 on page 73 (DIB Restore) in Chapter 11, "Using Migration Commands for Transfer ID," on page 71.

7 Save the project and close the Migration Tool GUI.

8 On the SSH terminal console, run the script mentioned in Step 6 on page 73 (IP Change) in Chapter 11, "Using Migration Commands for Transfer ID," on page 71.

After running these scripts, the remote machine hangs.

9 Reconnect to the target server with the new IP address provided in Step 8.

10 On the SSH terminal console, run the scripts mentioned in Step 7 on page 74 (Host Name change) to Step 8 on page 75 (Reinitialize Server) in Chapter 11, "Using Migration Commands for Transfer ID," on page 71.

11 To complete Transfer ID, run the scripts mentioned in Step 9 on page 75 (Repair) to Step 10 on page 78 (Restart Server).

13 Post Transfer ID Migration

- Section 13.1, "Manually Configuring Quick Finder Service for Change in IP Address and Hostname," on page 81
- Section 13.2, "Cleanup Objects," on page 81
- Section 13.3, "DFS Junctions Are Not Restored," on page 83

13.1 Manually Configuring Quick Finder Service 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 existing hostname is hostname201.novell.com and the IP address is 172.16.200.201. After Transfer ID migration, the new IP address is 172.16.200.101 and the hostname is hostname101.novell.com.

1 Open the `/var/lib/qfsearch/SiteList.properties` file and search for the existing address:

   hostname201.novell.com=/var/lib/qfsearch/Sites/default@Alias:*172.16.200.201*

2 Change the hostname and IP address in the file to the new hostname and IP address:

   hostname101.novell.com=/var/lib/qfsearch/Sites/default@Alias:*172.16.200.101*

3 Save the file.

4 Restart Tomcat by entering `rcnovell-tomcat6 restart`.

5 Restart Apache by entering `rcapache2 restart`.

The QuickFinder service runs with the changed IP address.

13.2 Cleanup Objects

On completion of Transfer ID, some of the objects in eDirectory retain the temporary Linux server hostname. You can manually clean up the following objects from the target server. Even if the objects are not cleaned, they do not impact the performance of the target server.

- Section 13.2.1, "AFP," on page 82
- Section 13.2.2, "CIFS," on page 82
- Section 13.2.3, "eDirectory," on page 82
- Section 13.2.4, "NSS," on page 82
- Section 13.2.5, "iPrint," on page 82
- Section 13.2.6, "DHCP, FTP, NTP and iFolder," on page 83

13.2.1 AFP

If you decide to delete the proxy user name that has the old host name, you must recreate a new proxy user using YaST.

1 Using iManager, delete the proxy user. The format of the proxy user is *cn=afpProxyUser-<new_hostname>.<context_of_server>*.

2 Using YaST, recreate the proxy user.

```
yast2 novell-afp
```

13.2.2 CIFS

If you decide to delete the proxy user name that has the old host name, you must recreate a new proxy user using YaST.

1 Using iManager, delete the proxy user. The format of the proxy user is *cn=cifsProxyUser-<new_hostname>.<context_of_server>*.

2 Using YaST, recreate the proxy user.

```
yast2 novell-cifs
```

13.2.3 eDirectory

Delete the following objects that are present with the temporary Linux hostname:

- SAS Service-*<temporaryLinuxhostname>*
- DNS AG *<temporaryLinuxhostname>*
- IP AG *<temporary IP address-temporaryLinuxhostname>*
- SSL CertificateDNS-*<temporaryLinuxhostname>*
- SSL CertificateIP-*<temporaryLinuxhostname>*

13.2.4 NSS

- "Pools and Volumes" on page 82

Pools and Volumes

The pools and volumes created on the Linux server before performing Transfer ID are associated with the old host name. After Transfer ID perform the following:

1 Using iManager, delete the pool and volume object containing the temporary Linux host name.

2 (Conditional) If the target server contains pools or volumes that are not available on the source server, recreate these objects using *Update NDS* option from NSSMU.

13.2.5 iPrint

1 To delete the NDPSPrinter object, run the `/opt/novell/iprint/bin/iprintcleanup.pl` script.

For information on how to run the script, see Section 27.8, "Cleaning Up Stale Objects," on page 238.

13.2.6   DHCP, FTP, NTP and iFolder

These services require no additional steps after Transfer ID.

13.3   DFS Junctions Are Not Restored

If a volume on the source server is a DFS junction target, the junctions are not restored on the target server after Transfer ID migration.

1 After performing Transfer ID, delete the ~DFSINFO.8-P file from the migrated volumes on the target server.

2 Run VLDB repair to update the file from eDirectory.

For more information about VLDB repair, see "Repairing the VLDB" in the *OES 11 SP3: Novell Distributed File Services Administration Guide for Linux*.

14 Troubleshooting Issues

14.1 Copying NICI Keys Fails When Performing Transfer ID

Description: If the source server is NetWare, copying NICI files fails due to `DSMETER.NLM`.

Action: To resolve this issue, comment the line, "LOAD DSMETER" in the `autoexec.ncf` file and restart the NetWare server before performing Transfer ID.

14.2 LUM Repair Fails When Performing Transfer ID

Description: The container admin performing Transfer ID is not part of the admingroup object or does not have supervisory permissions on all the users or groups in the admingroup object.

Action: To resolve this issue, perform Transfer ID using either a treeadmin or a container admin. If you use a container admin, ensure that the admin has supervisory permissions on all users or groups in the admingroup object.

14.3 On Completing Transfer ID migration, iManager or Novell Remote Manager is Not Accessible 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.

After successful authentication of the target server, the Transfer ID GUI is launched. The *Finish* and the *Back* buttons are highlighted.

2 Click *Back* to reach the *Repair* step, then run the *Repair* step again.

3 Restart the target server for changes to be effective.

14.4 System Might Hang on Terminating the IP Address Change Step when Performing the Transfer ID Scenario

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

where `nds.conf.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.

14.5 System Might Hang on Terminating the Hostname Change Step when Performing the Transfer ID Scenario

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.

14.6 On Failure of Migration and Restoring eDirectory to the Source Server, LDAP Does Not Bind

To bind LDAP, you must modify the values of the LDAP configuration version of the LDAP server and LDAP group objects of the source server.

If the LDAP server displays the message, "Config version 10 is greater than 8 in attribute" or a similar message, you must change the `Version` attribute value of the LDAP group and server objects of the source server to 8. You can change the attribute values using either ConsoleOne or iManager.

Using iManager, perform the following steps:

1 Access iManager, then log in to the eDirectory tree where the source server you want to manage resides.

2 In *Roles and Tasks*, select *Directory Administration > Modify Object*.

3 Browse and select the LDAP server object of the source server, then click *OK*.

4 On the *General > Other* tab, in Valued Attributes column, select *ldapConfigVersion*, then click *Edit*.

5 Change the *LDAP Configuration Version* value as defined in the error, then click *OK*.

For example, if the LDAP server displays the message, "Config version 10 is greater that 8 in attribute" or a similar message, you must change the *LDAP Configuration Version* attribute value of the LDAP server to 8.

6 Click *OK*.

7 Repeat Step 2 to Step 6 for LDAP group objects on the source server.

8 Restart the LDAP module on the source server:

On NetWare:

`unload nldap.nlm`

`load nldap.nlm`

On OES 1, OES 2 Linux, or OES11

`nldap -u`

`nldap -l`

After performing these steps, the server returns to the status before it was in before it was removed from the eDirectory tree.

14.7 eDirectory Error 626 on Performing Transfer ID Migration

1 Check the status of SLP by entering

`rcslpd status`

If SLP is not running, start SLP by entering

`rcslpd start`

For information on using SLP, see "Using SLP with eDirectory" in the *NetIQ eDirectory 8.8 SP8 Installation Guide*.

2 (Conditional) If SLP is not used, create a `/etc/opt/novell/eDirectory/conf/hosts.nds` file on the non-replica server that points to the master server and the container in which the user object is present. For more information, see the manpage `hosts.nds`.

14.8 Transfer ID fails when NetStorage is Configured on the Source Server

During Transfer ID process, miggui tries to retrieve the proxy credentials for each of the services configured on the source server. If NetStorage is configured, its script returns the proxy user name in dot separated format instead of comma separated format. Due to this, miggui displays the following warning: "The source server is configured with both service proxy and common proxy. This is not a supported scenario and will cause failure of proxy user migration. Do you want to continue?" In this scenario, the OES services fail to launch after the transfer ID is complete.

To resolve this issue, before starting the transfer ID process, update the source OES 2015 server with the latest patches, and reconfigure NetStorage using YaST > OES Install and Configuration, or by executing `yast2 netstorage` command. Complete the reconfiguration steps without altering any of the existing settings.

V   Security Considerations

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15 Security Considerations for Data Migration

This section describes how the Novell Open Enterprise Server 11 (OES 11) file system Migration Tool 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 the Migration Tool.

For additional security implementation information, see "Security" in the *OES 11 SP3: Planning and Implementation Guide*.

15.1 Root-Level Access Is Required

To use the OES Migration Tool, you must be logged in to the target OES 11 server as `root` or a root-equivalent user.

15.2 Securing User Credentials

You can take precautions to ensure that authentication credentials (user names and passwords) are securely stored and retrieved when using the OES 11 Migration Tool.

15.2.1 How User Credentials Are Stored During a Migration

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

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 user names 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 user name 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 the secret store.

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 `nwmap` command.
 - To carry out migrations, the GUI utilities execute the required migration commands (`mls`, `migfiles`, `maprights`, `maptrustees`, 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 re-enter the credentials.

15.2.2 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.

15.2.3 Managing Credential Storage with migcred

As mentioned previously, administrators can choose to store user credentials in CASA so that they are not prompted for user names 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, user names and passwords can be retrieved as needed by other migration commands.

15.2.4 Securing Credentials When Piping Commands

Administrators might also want to pipe the output of one migration command to another, so they cannot feed user names 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
```

15.3 Mounting Remote File Systems

The OES 11 Migration Tool, which runs on the target OES 11 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.

For NetWare and OES Linux migrations, the `mls` and `migfiles` commands use `nwmap` command to map to the remote volumes and read data from the _admin volume to validate the source path. The `mls` and `migfiles` commands unmount the file system upon termination. If a process is killed forcibly (`kill -9`), the mount point remains mounted and must be unmounted by the administrator.

The `mls` command uses the nbackup tool to build the list of trustees.

15.4 Transmitting Data Across the Network

The OES Migration Tool uses Novell Storage Management Services (SMS) to copy data from OES 2 Linux and OES 11 source servers. Data is not encrypted when it is transmitted across the network.

15.5 Managing Passwords for Migrated Users

When performing a tree-to-tree migration, 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 `migtrustees` command). When using this option, you must always pass the --newusers-password-file option so that the randomly generated passwords and user names are stored in the file.

  or

- Assign a specific password for all migrated users (by using the `-s` option of the `migtrustees` 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 generated by the -r option are stored in a new file. To avoid password theft, dispose of this file in a secure manner after you have communicated the new passwords to their respective users.

VI Data Migration

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16 Migrating File Systems to OES 11 SP3

This section provides information on how to migrate the file system from an existing NetWare 6.5, OES 1 Linux, OES 2 Linux, or OES 11 server to an OES 11 SP3 server. In this section, the NetWare, OES 1 Linux, OES 2 Linux, and OES 11 servers are referred to as the source server and the OES 11 SP3 server is referred to as the target server.

The following sections provide more details on the migration procedure for the file system.

- Section 16.1, "Preparing for File System Migration," on page 97
- Section 16.2, "Migration Scenarios," on page 99
- Section 16.3, "Moving Devices for Migrating Data from NetWare to OES 11 SP3," on page 103
- Section 16.4, "Migrating the File System Using the Migration GUI," on page 103
- Section 16.5, "Synchronizing the File System Using the Migration GUI," on page 109
- Section 16.6, "Migrating the File System Using Command Line Utilities," on page 110
- Section 16.7, "Troubleshooting," on page 135

16.1 Preparing for File System Migration

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

- Section 16.1.1, "Source Server Requirements," on page 97
- Section 16.1.2, "Target Server Requirements," on page 98

16.1.1 Source Server Requirements

- "NetWare Server" on page 97
- "OES 1, OES 2 Linux, or OES 11 Server" on page 98

NetWare Server

- Shut down any applications, products, or services (virus scan software, backup software, and so forth.) 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://download.novell.com/patch/finder/#familyId=122).
- When migrating data from a Traditional NetWare volume, ensure that the NPM files for NFS and the NFS 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, OES 2 Linux, or OES 11 Server

 ◆ Shut down any applications, products, or services (virus scan software, backup software, and so forth.) running on the server to be migrated.

 ◆ Ensure that the server is running OES 1, OES 2, or OES 11 with all the available patches in the channel.

 ◆ Ensure that Storage Management Services (SMS) and NetWare Core Protocol (NCP) is running on the server.

 ◆ Ensure that source volumes on OES 1, OES 2 Linux, or OES11 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, OES 2, or OES 11 server, 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.

16.1.2 Target Server Requirements

 ◆ Ensure that the server is running OES 11 SP3.

 ◆ Services to be migrated must be installed and configured on the target server.

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

For NSS Target Volumes

❒ Using Migration GUI, if you have configured the file system and for some reason the mount point of NSS volumes change, you must reconfigure the paths for the file system.

❒ Create the NSS volumes to which you will migrate 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.

❒ Using CLI, if you want to use the CASA secret store to store user names and passwords during migration (via the `--use-casa` option), ensure that the following RPM is installed on the OES server:

```
CASA-1.7.XXX.rpm
```

Restart the CASA daemon by entering the following command:

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

For NCP Target Volumes

❒ Create NCP volumes to which you will migrate the data.

❏ Ensure that the user performing the migration has read/write/access rights to the POSIX path that corresponds to the NCP volume.

❏ Although data is successfully migrated to the clustered NCP target volumes, trustee migration is not supported.

16.2 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, 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:

- ◆ Section 16.2.1, "Consolidating Data to a Server in the Same Tree," on page 99
- ◆ Section 16.2.2, "Consolidating Data to a Server in a Different Tree," on page 99
- ◆ Section 16.2.3, "Migrating Compressed Files," on page 100
- ◆ Section 16.2.4, "Data Migration for Clustered Volumes," on page 100
- ◆ Section 16.2.5, "Data Migration for DST Volumes," on page 101
- ◆ Section 16.2.6, "Transfer ID," on page 102
- ◆ Section 16.2.7, "Migration Procedure," on page 102

NOTE: For more information about migration scenarios, see Chapter 1, "Overview of the Migration Tools," on page 15.

16.2.1 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 the target server:

- ◆ Volumes, folders, and files
- ◆ Trustee rights for files

16.2.2 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 the target server:

- ◆ Volumes, folders, and files
- ◆ Trustee rights for files
- ◆ Create users in the target's file system volumes
- ◆ An option to set a default global password for the new users created on the target server

16.2.3 Migrating Compressed Files

In any of the following scenarios, compressed files are seamlessly migrated from the source server to the target server:

- Source server volumes and target server volumes are compression enabled.
- Source server volumes are compression enabled and the target volumes are not enabled for compression. Migration GUI uncompresses the migrated files on the target server volume.
- Source server volumes are not enabled for compression and the target volumes are compression enabled. The Migration GUI compresses the migrated files on the target server volume.

The compress and uncompress commands run as a backend process in the migration GUI.

16.2.4 Data Migration for Clustered Volumes

You can perform data migration by upgrading only the cluster nodes or both the cluster nodes and storage:

Upgrading NetWare Cluster Nodes

One or more NetWare nodes are replaced with OES 11 SP3 nodes. Novell Cluster Services support a rolling server upgrade. In this scenario, one or more NetWare nodes can be replaced with OES 11 SP3 nodes. For more information, see "Converting NetWare Cluster Nodes to OES (Rolling Cluster Conversion)" in the *OES 11 SP3: Novell Cluster Services NetWare to Linux Conversion Guide*.

Upgrading NetWare Cluster and Shared Storage

All nodes and shared storage is replaced with a new cluster with OES 11 SP3 configured on a new shared storage. You can migrate cluster NSS volumes from a NetWare cluster to a new Linux cluster with the Migration Tool.

The Migration Tool provides two options to perform the cluster migration: *Is Cluster Resource* and *Follow Cluster Resource*.

If you select the *Follow Cluster Resource* option, migration continues uninterrupted during cluster resource migrations to different cluster nodes. This option is valid only on the source server clusters. When migrating data to cluster NSS volumes on the target server, migration stops when the resource migrates to a different node. To continue the migration, you must make the resource active on the target server.

If this option is not selected, migration stops when the resource migrates to a different node on the source server. Once the resource comes up on the different node, restart the migration to continue the migration from where it failed. The Migration Tool supports only source NSS volumes for migration.

16.2.5   Data Migration for DST Volumes

When performing migration for DST volumes, the data is migrated for only the primary volume; it does not include the secondary volume. To perform migration for all the volumes, remove the shadow volume relationship of the DST server.

When performing the migration, consider the following:

Source Server as DST

- The target server can be a DST server or a non-DST server.
- Stop the DST policies before performing the migration.

  For more information about stopping the policies, see "Stopping a Running Policy" in the *OES 11 SP3: Dynamic Storage Technology Administration Guide*.

- Only the data that is stored on the primary volume of the source server is migrated to the target server.
- To migrate the data from all the volumes of the source server, remove the shadow volume relationship on the source server.

  For more information about removing the shadow volume relationship, see"Removing the Shadow Relationship for a Clustered DST Volume Pair" or "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 11 SP3: Dynamic Storage Technology Administration Guide*.

- Configure the file system GUI to perform migration. For more information, see Section 16.4, "Migrating the File System Using the Migration GUI," on page 103.

Target Server as DST

- The source server can be a DST or non-DST server.
- Stop the DST policies before performing the migration.

  For more information about stopping the policies, see "Stopping a Running Policy" in the *OES 11 SP3: Dynamic Storage Technology Administration Guide*.

- The data is migrated from the source server to only the primary volume of the target server.
- To migrate the data from the source server to all the volumes on the target server, remove the shadow volume relationship on the target server.

  For more information about removing the shadow volume relationship, see "Removing the Shadow Relationship for a Clustered DST Volume Pair" or "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 11 SP3: Dynamic Storage Technology Administration Guide*.

- Configure the file system GUI to perform migration. For more information, see Section 16.4, "Migrating the File System Using the Migration GUI," on page 103.

For Example:

Consider a scenario where you are migrating data from a source non-DST server to a target DST server. The source server has volumes *Vol1*, *Vol2*, *Vol3* of 3 GB each. The target server contains the primary volume *Vol4* with 1 GB and a secondary volume *Vol5* with 10 GB. In this scenario, you can migrate the data by using any of the following:

- "Migrating without the Shadow Volume Relationship:" on page 102
- "Migrating with the Shadow Volume Relationship:" on page 102

Migrating without the Shadow Volume Relationship: When the shadow volume relationship is removed from the target server, it acts as a non-DST server and the migration can be performed normally.

To migrate the data, complete the following steps:

1 Remove the shadow volume relationship. For more information, see "Removing the Shadow Relationship for a Clustered DST Volume Pair" or "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 11 SP3: Dynamic Storage Technology Administration Guide*.

2 Configure the file system GUI to perform migration. For more information, see Section 16.4, "Migrating the File System Using the Migration GUI," on page 103.

Migrating with the Shadow Volume Relationship: Only 1 GB of data from the source server can be migrated to the primary volume *Vol4* of the target server. If you need the data on all the volumes of the source server to be migrated to the target server, complete the following steps:

NOTE: You must to stop the DST policies temporarily before performing the migration.

1 Stop the existing DST policies.

2 Create a project to migrate the data less than or equal to 1 GB from the source server to the target server.

3 Perform the migration.

4 (Conditional) If some files or folders were open on the source server and did not get migrated to the target server, perform synchronization.

Synchronization must be performed before performing the next step.

5 Configure a DST policy on the target server to move the migrated data from the primary volume to the secondary volume.

As a result, there is space available on the primary volume of the target server to migrate additional data from the source server.

6 Stop the DST policy after the required data is moved from the primary volume *Vol4* to the secondary volume *Vol5*.

7 Repeat Step 2 to Step 6 until all data is migrated.

16.2.6   Transfer ID

In the Transfer ID scenario, several tasks are executed to transfer the server identity of the source server to the target server. In the Migration Tool GUI, the file system is configured and then migrated. After successful migration of all of the services, click *Transfer ID*. For more information, see Part IV, "Transfer ID Migration," on page 59.

16.2.7   Migration Procedure

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

◆ Section 16.4, "Migrating the File System Using the Migration GUI," on page 103
◆ Section 16.6, "Migrating the File System Using Command Line Utilities," on page 110

16.3 Moving Devices for Migrating Data from NetWare to OES 11 SP3

You can move devices containing NSS volumes from NetWare to an OES 11 server by decommissioning the volumes on the device in eDirectory, then recommissioning the volumes on the new server. For more information, see "Moving Non-Clustered Devices From NetWare 6.5 SP8 Servers to OES 11 SP3" in the *OES 11 SP3: NSS File System Administration Guide for Linux*.

For shared NSS pools and volumes, Novell Cluster Services provides this service automatically during a rolling cluster conversion from NetWare to OES 11. For information about converting shared pool cluster resources and service resources, see the *OES 11 SP3: Novell Cluster Services NetWare to Linux Conversion Guide*.

16.4 Migrating the File System Using the Migration GUI

After you have completed the prerequisite procedures in Section 16.1, "Preparing for File System Migration," on page 97, you are ready to migrate the source server.

1 Launch the Migration Tool from the target server, 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 authentication credentials for the source server.

(Optional) Is Cluster Resource: This option supports only the Migrate scenario; it does not support Transfer ID. If you want to migrate data in a cluster environment, you can perform either of the following:

- ◆ **Migrating Cluster Volumes:** In the *Source Server Authentication* screen, specify the cluster resource IP and select the *Is Cluster Resource* option. When configuring file system, the Volume Information tab displays all cluster volumes from the cluster resource as part of the source volume.

- ◆ **Migrating Non Cluster Volumes from a Cluster Node:** In the *Source Server Authentication* screen, specify the cluster node IP; do not select the *Is Cluster Resource* option. When configuring file system, the Volume Information tab displays all non-cluster volumes present on the source server.

3 Enter your authentication credentials for the target server.

4 Select the type of migration you want to perform: *Migrate* or *Transfer ID*.

5 In the *Services* panel, click *Add*, select *File System*.

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

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

---

6 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.

Tabs	Purpose
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 and groups from the source server to the 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.

7 In the *Volume Information* tab, in the *Source Server* tree, select the volumes or folders that you want to migrate, then drag and drop them into the *Target Server* tree. The names of the source cluster volumes can only include "_" as a special character to be listed in the *Source Server* tree.

IMPORTANT: You cannot migrate a DFS junction. A DFS junction is displayed under the source tree as a folder because this junction appears in the file structure as a directory. Under *Volume Information*, the DFS junction can be dragged to the target server tree, but actually, the junction and the data is not migrated to the target server and the migration fails.
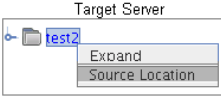
When migrating a directory to an existing file system (NSS, NCP volume, or Linux POSIX volume), there are access rights set on the target location that can be inherited by the folder and its contents after migration. This is either the trustees and trustee rights in the case of NSS and NCP, or the ACLs (access control lists) for Linux POSIX. You must modify the settings as needed to ensure that the files are available only to authorized users before you allow users to access the data in the new location.

NOTE: In the *Source Server* tree, you cannot expand volumes or folders that are copied to the *Target Server* tree.

For an explanation of the different tasks that can be performed in the Volume Information tab, refer to the following table.

Task	Description
Target Location	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. In the *Source Server* tree, right-click the volume or folder that is selected for migration, then click *Target Location* from the drop-down menu. The tree in the *Target Server* view expands to display the volume or folder that was copied from the source server.

Task	Description
Source Location	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. In the *Target Server* tree, right-click the volume or folder that is highlighted for migration, then click *Source Location* from the drop-down menu. The tree in the *Source Server* view expands to display the volume or folder that was copied to the *Target Server*.
Volumes or Folders selected for migration	The volumes or folders that are selected for migration are highlighted in blue in the Source Server tree and the Target Server tree.
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 *Undo*. The folder no longer appears under the target server tree and is no longer a candidate for migration.
Follow Cluster Resource	Select this option to perform uninterrupted migration when cluster resources migrate to different cluster nodes. This option is valid only on the source server clusters. For example, when a failure occurs on one node of the cluster, the resources are relocated to another node in the cluster. The Migration Tool connects to the cluster instead of the individual server and performs an uninterrupted migration during this failure. If this option is not selected, migration stops when the resource migrates to a different node. When the resource comes up on a different node, run the migration project again. The Migration Tool ensures that the migration process resumes from the state where it stopped. When migrating data to cluster volume on the target server, migration stops when the resource migrates to a different node. To continue the migration, you must make the resource active on the target server.

8 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 an explanation of the different tasks that can be performed in the File Options page, refer to the following table.

Task	Description
Duplicate File Resolution	Determines what action to take when a file copied from the source server has the same file name as an existing file on the target server. Specify one of the following resolutions:
	◆ **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. This option is applicable only for data migration.
Quotas	This option is applicable only for data migration.
	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 and directory quotas are not valid.
	◆ **Exclude User Quotas on Source:** The user quotas from the source server are not copied to the target server.
	◆ **Exclude Directory Quotas on Source:** The directory quotas from the source server are not copied to the target server.
	◆ **Disable Quota Checks on Target:** The user and directory quotas set on the target server are ignored by the Migration Tool when a data copy is performed.
File Filters	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 file names or file extensions.
	◆ **Last Accessed/ Last Modified:** The date range to include files for migration.
	◆ **Exclude File(s):** The file names or file extensions to exclude from migration. Wildcards (*) are permitted. For example: `*.mp3`, `*.mov`, `*.tmp`, `samplefile.txt`, "`my sample file.txt`."
	Specifying `*.mp3` excludes all files with an extension of `.mp3` from being migrated. Specifying `samplefile.txt` excludes all samplefile.txt files from being migrated.
Home Directory Options	Specify the target server path for the users whose home directory you are migrating from the source server.
	For example, If the users's home directory path on the source server is `/media/nss/VOL1/users` and the target path where the users will be migrated is `/media/nss/VOL2/users`, then specify the path in the Home Directory Options as `/media/nss/VOL2/users`. After successful migration, the home directory of the users is updated with the new target server path.
	NOTE: If you are performing migration across multiple volumes, you cannot specify multiple home directory paths.

Task	Description
Sync Options	The *Sync* option performs synchronization of the target server with the source server. After the file system migration is complete, if the source server is updated with new information, you can use the *Sync* option to synchronize the servers. The *Sync* option is available in the main Migration GUI window.
	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.
	Delete Trustees Not On Source: This option is enabled only for a Same Tree migration. Set this option to update trustee information on the target server when trustees are deleted on the source volume after the migration or synchronization completes. Trustee information that is not on the source server is deleted from the target server.
	Copy Trustees Only At The Directory Level: Synchronizes trustees only at the directory level. Trustees for files are not synchronized.
	Do Not Copy Trustees: The user rights on the source server folders are not synced to the target server.
Login Options	This option indicates whether you want users to be logged in during the data migration.
	Disable Login On Source: If you disable user login, the users cannot log in to the network and modify the open files during the file copy. Users already logged in to the source server are not logged out, but no new logins are allowed until the migration completes.

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

or

Use the options to customize the file trustee options to migrate to the target server, then click *OK* to save the settings.

For an explanation of the different tasks that can be performed in the *Trustee Options* tab, refer to the following table.

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

Task	Description
Trustee Migration	Specify an option to migrate trustee rights of users and groups from the source server to the target server.
	◆ **Do Not Migrate Trustees (default):** The user rights to the access folder 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 a different context on the source server.
	◆ **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. When you select this option, the *Match User Options* tab is enabled, which enables you to select the users from the source server or the target server, and then assign migration options.
	◆ **Search Context to map users:** Select the context on the target server to match the users.
Existing User Options	A user name on the source server has a corresponding user name on the target server. You can overwrite the trustee details of the user on the target server, or ignore the user.
	◆ **Ignore All:** Do not create users on the target server.
	◆ **Overwrite All:** Overwrite the users on the target server.
New User Options	Specify the global password for the new users created on the target server.
	eDirectory Password: Specify the password for the users to use, when they log in for the first time on the target server.
	IMPORTANT: If password restrictions are set for users on the source tree, you must specify a default password; otherwise, migrating users in a different tree scenario might fail.

10 (Conditional) If the *Match User Options* tab is enabled, click it, then continue with Step 10a to specify which users to migrate and how to handle the migration if the user already exists on the target server.

or

If the *Match User Options* tab is not enabled, click *OK* to save your file system migration setup and return to the main Migration Tool window, then continue with Step 12.

10a To view the list of users on the source server and target server, click *Map Users*, then select how to handle the users.

NOTE: In a migration project, if you select multiple volumes for migration that are associated with the same users, then when mapping users, the source displays a duplicate user list.

◆ **Existing or Mapped Users:** A user name on the source server has a corresponding user name 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.

10b 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.

10c (Optional) To specify settings for individuals and groups that override the global handling of user migration, click the user name, 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 that is using the same FDN as the source server. The search context is used only to match the source server users to the 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.

11 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.

12 Click *Migrate* on the main migration window to begin the migration.

The log files for the file system are located at `/var/opt/novell/migration/<project name>/log`. The following log files are created during file system migration:

filesystem.log: This stores the information about the command sequence and errors encountered during migration.

filesystem.success.log: This stores the list of all successfully migrated files.

filesystem.delete.log: This stores a list of files deleted from the target server that are not available on the source server when performing the sync. This log file is updated with the list of deleted files, if you have selected the option *Delete Files Not On Source* in the *File Options* tab.

16.5 Synchronizing the File System Using the Migration GUI

When performing synchronization, the service details (data, trustee, and so forth) on the target server are compared with the source server and the updated information is migrated to the target server. You can perform synchronization in the following two scenarios:

- ◆ Section 16.5.1, "Same Tree," on page 109
- ◆ Section 16.5.2, "Different Tree," on page 110

16.5.1 Same Tree

After a successful migration, you are ready to perform synchronization for any new or modified files or trustee rights.

1 Launch the Migration Tool on the target server.

2 Open the migration project for which you need to perform synchronization.

The status of the file system is "Migrated on <Date and Time of successful migration>".

3 Authenticate the source server and target server.

4 (Conditional) You can modify only a few options for the file system. In the *Services to Migrate* panel, select File System, then click Configure. In the *File system* GUI, *File Options* tab only the *Duplicate File Resolution*, *Login Options*, and *Sync Options* are enabled and can be modified.

5 In the main *Migration Tool* GUI, click *Sync*.

All the new or modified files or trustee rights on the source server are migrated to the target server.

16.5.2 Different Tree

After a successful migration, you are ready to perform synchronization for any new or modified files or trustee rights.

1 Launch the Migration Tool from the target server.

2 Open the migration project for which you need to perform synchronization.

The status of the file system is "Migrated on <Date and Time of successful migration>".

3 Authenticate the source server and target server.

In the *File system* GUI, *File Options* tab only the *Duplicate File Resolution*, *Login Options*, and *Sync Options* are enabled and can be modified.

3a (Conditional) In the *Trustees Options* tab, if you have selected the *Custom User Mapping* option, you must remap the users on the source volume with the users on the target volume in the *Match User Options* tab.

4 In the main *Migration Tool* GUI, click *Sync*.

All the new or modified files or trustee rights on the source server are migrated to the target server.

16.6 Migrating the File System Using Command Line Utilities

This section provides information on how to use the command line to migrate a file system running on NetWare, OES 1 Linux, OES 2 Linux, or OES 11 to OES 11.

NOTE: All the migration commands must be run on the target server.

This section covers the following scenarios:

16.6.1 Migrating Data to a Server in the Same Tree

This section describes how to migrate file system data from a NetWare, OES 1 Linux, OES 2 Linux, or OES 11 server to an OES 11 server in the same eDirectory tree.

Migrating the Data

The `migfiles` command migrates files and directories. 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 the 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

This command migrates all data from the Traditional or NSS volume SRCVOL1 on the source server with the 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 the 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 (NSS Volume to NCP Directory)

This command migrates data from the Traditional or NSS volume named DATA on the source server with the 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
```

Remapping Home Directories

These commands migrate the VOL1 volume on the source server 192.168.1.3 to the VOL1 volume on the 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.

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.

16.6.2   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 Identity Manager to migrate the eDirectory users and groups, and then use the `migmatchup` 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

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.

To migrate the data from a source NetWare server or OES 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
    ```

  ◆ 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 a different name, run the following commands in the order shown:

```
maprights
migrights
```

Examples

  ◆ "Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees" on page 113
  ◆ "Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees and Flatten the Trustee Structure" on page 114
  ◆ "Tree-to-Tree Migration with Trustees Already Migrated to the New Tree and Reorganized in the New Tree." on page 115

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 11 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/ mls.yaml >
maptrustees.yaml
```

The `-H` option replaces the home directory of the source server user with the new home directory specified by the -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.

3 Migrate the trustees to the target server:

```
migtrustees -d 192.168.1.67 --specific-password novell maptrustees.yaml
```

If you want to assign each user a random password, use the `--random-password` option; it stores the passwords in a file. To avoid password theft, dispose of the password file in a secure manner after you have communicated the new passwords to their respective users.

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 *OES 11 SP3: Planning and Implementation Guide*.

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

```
migfiles -s 192.168.1.3 -V V1 -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 Step 1 to Step 5 to migrate other volumes on the source server.

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 16-1.

Figure 16-1   Source eDirectory Tree Structure
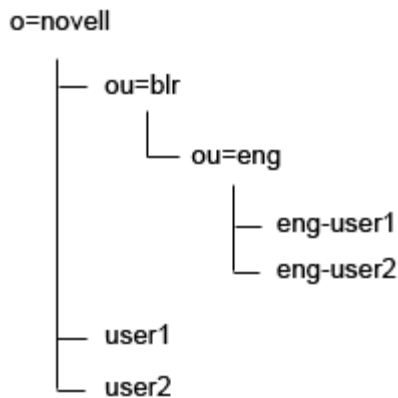
When the users are migrated to ou=test.o=novell, the resulting tree structure is shown in Figure 16-2.

Figure 16-2   Target eDirectory Tree Structure
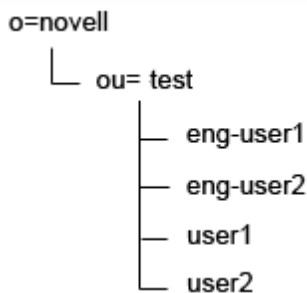
The following example shows how to migrate data from a source NetWare, OES 1 Linux, OES 2 Linux, and OES 11 server in one tree to a target OES 11 server in another tree. In this example, the target volumes are NCP Linux volumes and the new user context is `ou=new-context.o=company`.

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' mls.yaml > maptrustees.yaml
   ```

   The `-H` option replaces the home directory of the source server user with the new home directory specified by the -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.

3. Migrate the trustees to the target server:

   ```
   migtrustees -d 192.168.1.67 --specific-password novell maptrustees.yaml
   ```

   If you want to assign each user a random password, use the `--random-password` option; it stores the passwords in a file. To avoid password theft, dispose of the password file in a secure manner after you have communicated the new passwords to their respective users.

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 about LUM-enabling users, see "LUM Implementation Suggestions" in the *OES 11 SP3: 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 Step 1 to Step 5 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 to migrate trustee rights for each source volume being migrated.

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 11 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 Tool is used only to 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' mls.yaml >
migmatchup.yaml
```

`migmatchup` 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 `migmatchup` 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 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 about LUM-enabling users, see "LUM Implementation Suggestions" in the *OES 11 SP3: 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 Step 1 to Step 4 migrate other volumes on the source server.

5 Map the trustee rights on the source server:

```
maprights -V SRCVOL --matchup-file migmatchup.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 to migrate trustee rights 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 who belong to the groups that are assigned as trustees.

* If the `maptrustees` and `migtrustees` commands are used to migrate the users, 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.

16.6.3 Migrating Data to a POSIX File System

This section provides information on migrating data from NetWare, OES 1 Linux, OES 2 Linux, or OES 11 NSS volumes to a POSIX file system such as EXT3 or Reiser on a target OES 11 server.

- ◆ "Mapping Users, Groups, and File Attributes to POSIX" on page 117
- ◆ "Example" on page 118
- ◆ "Limitations" on page 119

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 rwx 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 information about POSIX names, see the man page for the `useradd` command.

NetWare file attributes are mapped as shown in Table 16-1.

Table 16-1 *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
```

Example

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

1 Create a list of files and trustees on volume SRCVOL:

```
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 -p -H /data/home/ mls.yaml > maptrustees.yaml
```

The -H option replaces the home directory of the source server user with the new home directory specified by the -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.

3 Migrate the trustees to the target server:

```
migtrustees -p --specific-password novell maptrustees.yaml
```

If you want to assign random passwords to users, use the `--random-password` option; it stores the new passwords in an output file. To avoid password theft, dispose of the password file in a secure manner after you have communicated the new passwords to their respective users.

4 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`.

Users must be migrated before migrating data volumes. Repeat Step 1 to Step 3 for migrating trustees.

5 Map the trustee rights on the source server:

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

6 Migrate the trustee rights to the target server:

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

Repeat Step 4, Step 5, and Step 6 for each source volume being migrated.

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.

16.6.4 File System Migration Commands

The OES 11 Migration Tool includes 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 16-2 lists the commands that are available for file system migrations.

Table 16-2 *File System Migration Commands*

Command	Description
mls	Lists all files in a given NetWare, OES 1 Linux, OES 2 Linux, or OES 11 NSS path, with associated trustees, rights, and quotas.
migmatchup	Matches users and groups from the source server to the target server.
maptrustees	Maps users and groups from the source server to the target server specifications.
migtrustees	Creates users and groups on the target server based on the output generated by the maptrustees command.
migfiles	Copies files and folders from a source server to a target server.
maprights	Maps NetWare NSS/Traditional or OES NSS file system rights to OES 11 file system rights.
migrights	Sets file rights on the target server as defined by the output from the maprights command.

Command	Description
migcred	Establishes persistent credentials for the migration utilities.

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.

mls

The mls command lists files and associated trustees, rights, and quotas from NetWare, OES 1 Linux, OES 2 Linux, or OES 11 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 tcnvlnx.nlm to the NetWare server. To gather this information for OES 1 Linux, OES 2 Linux, or OES 11 NSS volumes, it uses the .trustee_database.xml file in the ._NETWARE directory.

Syntax

mls -s -V|-X [--continue-after-failover] [-e] [-c] [--precheck] [--update-ifnewer] [--progress] [--progress-interval] [--use-casa] [--source-unsecure-ldap] [--source-ldap-port] [--debug] [--modified-after] [--modified-before] [--accessed-after] [--accessed-before] [--no-dirquotas] [--no-userquotas]

Options

Option	Long Form	Purpose
-s	--source-server	Specifies the source server's IP address.
		Example: -s 192.168.1.3
-V	--source-path	Specifies the volume or directory path to use on the source server.
		Examples: -V NSSVOL
		-V VOL1:/apps/data
-X	--source-full-path	Indicates the full path of the volume to use on the source server.
	--continue-after-failover	Specifies that mls continues migration after a resource failover.
-e	--exclude	Excludes filter on files to be copied. Use this multiple times for excluding multiple file types (eg. -e "*.mp3" -e "*.tmp").
	--use-casa	Uses CASA to store and retrieve user names and passwords.
	--source-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default mls uses secure LDAP.
	--source-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.

Option	Long Form	Purpose
-c	--session-file	These options are explained in the Additional Migration Options.
	--progress	
	--progress-interval	
	--debug	
	--precheck	
	--modified-after	Scans files that are modified after this date.
	--modified-before	Scans files that are modified before this date.
	--accessed-after	Scans files that are accessed after this date.
	--accessed-before	Scans files that are accessed before this date.
	--no-dirquotas	Directory quota information is not listed.
	--no-userquotas	User quota information is not listed.

migmatchup

The `migmatchup` command uses input from the `mls` command to produce a mapping of users and groups from the source server to those on the target server. It uses `ldapsearch` to retrieve the user and group data from the source and destination LDAP server.

Objects can be excluded from migration by specifying them in the global `/etc/opt/novell/migration/obj-exclude-list.conf` file, or a custom exclude file can be specified using the -E option. The global exclude file has entries to not migrate a NetWare-specific user such as "cn=admin,ou=Tomcat-Roles,*". If a custom exclude file is specified, then the global exclude file is not read.

Syntax

```
migmatchup -s -d -k [-E] [-c] [--progress] [--progress-interval] [--debug] [--
precheck] [--use-casa] [--source-unsecure-ldap] [--source-ldap-port] [--
destination-unsecure-ldap] [--destination-ldap-port] <inputfile>
```

Options

Option	Long Form	Purpose
-s	--source-server	Specifies the source server's IP address.
-d	--destination-server	Specifies the target server's IP address.
-k	--destination-ldap-container	Options to specify LDAP container to be searched for finding matching users and groups.

Option	Long Form	Purpose
-E	--obj-exclude-file	Excludes the objects listed in this file from migration. The entries can contain a pattern with wild cards * and ?. Refer to the object exclude file `/etc/opt/novell/migration/obj-exclude-list.conf` for more information.
-c	--session-file	These options are explained in the Additional Migration Options.
	--progress	
	--progress-interval	
	--debug	
	--precheck	
	--use-casa	Uses CASA to store and retrieve user names and passwords.
	--source-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default, `migfiles` uses secure LDAP.
	--source-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.
	--destination-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default, `migfiles` uses secure LDAP.
	--destination-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.
	inputfile	Indicates the output file produced from the `mls` command from stdin.

Example

This example illustrates matching users and groups from source server to a target server:

```
migmatchup -s 192.168.1.3 -d 192.168.1.4 -k o=company mls.yaml
```

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` 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] [--map-homedir-only] [-p] [-k] [--matchup-file] [-g] [-E] [--
use-casa] [--source-unsecure-ldap] [--source-ldap-port] [--debug] [--precheck] [-
c] [--progress] [--progress-interval] <inputfile>
```

Options

Option	Long Name	Purpose
-s	--source-server	Specifies the source server's IP address.
		Example: `-s 192.168.1.3`
-H	--homedir	Specifies the path to the directory for migrating users' home directories. This option is used to map users' home directories to the new path on the target server.
		Example: `-H /media/nss/nssvol1/homedir`
	--map-homedir-only	This option is used when source and destination servers are in the same tree. This option forces `maptrustees` to generate only the users' home directory information, so that `migtrustees` can modify only the users' home directories. You must also pass --homedir (-H) option along with this option.
-p	--posix	Maps users and groups to `/etc/passwd` and `/etc/group` on the OES 11 server. The default is LDAP, if no mapping option is specified.
-k	--destination-ldap-container	Specifies the container where all users and groups are to be migrated.
		Example: `-k ou=merged,o=company`
	--matchup-file	Specify a user matchup file as generated by `migmatchup`.
-g	--primary-group	Specifies the primary POSIX group for migrated users. If not specified, the default primary group is "users."
		Example: `-g migrated-users`
		The specified group must be created before you run the `migtrustees` command, because `migtrustees` does not create the group.
	--use-casa	Uses CASA to store and retrieve user names and passwords.
	--source-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default, `migfiles` uses secure LDAP.
	--source-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.
-E	--obj-exclude-file	Excludes from migration the objects listed in the specified file.
		Example: `-E excludefile.txt`
		If this option is used, the global exclude file is not read. See "Excluding Objects" on page 124 for more information.
-c	--session-file	These options are explained in the Additional Migration Options.
	--progress	
	--progress-interval	
	--debug	
	--precheck	

Option	Long Name	Purpose
	inputfile	Indicates the output file produced from the `mls` command or from stdin.

Examples

- To map users and groups to the same container in the target tree as in the source tree:

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

  The example assumes that you have the same tree structure in the target tree as in the source tree.

- To map users and groups to a new container in the target tree, using the output from the `mls` command:

  ```
  maptrustees -s 192.168.1.3 -k ou=merged,o=company mls.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.

- To map users to `/etc/passwd` and `/etc/group` in a POSIX environment and redirecting the output to the `maptrustess.yaml` file:

  ```
  maptrustees -s 192.168.1.3 -p 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.

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] [-p] [-r] [--use-casa] [--destination-unsecure-ldap]
[--destination-ldap-port] [--debug] [--precheck] [-c] [--progress] [--progress-
interval] [--specific-password] [--newusers-password-file] <inputfile>
```

Options

Option	Long Form	Purpose
-d	--destination-server	Specifies the target server's IP address (not needed for POSIX migrations). Example: `-d 192.168.1.5`
-i	--verbose	Prints verbose information regarding the user and group migration status.
-A	--audit	Audits 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 `-m` option, the `migtrustees` command displays `user exists` 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.
-p	--posix	Creates POSIX users and groups on the destination server. The default is LDAP.
	--use-casa	Uses CASA to store and retrieve user names and passwords.
	--destination-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default, `migfiles` uses secure LDAP.
	--destination-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.
-c	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.
-s	--specific-password	Specify the password for newly created users. You must note the password so that it can be forwarded to individual users. If the specific password or random password option is not specified, then the users are created but locked until you assign a password.
-r	--random-password	Generate random passwords for new users created on the target server. When using this option, you must always pass the --newusers-password-file option so that the randomly generated passwords and user names are stored in the file.

Option	Long Form	Purpose
	`--newusers-password-file`	The newly created user names, along with passwords, are stored in the file specified with this option. This option must be passed with the --random-password option.
		If the specified file exists, `migtrustees` appends the file; otherwise, it creates a new file with read-only permission.
	`inputfile`	Indicates the output file produced from the `maptrustees` command or from stdin.

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 -s novell maptrustees.yaml
```

◆ To audit the outcome of a trustee migration:

```
migtrustees -d 192.168.1.4 -A -s novell maptrustees.yaml
```

◆ To migrate users and groups to POSIX with verbose information:

```
migtrustees -i -p -s novell maptrustees.yaml
```

migfiles

The `migfiles` command copies files from NetWare Traditional or NSS volumes, OES 1 Linux NSS volumes, OES 2 Linux NSS volumes, or OES 11 NSS volumes to OES 11 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.

Syntax

```
migfiles -s [-p] [-i] -v|-x -V|-X [--continue-after-failover] [--disable-login] [-
P] [-e] [--exclude-path] [-c] [--no-trustees] [--trustees-only] [--delete-
existing-trustees] [--use-casa] [--source-unsecure-ldap] [--source-ldap-port] [--
debug] [--precheck] [--progress] [--progress-interval] [--demigrate-files] [--
never-overwrite] [--update-ifnewer] [--modified-after] [--modified-before] [--
accessed-after] [--accessed-before] [--usecodeset] [--no-dirquotas] [--no-
userquotas] [--sync] [--delete] [--delete-file-on-restore-error] [--ignore-quota-
checking] [--trustees-dirs-only]
```

General Options

Option	Long Form	Purpose
-s	`--source-server`	Specifies the source server's IP address.
		Example: `-s 192.168.1.3`

Option	Long Form	Purpose
-p	--posix	Specifies that the target is a POSIX path. (If not specified, the default target type is NCP over POSIX.)
-i	--verbose	Prints verbose file migration status.
-V	--source-path	Specifies the source path, in VOLNAME or VOLNAME:/path format. Example: -V NSSVOL -V VOL:apps/data -V winshare
	@srcpathfile	Specifies the source file that includes multiple source paths and is prefixed with a symbol (@). Example: -V @srcpathfile
-v	--destination-path	Specifies the volume on the target server where the files are copied. This option cannot be used with the -x option. Example: -v VOL1
-x	--destination-full-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
	@destpathfile	Specifies the target file that includes corresponding target paths and is prefixed with a symbol (@). Example: -x @destpathfile
-X	--source-full-path	Specifies the source path for copying NSS, NCP, or POSIX data. This option cannot be used with the -V option. Example: -X /media/nss/TEST
	--continue-after-failover	Specifies that migfiles continue migration after a resource failover.
	--disable-login	New logins to source server are disabled during data migration.
	--never-overwrite	Do not overwrite files that already exist on the target server.
-e	--exclude	Sets an exclude filter on files to be copied. Use this option multiple times to exclude multiple file types. Example: -e "*.mp3" -e "*.tmp"
	--exclude-path	Excludes the directory with the specified source path from migration. Use this multiple times for excluding multiple directories or files.
	--use-casa	Uses CASA to store and retrieve user names and passwords.
	--source-unsecure-ldap	Uses unsecure LDAP connection for all LDAP calls. By default, migfiles uses secure LDAP.
	--source-ldap-port	Uses the specified port for LDAP calls. By default, it uses port number 389 for unsecure LDAP and 636 for secure LDAP.

Option	Long Form	Purpose
-c	--session-file	These options are explained in the Additional Migration Options.
	--progress	
	--progress-interval	
	--debug	
	--precheck	
	--no-trustees	Do not migrate trustees.
	--trustees-only	Migrate only the trustees. New trustees added to the source server are migrated to the target server.
	--delete-existing-trustees	Trustees that do not exist on the source server are deleted from the target server. You must use this option with the --trustees-only option.
	--demigrate-files	Migrates the data of HSM migrated files. By default, only stubs are migrated.
	--update-ifnewer	Updates the file on the target server with the new data from the file on the source server.
-u	--modified-after	Migrates files that are modified after this date.
	--modified-before	Migrates files that are modified before this date.
	--accessed-after	Migrates files that are accessed after this date.
	--accessed-before	Migrates files that are accessed before this date.
	--usecodeset	Code page value of the source server. This option is applicable only for NetWare 5.1 server.
	--no-dirquotas	Do not migrate directory quotas.
	--no-userquotas	Do not migrate user quotas.
	--sync	Synchronizes the source server and target server. Migrates files from the source server that are not available on the target server or is modified after the date given.
	--delete	Synchronizes the source server and target server. You must use this option with the --sync option. Files that do not exist on the source server are deleted from the target server.
	--delete-file-on-restore-error	Deletes partially restored or 0 byte files that are created during synchronization.
	--ignore-quota-checking	Disables quota checking on the target server. When migration is completed, migfiles enables quota checking.
	--trustees-dirs-only	Synchronizes trustees only at the directory level. Trustees for files are not synchronized. This option must be used only with the --trustees-only option or with the sync options.

NetWare to Linux Migration Options

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

Option	Long Form	Purpose
-c	--session-file	Stores 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.
		Example: `-c "status.log"`
		This file can be used to resume a previously halted migration job. If an absolute or relative path is not specified with the file name, `migfiles` 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 130 for more information.
-u	--update	Migrates files newer than the date specified with this option. See "Updating Modified Files" on page 130 for more information.
		This option supports date/time inputs in the following formats:
		`"%d-%m-%Y %H:%M:%S"`
		`"%d-%m-%Y %H:%M"`
		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 getdate(1) and strptime(3) for more information on using DATEMSK.
	--no-trustees	Excludes trustees while migrating file system data.
	--demigrate files	Migrates the data of HSM-migrated files. By default, only stubs are migrated.
	--update-ifnewer	Updates the file if the file on the source server is newer than the file on the target server. This option is applicable only for data migration.

Multiple Source Path Migration

This command migrates the source paths listed in the source file srcpathfile to corresponding target paths listed in the target file destpathfile. Pass the srcpathfile with -V and destpathfile with -x option prefixed with a symbol (@). The sample IP address is *192.168.1.3* of the source server.

Source Paths in srcpathfile	Target Paths in destpathfile
DATA:DEPT/finance	/media/nss/DATA/finance
DATA:DEPT/legal	/media/nss/DATA/legal

```
migfiles -s 192.168.1.3 -V @srcpathfile -x @destpathfile -i
```

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 re-entering 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 date 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 2014 at 12:30:

```
migfiles -s 192.168.1.3 -v V1 -V V1 -ni -u "9-09-2014 12:30"
```

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 11 target server. You can specify a mapping to NSS, NCP, or POSIX rights.

If the target server is in a different tree and users and groups are 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 [-p] -v|-x [-k] [--matchup-file] [-m] [--debug] [--precheck] [-c] [--progress] [--progress-interval] <inputfile>
```

Options

Option	Long Form	Purpose
-V	--source-path	Specifies the volume or directory path to use on the source server.
		Examples: `-V NSSVOL`
		`-V VOL1:/apps/data`
-p	--posix	Maps user rights to POSIX file system access rights.
-v	--destination-path	Specifies the volume on the OES 11 target server where the rights information is mapped. This option cannot be used with the `-x` option.
		Example: `-v NSSVOL`

Option	Long Form	Purpose
-x	--destination-full-path	Specifies the volume path on the OES 11 target server where the rights information is mapped. You must use -x in maprights if you used -x in migfiles.
-k	--destination-ldap-container	Specifies an eDirectory container where all users and groups are to be migrated. You must use -k in maprights, if you used -k in maptrustees. Example: -k ou=users,o=company
	--matchup-file	Specify a user matchup file as generated by migmatchup.
-m	--maptrustees-file	Specifies the name of the maptrustees file associated with this maprights migration (required for POSIX rights mapping). Example: -m maptrustees.yaml
	inputfile	Indicates the name of the output file produced from the mls command or from stdin.
-c	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.

migrights

The migrights command uses input from maprights 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] [-p] [--debug] [--precheck] [-c] [--progress] [--progress-interval] <inputfile>
```

Options

Option	Long Form	Purpose
-i	--verbose	Prints verbose rights migration status.
-A	--audit	Audits the results of the file rights migration.
-t	--test	Performs a test run of the rights migration operation.
-p	--posix	Indicates that the destination path is POSIX.
-c	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.
	inputfile	Indicates the output file produced by the `maprights` or from stdin.
	--debug	Prints debug messages to the `migrights` log file located at `/var/opt/novell/log/migration/`.

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 test results are being directed to `migrights-t.yaml`):

  `migrights -i maprights.yaml -t > migrights-t.yaml`

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 a server IP address. With each identity, a type of user name (for example, LDAP, NDS Distinguished Name, or email name) is stored along with an associated password.

Syntax

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

Options

Option	Long Form	Purpose
-i	--id	Specifies the identity or key to identify the credential. Example: `-i 192.168.1.3`

Option	Long Form	Purpose
`-l`	`--ldap-dn`	Specifies credential details in LDAP format.
		Example: `-l cn=admin,o=company`
`-n`	`--nds-dn`	Specifies credential details in NDS_DN format.
		Example: `-n admin.company`
`-N`	`--nds-fdn`	Specifies credential details in NDS_FDN format.
		Example: `-N cn=admin.o=company`
`-c`	`--cn`	Specifies credential details in Common Name (CN) format.
		Example: `-c John Smith`
`-o`	`--other`	Specifies credential details in a non-specified format.
`-e`	`--email`	Specifies credential details as an email address.
		Example: `-e admin@company.com`
`[-w]`	`[--password]`	Retrieves a stored password.
`[-r]`	`[--retrieve]`	Retrieves credential details of an identity.
`[-d]`	`[--delete]`	Deletes the credentials of an identity.
	`[--debug]`	Print debug messages to the migcred log file. The log file is 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
  ```

16.6.5 Additional Migration Options

The OES 11 Migration Tool provides additional options to be executed with file system migration utilities.

You can execute these commands with file system migration utilities. Table 16-3 lists the additional options that are available for file system migrations.

Table 16-3 Additional Migration Options with File System Commands

Option	Description
`--session-file`	Stores migration progress. This file is used to continue the migration.

Option	Description
`--progress`	Displays the progress (in terms of percentage) of the command being executed.
`--progress-interval`	Specifies the time interval for displaying the progress of a command.
`--debug`	Executes the command in a debug mode and creates a log file.
`--precheck`	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 the `--session-file` option.

For 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 50 GB 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 the `--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 the `/var/opt/novell/log/migration` folder.

To execute the `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 verifies whether SMS is running on the target server.

16.7 Troubleshooting

16.7.1 Same Tree Scenario

The Migration Tool File System GUI, Volume Information Tab Displays Empty Boxes for Non-English Directory Names.

In the Migration Tool file system GUI, the Volume Information tab displays empty boxes for non-English directory names.This issue occurs if the corresponding language is not installed on the source server.

To install fonts for non-English languages, run `yast2 language`, then select languages in the Secondary Languages pane. After installing the required languages, restart the migration project.

Error nbackup: open file

Open files on the source server are not migrated. If files are open, they are not migrated because this causes data inconsistencies.

Close the files and then perform the migration.

Error nbackup: execute only files

nbackup encountered files with the Execute-only bit set. By default, these files are not copied.

If you want to copy the Execute-only files, use the `tsafs /ExcludeExecuteOnly=0` setting on the source NetWare server.

Error nbackup: A file cannot be read and nbackup: Failed to read dataset

Source volumes or the target volumes are unavailable or are renamed during migration.

Do not rename volumes when migration is in progress. If migration stops because a volume is unavailable, ensure that the volume is properly activated and mounted, then restart the migration project.

16.7.2 Different Tree Scenario

Ownership Information Is Changed when Migrating from NSS to NCP

If the ownership information is changed when migrating from NSS to NCP, ensure that 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:

1 At the OES 11 server terminal prompt, enter `namcd cache_refresh`.

2 Synchronize the eDirectory replicas by using DSREPAIR.

3 Enter `nsscon /resetidcache`.

4 To verify the information of the owner, enter:

    ls -l /usr/novell/NCP1

16.7.3 General Issues

Migration GUI Throws Java Null Pointer Exception on Completion of File System Migration or Sync

The java null pointer exception has no impact on the functionality, you can ignore this exception.

File System Migration Fails with FATAL error: nbackup command failed to complete

There might be two admin users in the system (local admin user and eDirectory admin user). The failure was caused because the local admin user, which does not have permission, was trying to perform file system migration.

To resolve this issue, delete or rename the local admin user, then perform file system migration.

File System Migration Fails When TSAFS Is Set to Netware Mode on a OES 11 Server

To resolve this issue, set the parameter `tsamode` to `Linux` in the `/etc/opt/novell/sms/tsafs.conf` file.

When You Configure the File System GUI, an Error Is Displayed that the Volumes on the Source Server (NetWare 6.0 or Later) Are Not Mapped

If the Novell Client fails, the volumes on the source server are not mapped. The file system migration does not depend on the Novell Client commands, but it uses `nwmap` to map the source volumes. The details of the error is logged are `/var/opt/novell/migration/<project name>/log/filesystem.log`.

To troubleshoot this issue, perform the following:

1 Verify the status of the Novell Client by entering the following command:

```
rcnovfsd status
```

    1a If the service is running, restart the service by entering the following command:

```
 rcnovfsd restart
```

    or

    If the service is not running, start the service by entering the following command:

```
rcnovfsd start
```

    1b To configure the file system, select the file system and click *Configure*.

2 (Conditional) If the error is displayed again, verify the status of the novell-xregd service by entering the following command:

```
rcnovell-xregd status
```

    2a If the status is running, restart the service by entering the following command:

```
rcnovell-xregd restart
```

    or

    If the status is not running, start the service by entering the following command:

```
rcnovell-xregd start
```

    2b Restart the Novell Client by entering the following command:

```
rcnovfsd restart
```

    2c To configure the file system, select the file system, then click *Configure*.

3 (Conditional) If the error is displayed after restarting the novfsd and novell-xregd services, refer to the log file to verify whether the Novell Client has failed to resolve the IP address.

    3a If the IP address was not resolved, create a `/etc/opt/novell/ncl/protocol.conf` file and add the following line: `Name_Resolution_Providers=NCP,SLP,DNS`

    3b Restart the Novell Client by entering the following command:

```
rcnovfsd restart
```

    3c To configure the file system, select the file system, then click *Configure*.

When You Start Migration, an Error Is Displayed and Migration Fails

When you click *Start* in the main migration window, migration fails and you receive the error that no data sets are found.

navigation
- "Source Server is OES 1" on page 138
- "Source Server is OES 2 or OES 11" on page 139

Source Server is OES 1

Migration might fail if smszapi is not loaded on the source server. To troubleshoot this issue, perform the following:

1 Verify that smszapi is loaded on the source server by executing the following command:

```
lsmod | grep smszapi
```

2 (Conditional) If smszapi is displayed in the list, update the smszapi.

3 (Conditional) If smszapi is not displayed in the list, restart SMDR.

```
novell-smdrd restart
```

4 Click *Migrate* to start the migration.

Source Server is OES 2 or OES 11

Migration might fail if there is a problem during the setup and zapi is not loaded on the source server. To troubleshoot this issue, perform the following:

1 Verify that zapi is loaded on the source server by executing the following command:

```
lsmod | grep zapi
```

2 (Conditional) If zapi is displayed in the list, then update the zapi.

3 (Conditional) If zapi is not displayed in the list, restart SMDR.

```
novell-smdrd restart
```

4 Click on Start, to begin the migration.

Migration Fails Due to Failure of the migtrustees Command

The `migtrustees` command fails with a fatal error, which is recorded in the `filesystem.log` file.

The `migtrustees` command takes input from the `maptrustees.yaml` file, which includes various attributes. Some special characters are included in the loginScript attribute of the `maptrustees.yaml` file, which is not recognized by the `migtrustees` command causing a failure in the migration.

To troubleshoot this issue, perform the following:

1. Open the iManager page on the source server.
2. Click *Users > Modify Users*.
3. Select the user name that has special characters in the login script.

   For example, if you see the error for *cn=testuser,ou=users,o=novell* in the `filesystem.log` file, select *testuser* from the user list.
4. Click *General > loginScript*.
5. Remove the special characters from the login script.
6. Click *apply > ok*.
7. Remove the `migtrustees.session`, `maptrustees.session` and `maptrustees.yaml` files from the `/var/opt/novell/migration/<Project name>/fs/` folder of the target server.

   This ensures that the `maptrustees` command is re-executed when continuing the migration process.
8. Click *Start* on the main Migration Tool window of the target server to continue the migration.

Not Getting the Code Page and Non-English Characters

Migrating from NetWare 6.5 or Later

The language pack is not installed on the target server, so the code page and the non-English characters are not displayed.

You need to install the language pack of the source server on the target server before starting the Migration Tool.

Source Cluster Volumes Are Not Displayed

This issue occurs because the *Is Cluster Resource* option is not selected in *Source Server Authentication* or because the cluster resource is down.

If the *Is Cluster Resource* option is not selected, select the option from *Source Server Authentication*, then reconfigure.

or

If the *Is Cluster Resource* option is selected and the cluster volumes are not displayed, verify the list of cluster volumes by executing the following command:

```
/opt/novell/sms/bin/smstool --list-cluster-volumes -R <resourceIP> -U
<admin_credentials>
```

Files or Trustees Are Not Synchronized

If files are open on the source server during synchronization, those files are not synchronized with the files on the target server. If trustees are deleted on the source server during or before synchronization, the trustees are not migrated. Ensure that you verify the following before synchronizing, then click *Sync*.

- ◆ No application or user is accessing the source volumes that are being copied.
- ◆ Select *disable login* in the file system GUI to restrict access to the source volumes.

VII Service Migration

17 Migrating eDirectory to OES 11 SP3

eDirectory migration to Open Enterprise Server (OES) 11 SP3 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:

17.1 Planning Your Migration

This section lists the important requirements that must be verified before attempting eDirectory migration.

IMPORTANT: If the eDirectory version is 8.7.3.6 or earlier on the NetWare server, you must back up the `sys:/system/backupcr.nlm` file.

When performing migration from NetWare to OES 11 SP3, the `backupcr.nlm` on the NetWare server is overwritten with the newer version. In case of failure, restore the `backupcr.nlm`.

17.1.1 System Requirements

☐ The target server must run OES 11 SP3 with the migration pattern selected, and should have the eDirectory 8.8 SP6 RPMs already installed.

☐ If there is any eDirectory 8.8 SP6 instance already configured in the target OES 11 SP3 server, it must be deconfigured. For more information about removing a server object, see "Using the ndsconfig Utility to Add or Remove the eDirectory Replica Server" in the *NetIQ eDirectory 8.8 SP8 Installation Guide*.

☐ OES 11 SP3 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 about supported source server versions, see "eDirectory Coexistence and Migration" in the *OES 11 SP3: Planning and Implementation Guide*.

17.1.2 Prerequisites

❏ The eDirectory migration utility can run only on the target server and must be able to access the source server remotely.

❏ Ensure that all servers that share a replica with the server to be restored are up and communicating. This allows the restore verification process to check with servers that participate in the same replica ring.

For more information, see "Preparing for a Restore" in the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

17.1.3 Supported Platforms

The eDirectory migration utility is designed to run on OES 11 SP3, which is the target platform for migration. For more information about the compatible eDirectory versions at the source and the corresponding target servers, see Section 4.1, "Prerequisites," on page 41 and Section 1.4, "Support Matrix for NetWare and OES Services," on page 18.

17.1.4 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 servers to be available during the migration operation.

NOTE

Only the target server is available after the Transfer ID migration. The eDirectory DIB on the source server is locked. Other service migrations cannot be performed after completing Transfer ID migration for eDirectory. The source server can be brought back by restarting the eDirectory server, but you should do this only if the Transfer ID migration is unsuccessful.

17.1.5 Troubleshooting

♦ "Migration Issue" on page 144

Migration Issue

If the source server is running eDirectory 8.6.2, the following error is encountered:

```
The NDS schema in this tree is out of date. You must run ndsrepair to correct it.
Please consult the readme for further instructions. ERROR -722: Setup for NDS
installation failed. Please make certain that you have provided the complete server
and admin contexts.
ERROR: /opt/novell/eDirectory/bin/ndsconfig return value = 78.
```

To workaround this issue, do the following:

On the master eDirectory 8.6.2 server, run `dsrepair`, *Advanced Options Menu > Global Schema Operations*, then select *Post NetWare 5 Schema Update > Yes*.

17.2 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 migedir command line utility.

17.3 Migration Procedure

1 Run the migedir utility by entering the following command on the target server:

```
migedir [-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 *directory name*	Enables auditing. *directory name* specifies the directory in which log files should be created.
-s *IP address*	Specifies the IP address of the source server containing the eDirectory instance to be migrated. **IMPORTANT:** *-s* is a mandatory parameter.
-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 146
- ◆ "Migration" on page 146
- ◆ "Post-migration" on page 146
- ◆ "Handling Failures" on page 146

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 about removing the eDirectory instance from a server, see 'Removing a Server Object And Directory Services From a Tree' (http://www.novell.com/documentation/edir88/edirin88/data/a79kg0w.html#bxm6fn9) in the *eDirectory 8.8 Installation Guide*.

2 Bring up the source server by reloading the directory services. Ensure 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.

17.4 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 about repairing eDirectory instance, see 'Advanced DSRepair Options' (http://www.novell.com/documentation/edir88/edir88/data/aflm3p7.html) in the *eDirectory 8.8 Administration Guide*.

18 Migrating AFP to OES 11 SP3

Migration refers to the process of migrating the Novell AFP services to target OES 11 SP3.

For general information about the OES 11 SP3 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 18.1, "Migrating AFP from NetWare to OES 11 SP3," on page 149
- Section 18.2, "Migrating AFP to OES 11 SP3," on page 151

18.1 Migrating AFP from NetWare to OES 11 SP3

In these sections, the NetWare server is referred to as the source server and the OES 11 SP3 server as the target server.

- Section 18.1.1, "Requirements," on page 149
- Section 18.1.2, "Migration Scenarios," on page 149
- Section 18.1.3, "Migration Procedure," on page 150
- Section 18.1.4, "Verifying the Migration," on page 151
- Section 18.1.5, "Cross-Platform Issues," on page 151

18.1.1 Requirements

Ensure that your source server and target server meet the following requirements:

Source Server Requirements

- NetWare 6.5 SP8

Target Server Requirements

- OES 11 SP3 server with AFP. For instructions, see "Installing and Setting Up AFP" in the *OES 11 SP3: Novell AFP for Linux Administration Guide*.
- The NSS data should already be migrated. For details, see Chapter 16, "Migrating File Systems to OES 11 SP3," on page 97

18.1.2 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 16.

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 16.6.2, "Migrating Data to a Server in a Different Tree," on page 112 and "Installing and Setting Up AFP" in the *OES 11 SP3: Novell AFP for Linux Administration Guide*.

18.1.3   Migration Procedure

You can perform the AFP configuration by using the Migration Tool or the command line interface.

NOTE: Before migration, manually edit the `afptcpd.conf` file and set the number of threads within the valid range. For more information, see "Modifying the Thread Range" on page 150.

- ◆ "Modifying the Thread Range" on page 150
- ◆ "Using the Migration Tool to Migrate" on page 150
- ◆ "Using Command Line Utilities to Migrate" on page 150

Modifying the Thread Range

With OES 11 SP2 and later, the valid thread range is as follows:

- ◆ Minimum threads: 3 to 32, default value: 3
- ◆ Maximum threads: 4 to 512, default value: 32

Before migration, manually edit the `afptcpd.conf` file and set the number of threads within the valid range, then proceed with the migration procedure. If it is not changed and the minimum or maximum threads is out of the range, then AFP server will use default number of threads.

Using the Migration Tool to Migrate

1 Click *Computer > More Applications > System > Novell Migration Tools* to access the Migration Tool.

2 Authenticate to the source and target servers.

3 Select *Novell AFP*, then click *Configure*. The AFP configuration window is displayed.

4 Click *Migrate* to begin the migration process.

Using Command Line Utilities to Migrate

To run the AFP migration utility through the command line, run `migafp` with the following 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 : `cn=user, o=company`).
`-w`	Admin password to authenticate to the source server.

For example:

```
migafp -s 10.10.10.1 -u cn=sourceadmin.o=novell -w password
```

18.1.4 Verifying the Migration

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 11 SP3 server context file).

2 Verify by running the command `rcnovell-afptcpd start`.

18.1.5 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:

* To synchronize the password of a first-time login user, authentication must happen using Diffie Hellman Exchange-2, Diffie Hellman Exchange, or Clear-text authentication method. To set the type of authentication, ensure that the authentication method (AUTH_UAM) option in the `/etc/opt/novell/afptcpd/afptcpd.conf` file is set to DHX2, DHX, cleartext.

  The automatic password synchronization will not occur if the user authenticates by using the Random Exchange or Two-way Random Exchange method of authentication.

* If you use the Diffie Hellman Exchange-2, Diffie Hellman Exchange, or Clear-text authentication method, the eDirectory service (ndsd) must be started with the environment variable NDSD_TRY_NDSLOGIN_FIRST set to TRUE.

If conditions above 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.

18.2 Migrating AFP to OES 11 SP3

This section describes how to migrate AFP from an OES 2 SP3 or OES 11 source server to an OES 11 SP3 target server.

Before you proceed with the migration, review Section 18.2.2, "Prerequisites," on page 152.

* Section 18.2.1, "What Is Migrated," on page 151
* Section 18.2.2, "Prerequisites," on page 152
* Section 18.2.3, "Modifying the Thread Range," on page 152
* Section 18.2.4, "Migration Procedure," on page 152
* Section 18.2.5, "Verifying the Migration," on page 153

18.2.1 What Is Migrated

* Server configuration information

- Volume Aliases information
- Contexts

18.2.2   Prerequisites

- OES 11 server is already installed and AFP is configured. For details, see the *OES 11 SP3: Novell AFP for Linux Administration Guide*.
- NSS Pools and volumes are already migrated to the new OES 11 SP3 server from the OES 2 server. Use the cluster migrate `resource_name node_name` command to migrate the cluster pools and volumes. For details, see "Using the Cluster Migrate Command" in the *OES 11 SP3: Novell Cluster Services for Linux Administration Guide*.
- Non-cluster NSS volumes are already migrated to the new OES 11 SP3 server from the OES 2 server. This can be done by unmounting the corresponding file system from the source machine and mounting it on the target machine.
- Before migration, manually edit the `afptcpd.conf` file and set the number of threads within the valid range. For more information, see Section 18.2.3, "Modifying the Thread Range," on page 152.

18.2.3   Modifying the Thread Range

With OES 11 SP2 and later, the valid thread range is changed to as follows:

- Minimum threads: 3 to 32, default value: 3
- Maximum threads: 4 to 512, default value: 32

Before migration, manually edit the `afptcpd.conf` file and set the number of threads within the valid range, then proceed with the migration procedure. If it is not changed and the minimum or maximum threads is out of the range, the AFP server will use the default number of threads.

18.2.4   Migration Procedure

1 Migrating Server Configuration information:

   Manual: Edit the `/etc/opt/novell/afptcpd/afptcpd.conf` in the source server and add support for DHX2 authentication and subtree search in the `AUTH_UAM` tag. After modifying the `afptcpd.conf` file, copy it from the source server to the target server.

   iManager: Using the iManager plug-in, enable support for DHX2 authentication and subtree search. For details, see "Administering the AFP Server" in the *OES 11 SP3: Novell AFP for Linux Administration Guide*.

2 Migrating Volume Alias information:

   Copy the volume file `/etc/opt/novell/afptcpd/afpvols.conf` from the source server to the target server.

3 Migrating Context information:

   Copy the context file `/etc/opt/novell/afptcpd/afpdircxt.conf` from the source server to the target server.

4 Restart the AFP service for the configuration changes to take effect.

5 After this migration, proceed with performing the service-specific proxy migration. For more information, see Chapter 32, "Migrating Proxy Users to OES 11 SP3," on page 261.

18.2.5 Verifying the Migration

Verify that the migration process is complete by checking for the following:

- NMAS methods for AFP are installed and synched to the tree. For details, see "Verifying LSM Installation" in the *OES 11 SP3: Novell AFP for Linux Administration Guide*.
- Log in to the AFP server and try accessing the data.

19 Migrating Novell Archive and Version Services to OES 11 SP3

Migration refers to the process of migrating the Novell Archive and Version services to target OES 11 SP3.

19.1 Migrating Novell Archive and Version Services to OES 11 SP3

This section provides information on how to migrate Novell Archive and Version Services running on OES 1 SP2, OES 2 SP3, or OES 11 to OES 11 SP3.

19.1.1 Prerequisites

* The Archive server is installed on the target server.
* The NSS file system is installed on the target 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.

19.1.2 Migration Scenario

Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. After successful completion of Transfer ID, 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 network.

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 located at `/etc/opt/novell/arkmanager/conf/`.
- Database records from the source PostgreSQL database to the target PostgreSQL database.

19.1.3 Migration Procedure

1 Install the OES 11 SP3 server as the target server for the Archive and Version Service into the same eDirectory tree as the source server.

For more information, see "Setting Up Archive and Version Services " in the *OES 11 SP3: Novell Archive and Version Services Administration Guide*.

2 Run the /opt/novell/arkmanager/*<backup script>* file on the source server. For information about the backup script, see Section 19.1.5, "Back up Script," on page 157.

3 Copy the configuration files.

4 Using the Migration Tool, migrate the data from the archive volume to the target server, retaining the same volume name and directory structure.

5 Using the Migration Tool, migrate the date data from the primary volume to the target server retaining the same volume and directory structure. For more information, see "Using the Migration Tool GUI" on page 160.

The archive admin is the proxy user. No specific proxy scripts are required for proxy migration.

19.1.4 Post-Migration Procedure

1 Before restarting the Archive server, ensure the following:

- Migration of the Archive volume is successful.
- (Optional) Migration of the 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 the `arkConfig.xml` file to update the Archive volume path under the `archivePath` tag on the OES 11 server.
- Ensure that the admin is a member of the novlxtier group. For more information, see "Caveats on Upgrading from OES 2 to OES 11 SP3" in the *OES 11 SP3: Novell Archive and Version Services 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 see if the ARK volume has the read-only attribute, enter `attrib /media/nss/ARK`. The output of this command includes the read-only (`ro`) attribute.

  To delete the read only attribute, enter `attrib -c ro /media/nss/ARK`.

2 To start the Archive Service on OES 11 SP3 server, enter:

```
rcnovell-ark start
```

3 Run `/opt/novell/arkmanager/<restore` script>. For information about the backup script, see Section 19.1.6, "Restore Script," on page 157.

Verifying the Migration

To verify that the migration completed successfully, check the availability of file versions by using the NSS File Version Utility.

19.1.5 Back up Script

Before you upgrade to OES 11 SP3, run the script to back up the Archive database on the OES 2 server. The user must have execute permissions to run the script. The script backs up the archive database to the `arkdatabackup.sql` file.

1 Save the following script to a file, then run the file on the terminal:

```
#!/bin/bash
set -e
echo
echo "Backing up Archive Versioning archive_database"
echo

ARKUSER=arkuser
DATABASE=archive_database
DATA_PATH=`cat /etc/opt/novell/arkmanager/conf/arkdatadir.conf`
BACKUPFILE=$DATA_PATH/arkdatabackup.sql

echo "Provide password for $ARKUSER"
su $ARKUSER -c "pg_dump --clean $DATABASE > $BACKUPFILE"
```

You are prompted for the arkuser password.

NOTE: If the `arkdatabackup.sql` file is empty, repeat Step 1 to generate the contents.

19.1.6 Restore Script

When upgrading to the OES 11 SP3 server, you must restore the Archive database in order for Archive and Version Service to be available. The user must have execute permissions to run the script. The script restores the archive database from the `arkdatabackup.sql` file to the OES 11 SP3 server.

1 Configure Archive Version and Services using the same credentials used on the OES 2 server.

2 Save the following script to a file, then run the file on the terminal:

```
#!/bin/bash
set -e
echo
echo "Restoring Archive Versioning archive_database"
echo

ARKUSER=arkuser
DATABASE=archive_database
DATA_PATH=`cat /etc/opt/novell/arkmanager/conf/arkdatadir.conf`
BACKUPFILE=$DATA_PATH/arkdatabackup.sql
LOGFILE=$DATA_PATH/restorelog.txt
PORT=543
HOST=localhost

if [ -z DATA_PATH ]
then
  echo "Unable to locate $DATABASE location"
  exit 1;
else
  echo "Provide password for $ARKUSER"
  su $ARKUSER -c "psql -f $BACKUPFILE -d $DATABASE -h $HOST -p $PORT"
>>$LOGFILE 2>&1
fi
```

You are prompted for the arkuser password.

After successful restoration of the archive database, the file versions are available on the OES 11 SP3 server.

19.2 Migrating Novell Archive and Version Services from NetWare to OES 11 SP3

This section provides information on how to migrate Novell Archive and Version Services running on NetWare 6.5 SP8 to OES 11 SP3. In this section, the NetWare server is referred to as the source server and the OES 11 SP3 server is referred to as the target server.

For general information on the OES 11 SP3 Migration Tool, see Chapter 1, "Overview of the Migration Tools," on page 15.

- Section 19.2.1, "Prerequisites," on page 158
- Section 19.2.2, "Migration Scenarios," on page 159
- Section 19.2.3, "Migration Procedure," on page 159
- Section 19.2.4, "Post-Migration Procedure," on page 162

19.2.1 Prerequisites

- The Archive server is installed on NetWare 6.5 SP8. For more information, see *NW 6.5 SP8: Novell Archive and Version Services 2.1 Administration Guide*.
- Install the NSS file system on the OES 11 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.

19.2.2 Migration Scenarios

Migrate - Same Tree

In the Migrate scenario, the data and configuration on the source server is overwritten.

Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. After a successful completion of Transfer ID, 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 network.

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 the `arkConfig.xml` file.
- Database records from the MySQL database to the PostgreSQL database.

19.2.3 Migration Procedure

1 Install the OES 11 server as the target server for the Archive and Version Services into the same eDirectory tree as the source server.

   For more information, see "Setting Up Archive and Version Services " in the *OES 11 SP3: Novell Archive and Version Services Administration Guide*.

2 To stop the Archive and Version Services on the 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 the Archive volume on the NetWare server to the OES 11 server.

   The migration is from the NetWare NSS source volume to the OES 11 NSS target volume, where the source and target servers are in the same eDirectory tree. For more information, see *OES 11 SP3: NSS File System Administration Guide for Linux*.

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 the OES 11 server.

6 (Optional) Migrate data from the Primary volume on the NetWare server to the OES 11 SP3 server, using either command line utilities or the GUI interface. For more information, see *OES 11 SP3: NSS File System Administration Guide for Linux*.

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 160
- ◆ "Using the Command Line" on page 161

Using the Migration Tool GUI
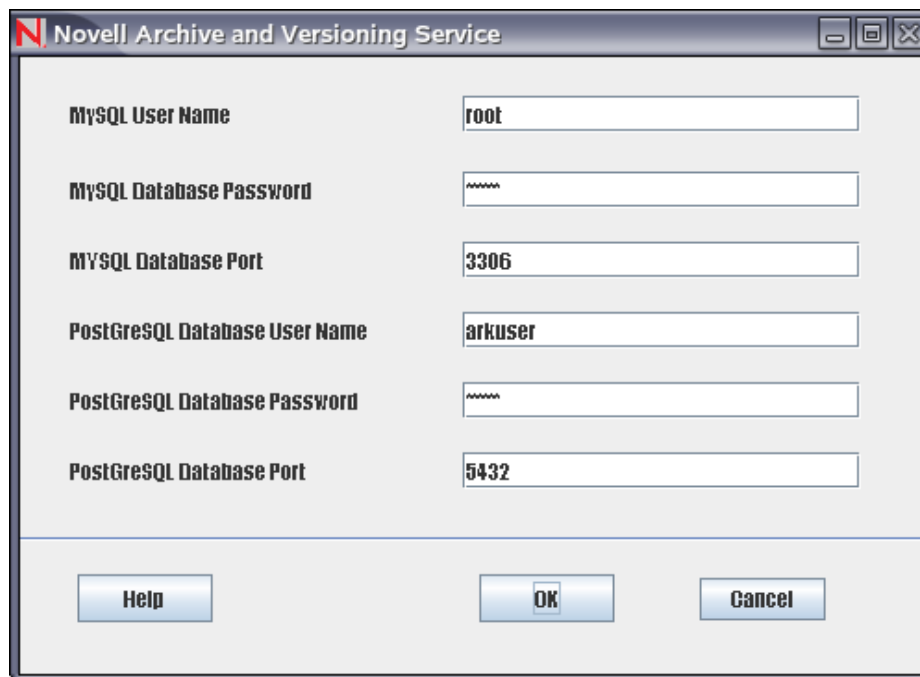
1 Click *Computer> More Applications> System > Novell Migration Tools* to launch the Migration Tool GUI.

For more information, see Chapter 5, "Using the Migration Tool GUI," on page 45.

2 Authenticate to the source and target server. Archive and Version Services is listed in the *Service* panel.

Select the *Migration Type* as *Migrate* for migrating the Archive service, or to Transfer ID for the Transfer ID scenario.

3 In the *Services to Migrate* panel, click *Add*, then select *Novell Archive and Versioning Services*.

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

4 Select *Novell Archive and Versioning Service*, then click *Configure.*

5 Fill in the fields, using the information in the following table:

Parameter	Description
MySQL User Name	Specify a user name for the administrator of the MySQL database on the source server.
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 user name for the administrator of the archive database (the PostgreSQL database for the archived data) on the OES 11 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 11 server. Port 5432 is the default.

6 Click *OK*.

The *Status* of the service is *Ready*.

7 Click *Start* to proceed with the migration. The *Status* is *Migrating*.

In the *Status* pane, *Service* tab, you can view the progress of the migration. After the migration completes, the *Status* changes to *Migrated*.

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

Using the Command Line

1 To run the Archive and Version migration utility through the command line, run `/opt/novell/migration/bin/migark.sh` with the following details:

Option	Description
--mysqldb-user=<opt>	Specify a user name for the administrator of the MySQL database.
--mysqldb-passwd=<opt>	Specify a password for the MySQL user.
--mysqldb-port=<opt>	Specify a port number used for the archive database communications on the NetWare server. Port 3306 is the default.
--hostname=<opt>	Specify the host name or IP address of the NetWare server on which Archive and Version Services resides.
--username=<opt>	Specify the fully distinguished eDirectory name and context of the administrator user. For example, cn=admin.o=novell **NOTE:** Use the dot (.) format for specifying the eDirectory name and context, not the comma (,) format.
--password=<opt>	Specify a password for the Admin user.

Option	Description
--pg_db-user=<opt>	Specify a user name for the administrator of the archive database (the PostgreSQL database for the archived data) on the OES 11 server. **IMPORTANT:** The Postgres user must be an unprivileged user, not the root user.
--pg-db-passwd	Specify a password for the PostgreSQL user.
--pg_db-port=<opt>	Specify a port number to use for the archive database communications on the OES 11 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 the migration, check the `archive_migration.log` file in the `/var/opt/novell/log/migration/` folder. After resolving the errors, execute the migration procedure again.

19.2.4 Post-Migration Procedure

1. Before restarting the Archive server, ensure the following:

   - Migration of the Archive volume is successful.

   - (Optional) Migration of the 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 the `archivePath` tag on the OES 11 server.

   - Ensure that the admin is a member of the novlxtier group. For more information, see "Caveats on Upgrading from OES 2 to OES 11 SP3" in the *OES 11 SP3: Novell Archive and Version Services 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 this command includes the read-only (`ro`) attribute.

     To delete the read-only attribute, enter `attrib -c ro /media/nss/ARK`

2. To start the Archive Service on OES 11 SP3 server, enter:

   ```
   rcnovell-ark start
   ```

Verifying the Migration

To verify that the migration completed successfully, check the availability of file versions by using the NSS File Version Utility.

20 Migrating CIFS to OES 11 SP3

Migration refers to the process of migrating CIFS to target OES 11 SP3.

20.1 Migrating CIFS from NetWare to OES 11 SP3

The NetWare to OES 11 SP3 CIFS migration process can be either initiated from the Migration Tool or through a command line utility. For more information about the Migration Tool, see Chapter 1, "Overview of the Migration Tools," on page 15. For more information about the command line utility, see Section 20.1.6, "Man Page for Migration," on page 169.

20.1.1 Migration Prerequisites

- The CIFS server is installed and configured on the source server on the following platforms:
  - NetWare 6.5 SP8

  For details about CIFS on a NetWare server, see the *NW 6.5 SP8: AFP, CIFS, and NFS (NFAP) Administration Guide*.
- The CIFS server is installed and configured on the target server (OES 11 SP3). For details, see "Installing and Setting Up CIFS" in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.
- NSS file system migration from the source to the target server is completed.

20.1.2 Migration Scenarios

The CIFS migration scenarios are explained in the following sections:

Migrate - 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 16.

Migrate - Different Tree

CIFS consolidation for a 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 16.6.2, "Migrating Data to a Server in a Different Tree," on page 112.

2 Re-configure CIFS on the target server. For more information, see "Setting the CIFS Server and Authentication Properties" in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

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 more information about this migration scenario, see Part IV, "Transfer ID Migration," on page 59.

What Is Migrated

The following table provides a quick overview of what is migrated from NetWare CIFS to OES 11 SP3 CIFS for the different scenarios:

Service supported	Consolidation		Transfer ID	
	Same Tree	Different Tree	Same Tree	Different Tree
Migrating CIFS shares	Yes	No	Yes	No
Migrating CIFS contexts	Yes	No	Yes	No
Migrating server configuration information	No	No	Yes	No

20.1.3 Migration Procedure

Follow the instructions in either of these sections to perform the CIFS migration:

- ◆ "Using the Migration Tool" on page 164
- ◆ "Using the Command Line" on page 166

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, then click *OK*.
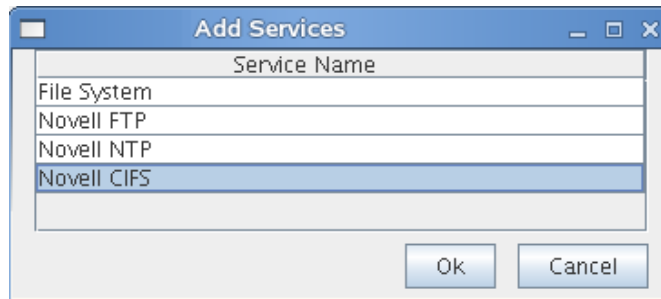
The *Status* is displayed as *Not Configured*.

3 Select *Novell CIFS*, then click *Configure* to configure the migration parameters.
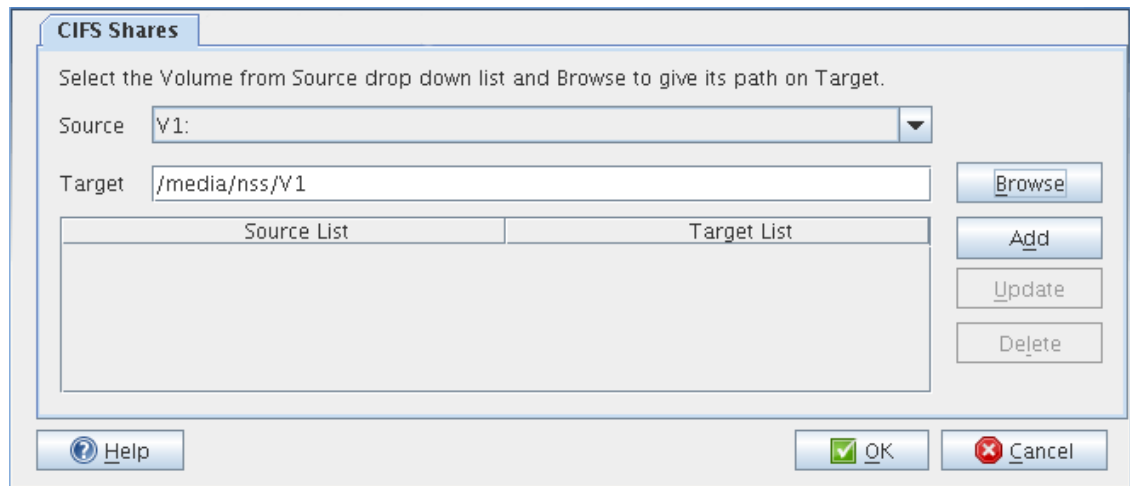
4 Under *CIFS Shares*, select the *Source* and *Target* shares for migration.

  • 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.

  • Use *Delete* to remove the share mappings.

When you have filled in the information, the dialog will be similar to the following:

CIFS Shares

Select the Volume from Source drop down list and Browse to give its path on Target.

Source: VOL1

Target: [   ]   Browse

Source List	Target List
ark	/media/nss/ARK
primary	/media/nss/PRIMARY
CIFS	/media/nss/CIFS
VOL1	/media/nss/VOL1

Add

Update

Delete

? Help   ☑ OK   ✖ Cancel
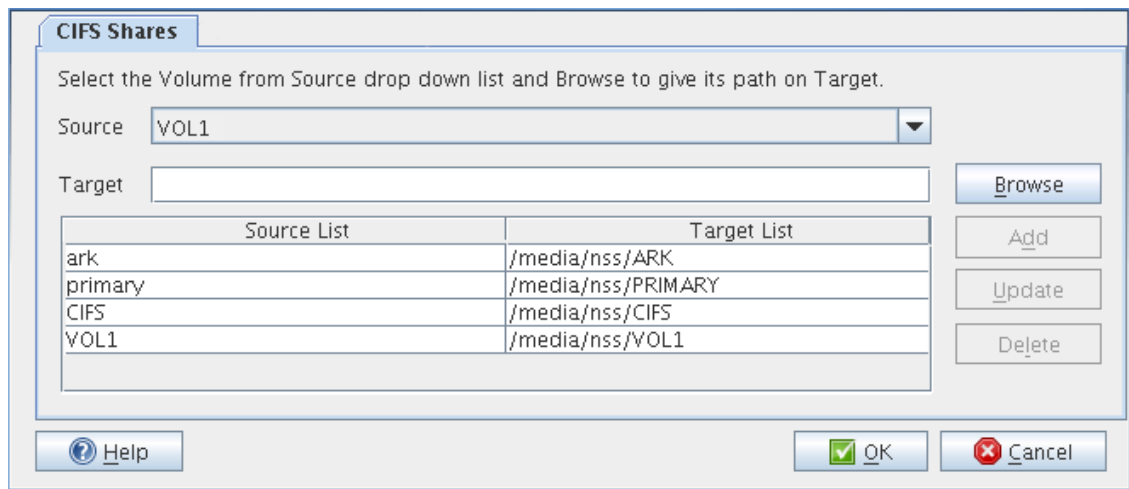
IMPORTANT: The Migration Tool does not support migration of CIFS shares on a cluster resource. After the file system migration, you will need to manually configure the CIFS shares on the target Linux system. For more information, see "Managing CIFS Shares " in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

5 Click *OK* to complete the configuration.

The *Status* is displayed as *Ready*.

6 Click *Migrate* to start the migration process. When you are prompted to save the project, click *Yes.*

7 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* > Service Information to look for errors during migration. If there are errors, fix them and restart the migration procedure.

Using the Command Line

CIFS migration requires the complete source and target server details.

1 Run the `migCifs` utility on the target server for migrating.

An example `migCifs` command is shown below. For details on the command, see Table 20-1 and see "migCifs" in Section 20.1.6, "Man Page for Migration," on page 169.

```
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 <cifssharemappings>]

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 <sourcecifsshares>] -
r
```

Table 20-1 *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>	Sets the Migration Type. 0 for Server to Server - Same Tree or Different Tree, 3 for Transfer ID, and 5 for Consolidation. For example, -S 0 or -S 3 or -S 5.
-m <mapfilename>	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. 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.
-c	Does not migrate CIFS Shares and Server Configuration information from the source. Migrates only the CIFS Context information.
-r	Removes the shares related to NetWare server from the target server after a Transfer ID migration. If -r is passed, migCifs considers it as repair mode and retries the server configuration migration. If -r is not passed, then migCifs considers it as 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.

20.1.4 Post-Migration Procedure

 ◆ "Restarting the CIFS Service" on page 168
 ◆ "Enabling the "Share volumes by default" Option" on page 168

Restarting the CIFS Service

1 Run the following command to restart the service:

```
rcnovell-cifs restart
```

Enabling the "Share volumes by default" Option

After the migration of CIFS service to OES 11 SP3, default shares will not be mounted by CIFS.

1 View the list of all available share points, using the command `novcifs -sl`.

2 Check the status of the "Share volumes by default" attribute, using the command `novcifs --list-servers`.

3 Enable the "Share volumes by default" attribute using the command `novcifs --share-vols-default=<netbios name of the physical or virtual server> --value=yes`.

For example, `novcifs --share-vols-default=BLR8-192.168_W --value=yes`.

20.1.5 Verifying the Migration

After the migration is complete, ensure that the CIFS service on the target server is available and running as it was on your NetWare server. This verifies that the migration has been successfully completed.

If the CIFS service is not running after the migration, see "Migration" in the *OES 11 SP3: 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.

You can verify these steps for a successful migration by using either iManager or command line options.

 ◆ "Using iManager to Verify the Migration" on page 168
 ◆ "Using CLI to Verify the Migration" on page 169

Using iManager to Verify the Migration

1 Open iManager on the target server.

2 Go to *File Protocols* > *CIFS*.

3 Browse to or specify the OES 2 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 server and now migrated to OES 11 SP3 server.

For details on CIFS administration through iManager, see "Using iManager to Manage CIFS."

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 11 SP3 server.

For details on CIFS administration through command line utilities, see "Using the Command Line to Manage CIFS" in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

20.1.6   Man Page for Migration

To access this man page with the command information, enter `man migCifs` at the command prompt.

- "migCifs(8)" on page 169

migCifs(8)

A command line utility that communicates with the source and target servers for migrating CIFS configuration information from NetWare to OES 11 SP3. The command must be run on a target server.

Syntax

Migrating the CIFS Service from NetWare to OES 11 SP3

```
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>]-t <source_treename>
```

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>

    IP address of the source server.

-p <portnumber>

    Port number of the source LDAP server.

-a <sourceFDN>

    Fully Distinguished Name (FDN) of the source server tree administrator.

-w <password>

    Password of the source server tree administrator.

-f <sec/nonsecConnType>

    Enables or disables SSL connection for the source LDAP server. Set 1 for SSL and 0 for non-SSL connection.

-d <targetIP>

    IP address of the target server.

-q <portnumber>

    Port number of the target LDAP server.

-b <targetFDN>

    Fully Distinguished Name (FDN) of the target server tree administrator.

-x <password>

    Password of the target server tree administrator.

-g <sec/nonsecConnType>

    Enables or disables the SSL connection for the target LDAP server. Set 1 for SSL and 0 for non-SSL connection.

-S <MigType>

    Sets the Migration Type. 0 for Server to Server - Same Tree or Different Tree, 3 for Transfer ID, and 5 for Consolidation. For example, -S 0 or -S 3 or -S 5.

-m <mapfilename>

    Full path of the file that contains the source and target server share mappings.

-t <source_treename>

    Tree name of the source.

-c

    Does not migrate CIFS Shares and Server Configuration information from the source. Migrates only the CIFS Context information.

-r

Removes the shares related to the NetWare server from the target server after a Transfer ID migration. If -r is passed, migCifs considers it as repair mode and retries the server configuration migration. If -r is not passed, then migCifs considers it as 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 -t novelltree
```

Authors

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See Also

novcifs(8)

Report Bugs

To report problems with this software or its documentation, go to http://bugzilla.novell.com.

20.2   Migrating CIFS to OES 11 SP3

This section describes how to migrate CIFS from an OES 2 SP3 or OES 11 environment to OES 11 SP3.

Before you proceed with the migration, review Section 20.2.2, "Prerequisites," on page 172. In this section, the source server refers to an OES 2 SP3 or OES 11 server, and the target server refers to an OES 11 SP3 server.

20.2.1   What Is Migrated

- Server configuration information
- Shares
- Contexts

20.2.2   Prerequisites

- OES 11 server is already installed and CIFS is configured. For more information, see the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.
- NSS Pools and volumes are already migrated to the new OES 11 SP3 server from the OES 2 server. Use the cluster migrate `resource_name node_name` command to migrate the cluster pools and volumes. For details, see "Using the Cluster Migrate Command" in the *OES 11 SP3: Novell Cluster Services for Linux Administration Guide*.
- Non-cluster NSS volumes are already migrated to the new OES 11 SP3 server from the OES 2 server. This can be done by unmounting the corresponding file system from the source machine and mounting it on the target machine.

20.2.3   Migration Procedure

1 Migrating Server Configuration information:

   In the case of ID Swap, on the target server using iManager, replicate the following server properties:
   - Name
   - Comment
   - Domain/Workgroup
   - Support for Oplocks
   - Support for DFS
2 Migrating Share information:

During the migration process, all shares except the shares that have been manually added are migrated. To replicate the shares that are manually added, use the CIFS iManager plug-in. For more information, see "Managing CIFS Shares " in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

3 Migrating Context information:

Manual: Copy the context file `/etc/opt/novell/cifs/cifsctxs.conf` from the source server to the target server.

iManager: Using the CIFS iManager plug-in, replicate the CIFS user's context. For details, see "Configuring a CIFS User Context" in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

NOTE: After completing the migration, ensure that you reconfigure the CIFS service using yast2 novell-cifs or the iManager Add Context task to add the contexts to the cifsctxs.conf file, before you enable the subtree search feature.

---

4 Copying the CIFS configuration file:

Copy the `/etc/opt/novell/cifs/cifs.conf` file from the source to the target server.

CIFS configuration settings are stored in eDirectory and configuration files. During Transfer ID migration, the settings in eDirectory are migrated automatically, whereas the settings stored in the configuration files are not. To migrate them manually, copy the `cifs.conf` file to the target server.

5 Restart the CIFS server using the `rcnovell-cifs restart` command.

6 Proceed with the proxy migration. For services using the common proxy, see "Services that Are Using Common Proxy" on page 261. For services using the service specific proxy, see "Services that Are Using Service-Specific Proxy" on page 263.

20.2.4 Post Transfer ID Migration Procedure

◆ "OES 2 SP3 or OES 11 to OES 11 SP3" on page 173

OES 2 SP3 or OES 11 to OES 11 SP3

After performing the migration steps in "Transfer ID Migration Procedure" on page 261, perform the following tasks:

◆ "Restarting the CIFS service" on page 173

◆ "Re-enabling Pass-through Information Levels Capability" on page 174

◆ "Enabling the "Share volumes by default" Option" on page 174

Restarting the CIFS service

1 Run the following command to restart the service:

```
rcnovell-cifs restart
```

Re-enabling Pass-through Information Levels Capability

1 If you have enabled pass-through information levels capability on the target server, copying the `cifs.conf` file might overwrite the settings. To re-enable it on the target server after the migration is complete, run the `novcifs -info-level-passthru=yes` command.

Enabling the "Share volumes by default" Option

After migration of the CIFS service to OES 11 SP3, default shares will not be mounted by CIFS.

1 View the list of all available share points, using the command `novcifs -sl`.

2 Check the status of the "Share volumes by default" attribute, using the command `novcifs --list-servers`.

3 Enable the "Share volumes by default" attribute, using the command `novcifs --share-vols-default=<netbios name of the physical or virtual server> --value=yes`.

For example, `novcifs --share-vols-default=BLR8-192.168_W --value=yes`.

20.2.5   Verifying the Migration

After you have migrated the Novell CIFS services to the OES 11 SP3 target, verify that the migration process is complete by doing the following:

- ◆ Verify that the NMAS methods for CIFS are installed and synchronized to the tree. For details, see "Verifying LSM Installation" in the *OES 11 SP3: Novell CIFS for Linux Administration Guide*.

- ◆ Log in to the CIFS server and attempt to access the data.

21 Migrating DHCP to OES 11 SP3

Migration refers to the process of migrating the Novell DHCP Services running on NetWare or Open Enterprise Server (OES) 2 to OES 11.

For general information about the OES 11 Migration Tool, see Chapter 1, "Overview of the Migration Tools," on page 15.

21.1 Migrating DHCP from NetWare to OES 11 SP3

In these sections, the NetWare server is referred to as the source server and the OES 11 SP3 server as the target server.

21.1.1 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 the 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; otherwise, the leases might not function properly.

❑ Use the following source NetWare platform for the migration process:

- NetWare 6.5 SP8

21.1.2 Migrating DHCP

To migrate the DHCP Services, you can use the Migration Tool or the command line interface.

Understanding the Migration Process

Ensure that you install the OES 11 SP3 server as the target server for the DHCP Services. For more information, see "Installing and Configuring DHCP " in the *OES 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

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:** You can specify the name of the DHCP server in the *Server Name* field under the *Target Options* tab.

❒ **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 *Service Context* field during migration. The dhcpService object name can be specified in the *Service Name* field under the *Target Options* tab.

For a subnet-level Migration, the subnets are created inside an existing dhcpService object on the target server. Specify the existing dhcpService object in the *Service Context* 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 at the `/var/lib/dhcp/db` location. This lease file contains details for every IP address leased.

❒ **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.

Using the Migration Tool to Migrate Servers

1 Open the Migration Tool GUI using the instructions in "Launch the Migration Tool Utility" on page 45.

2 Follow the Migration Process to start the process.

3 Click *Add* in the *Services to Migrate* panel, then select the *Novell DHCP Service*.
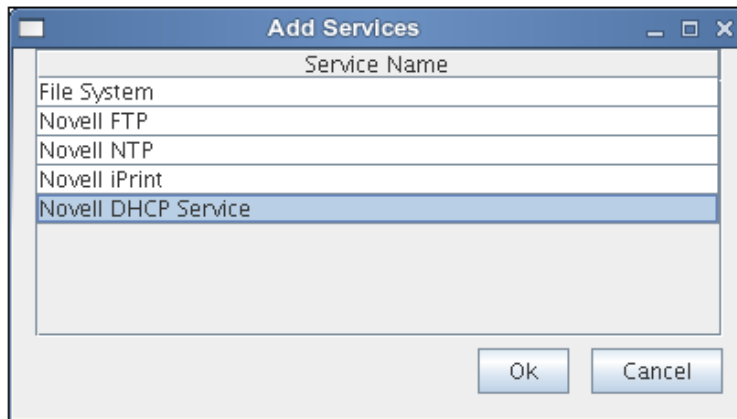
4 Click *OK*, then click *Configure*. The DHCP configuration window displays.

5 DHCP provides migration at the following levels:

- ◆ "Server Level" on page 179
- ◆ "Subnet Level" on page 181
- ◆ "Tree Level" on page 182

Configuring DHCP Options

The DHCP configuration window consists of three tabs:

- ◆ Source Options
- ◆ Target Options
- ◆ Reverse Zone Selection

Source Options

This tab lets you choose the level of migration that you want to use:

- ◆ Server Level
- ◆ Subnet Level
- ◆ Tree Level

Target Options

This tab lets you choose the DHCP options for each level of migration. The following table lists the fields in the target options tab:

Table 21-1 *DHCP Configuration fields*

Field	Description
Server Context	Context of the target DHCP server object.
Server Name	Name of the target DHCP server object.
Service Context	Context of the target DHCP service object.
Service Name	Name of the target DHCP service object.
Locator Object	Distinguished name of the dhcpLocator object in the target tree.
Group Object	Distinguished name of the DHCPGroup object in the target tree.
Lease file location	Lease file name with absolute file path where the NetWare DHCP dynamic leases are migrated.

Reverse Zone Selection

Reverse zones are used for reverse lookups. It finds the DNS name associated with the IP address. Use this tab to select the available reverse zones on the source to be migrated to the target.

NOTE: The forward zones associated with a subnet in a DDNS setup are automatically migrated. The forward zones are not required to be selected exclusively in this scenario.

The following table lists the fields in the DHCP configuration window:

Table 21-2 *DHCP Configuration fields*

Field	Description
Server DN	The distinguished name of the DHCP server to be migrated.
Subnet DN	The distinguished name of the subnet to be migrated.
Base DN	The distinguished name of the container on the target tree where the configuration is to be migrated. **NOTE:** For tree-level and server-level migration, Base DN is a container such as Organization, Organization Unit, or Domain. 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.
Locator DN	The distinguished name of the dhcpLocator object in the target tree. **NOTE:** Not applicable for a subnet-level migration.
Group DN	The distinguished name of the DHCPGroup object in the Target tree. **NOTE:** Not applicable for a subnet-level migration.

Field	Description
Lease file	The path and file name for the leases to be migrated. All the dynamic IP addresses on NetWare are mapped to a lease file entry in this file. **NOTE:** Not applicable for tree-level and server-level migration.

Migration Methods

You can choose to migrate DHCP services by any of the following methods:

- Server Level
- Subnet Level
- Tree Level

Server Level

In the Server Level migration, the selected NetWare DHCP server is migrated to the OES 11 SP3 server. You can choose to migrate only one server at a time.

NOTE: Refer to Table 21-2 on page 178 for DHCP configuration field descriptions.

1 In the *Source Options* tab of the DHCP migration window, select the *Server level* option.
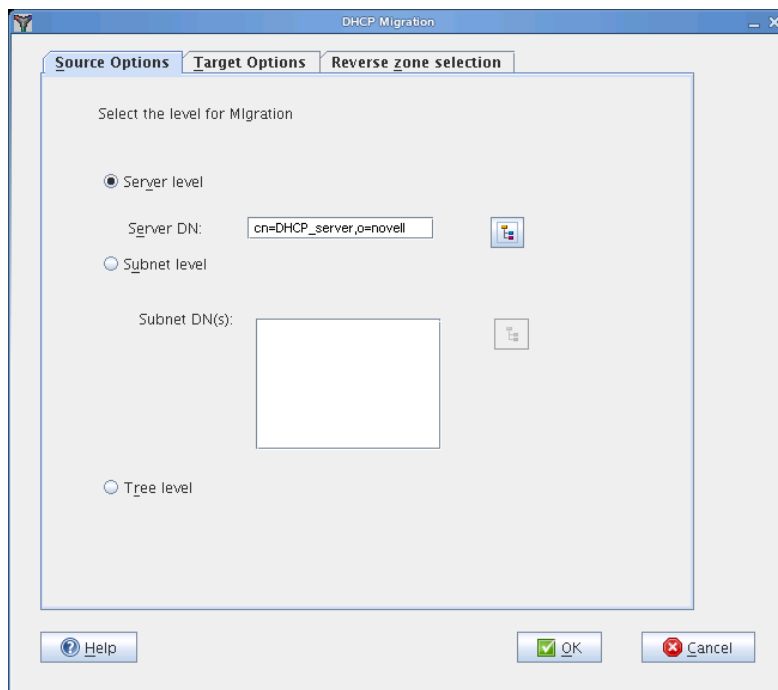
2 Click *Browse* to select the *Server DN*.

Server DN: The Server DN is the distinguished name of the server to be migrated. You can browse to the Source tree (only containers and server objects are displayed) to locate the server to be migrated. Select the server object and click *OK*. If the selected object is not a DHCP server, then a warning is displayed.

3 In the *Target Options* tab, click *Browse* to select the *Server Context*.
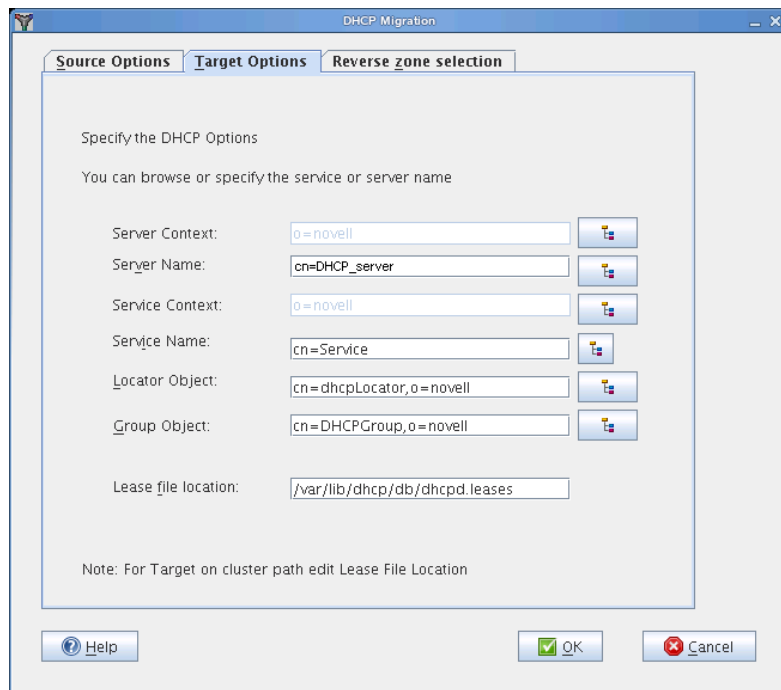
4 Click *Browse* to select the existing *Server Name* or add the new server name that you want to migrate.

For more information, see "Server Management" in the *OES 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

5 Click *Browse* to select the *Service Context*.

6 Click Browse to select the existing *Service Name* or add the new service name that you want to migrate.

7 Click *Browse* to select the *Locator Object*.

8 Click *Browse* to select the *Group Object*.

9 Specify the *Lease file location*.

10 In the *Reverse Zone Selection* tab, select the reverse zones in *Available Reverse Zones*. Click *Add* to add all the selected zones. Use the Ctrl key to select multiple zones.
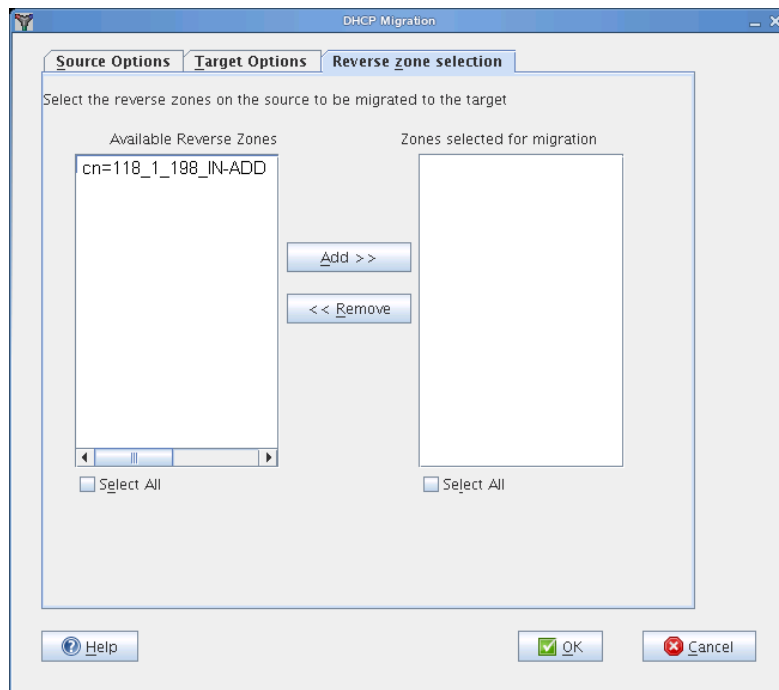
11 Click OK to complete the configuration.

Subnet Level

In the Subnet Level migration, the selected subnets associated with the NetWare DHCP server are migrated to the OES 11 SP3 server. The subnet objects are created inside the dhcpService object on the Linux server. After migration, the subnet is identified by its IP address. You can choose to migrate multiple subnets at a time.

NOTE: See Table 21-2 on page 178 for DHCP configuration field descriptions.

1 In the *Source Options* tab of the DHCP migration window, select the *Subnet Level* option.

2 Click Browse to select the *Subnet DN(s)*. Use the Ctrl key to select multiple subnets.

Subnet DN(s): The Subnet DN is the distinguished name of the subnets to be migrated.

You can browse to select one or more subnets. The selected subnets are displayed in the list box. If an incorrect container is selected, then a warning is displayed.

3 In the *Target Options* tab, click *Browse* to select the *Service Context*.

4 Click *Browse* to select the existing *Service Name* that you want to migrate.

The *Server Context*, *Server Name*, *Locator Object*, and *Group Object* options are not applicable for subnet level migration.

5 Specify the *Lease file location*.

6 In the *Reverse Zone Selection* tab, select the reverse zones in *Available Reverse Zones*. Click *Add* to add all the selected zones. Use the Ctrl key to select multiple zones.

7 Click *OK* to complete the configuration.

Tree Level

In the Tree Level migration, all the NetWare DHCP servers in the tree are migrated to the OES 11 SP3 server.

NOTE: See Table 21-2 on page 178 for DHCP configuration field descriptions.

---

1 In the *Source Options* tab of the DHCP migration window, select the *Tree Level* option.

2 In the *Target Options* tab, click *Browse* to select the *Server Context*.

3 Click *Browse* to select the *Service Context*.

The *Server Name* and *Service Name* options are displayed by default, but they are disabled.

4 Click *Browse* to select the *Locator Object*.

5 Click *Browse* to select the *Group Object*.

6 Specify the *Lease file location*.

7 Click *OK* to complete the configuration.

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.
-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 for the server on the destination tree.
-m	Base DN for the service on the destination tree.
-r	1 for source SSL bind, 0 for source non-SSL bind.
-u	1 for destination SSL bind, 0 for destination non-SSL bind.

Option	Description
-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=novel1,o=novell
	cn=subnet3,ou=novell2,o=novell
-c	Absolute path of the file where you want to store the lease file information.
-E	DHCP server object name on the Target server (required only for server-level migration).
-S	DHCP service object name on the Target server (required only for server-level migration).
-z	Full path of the file containing the Reverse Zone DNs.

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 server -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`

21.1.3 Migration Scenarios

DHCP migration supports two scenarios:

For more information about these scenarios, see "Support Matrix for NetWare and OES Services" on page 18.

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 server.

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.

Consolidation

In this scenario, the configuration data associated with the source server is associated with a single target server. DHCP Consolidation migration can be performed at the tree, server, or subnet-level.

21.1.4 Migrating a Cluster

There are two scenarios for migrating clusters:

- "NetWare and Linux Clusters Attached to the Same Tree" on page 184
- "NetWare and Linux Clusters Attached to Different Trees" on page 184

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 11 SP3 server are on the same eDirectory tree. The NetWare source server must be running NetWare 6.5 SP8. The Linux target server must be running SUSE Linux Enterprise Server (SLES) 11 SP4 with OES 11 SP3 on 64-bit hardware.

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 11 server are on different eDirectory trees. The NetWare source server must be running NetWare 6.5 SP8. The Linux target server must be running SUSE Linux Enterprise Server (SLES) 11 SP4 with OES 11 on 64-bit hardware.

21.1.5 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. Check the lease file at the `/var/lib/dhcp/db/dhcpd.leases` folder.
3. To use DDNS after a subnet-level migration, add the following settings to the DHCP Server Object:
   - ddns-rev-domainname in-addr.arpa
   - ddns-update-style interim
   - client-updates deny
   - update-optimization false

   NOTE: DDNS updates are required only when you migrate to an existing DHCP server.

4 Start the OES 11 DHCP server by using the `rcnovell-dhcpd start` command.

5 Continue with "Cluster Migration from NetWare to Linux" on page 185 and "Running a Preexisting DHCP Server" on page 185 as necessary.

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`.

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 Java Management Console.

2 Click the DHCP (OES Linux) tab.

3 From the left pane in the Java Management console, select the service object that was created after migrating the NetWare server.

4 Associate this service object with the existing DHCP server.

21.1.6 Verifying the Migration

To verify the migration, use Java Console 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.

Verify that leases are present:

❑ For a tree-level, server-level, or subnet-level migration, the lease file name and location are provided by the user. Ensure that the expected files are present in the specified location.

21.2 Migrating DHCP to OES 11 SP3

In this section, the source server refers to an OES 2 SP3, or OES 11 server and the target server refers to an OES 11 SP3 server.

21.2.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DHCP to the new platform.

- "Requirements" on page 186
- "Supported Platforms" on page 186

Requirements

- 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 the creation of the dhcpLocator and DHCPGroup objects.
- If the target server is in a different subnet, ensure that you create a subnet in the target server before migration.

Supported Platforms

The following platforms are valid source platforms for the migration process:

- OES 2 SP3
- OES 11
- OES 11 SP1
- OES 11 SP2
- OES 11 SP3

21.2.2 Migration Scenarios

To migrate DHCP to the new platform, you can use the Java Management Console. During migration, the configuration details as well as the data are migrated to the destination platform.

NOTE: To enable DHCP to autostart after a successful migration, execute the `chkconfig -a dhcpd` command on the source server.

- "Migrating Servers within the Same eDirectory Tree" on page 186
- "Migrating Servers Across eDirectory Trees" on page 187

Migrating Servers within the Same eDirectory Tree

1 Launch Java Console.

2 Select the service container object that you want to migrate to the target DHCP server.

3 From the Default DHCP Server list in the General Tab, select the DHCP server object of the target machine.

4 Click *Save*.

5 Migrate the DHCP leases from OES 2 SPx to OES 11. To migrate the DHCP leases, copy the `/var/lib/dhcp/db/dhcpd.leases` file from the source OES 2 server to the corresponding location in the OES 11 server.

6. Perform Transfer ID. For more information, see .

7. After this migration, proceed with performing the service-specific proxy migration. For more information, see .

Migrating Servers Across eDirectory Trees

To migrate servers across eDirectory trees, you need to export the source server's DHCP configuration and import the DHCP configuration to the target server.

The import and export operation is used to transfer the DHCP service configuration from files into eDirectory or from eDirectory to a text file in a `dhcpd.conf` format respectively. Only Linux DHCP configuration files should be used to import or export the DHCP configuration.

NOTE: Before importing a DHCP configuration file, check the syntax of the file with the `rcnovell-dhcpd check-syntax` command. The command reads `/etc/dhcpd.conf` and checks the syntax.

Exporting the DHCP Configuration

The file is exported in a `dhcpd.conf` format. These files can be imported anywhere and can also be imported back to eDirectory by using the DNS/DHCP Java-based Management Console Utility.

1. Click the *DHCP (OES Linux)* tab of the Java Management Console.

2. Click *Export DHCP Database* on the toolbar to open the *Export - DHCP* window.

3. Specify the name of a destination file or browse to select a file name from the dialog box, then click *Next*.

4. Select the services by using the Export DHCP - Service List window.

5. Click *Export* to store your information in a file.

6. Click *Finish* to complete the export.

   If the export program encounters any error, the *Details* button is enabled in the error window. Click *Details* to view the error details.

Importing the DHCP Configuration

The configuration file to import should be in DHCP V3 format. Importing the Linux DHCP configuration file overwrites the associated DHCP server's settings.

To import the DHCP files:

1. Click the *DHCP (OES Linux)* tab of the Java Management Console.

2. Click *Import DHCP Database* on the toolbar.

3. Click *Browse* to select or specify the path for the DHCP database file.

4. Click *Next* to open the Import - File Input window.

5. Specify the service name in the *Service Name* text box.

6. In the Select NDS Context text box, browse to select or enter the context where the service is to be created.

7 (Optional) Select a *Default DHCP Server* from the drop-down list.

8 Click *Import*.

9 Click *Finish* to complete the import operation.

If the import program encounters any error, the *Details* button is enabled in the error window. Click *Details* to view the error details.

Migrating DHCP Leases from OES 2 SP3 or OES 11 to OES 11 SP3

To migrate the DHCP leases from OES 2 SP3 or OES 11 to OES 11 SP3, copy the `/var/lib/dhcp/db/dhcpd.leases` file from the source OES 2 server to the corresponding location in the OES 11 server.

21.2.3   Post-Migration Procedure

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.

21.2.4   Verifying the Migration

1 Check the syntax of the dhcp configuration file with the rcnovell-dhcpd check-syntax command. The command reads `/etc/dhcpd.conf` and checks the syntax.

2 Start the target OES 11 server dhcp server using the following command:

```
rcnovell-dhcpd start
```

3 Verify the `/var/log/dhcp-ldap-startup.log` file to check the dhcp configuration of the migrated server.

22 Migrating DNS to OES 11 SP3

Migration refers to the process of migrating DNS services to OES 11 SP3.

22.1 Migrating DNS from NetWare to OES 11 SP3

In these sections, the NetWare server is referred to as the source server and the OES 11 SP3 server as the target server.

The following sections give you more information on the prerequisites and the procedure to migrate source servers based on different scenarios:

22.1.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DNS to the new platform:

System Requirements

❒ An eDirectory integrated DNS server is installed on the target machine.

> **NOTE:** In a Server ID Swap scenario, do not select the *Create DNS Server* option. This avoids the creation of the DNS server for the temporary NCP server. So when migration is completed, the existing DNS server objects are considered.

❒ 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.

Supported Platforms

The following platforms are accepted as valid source platforms for the migration process:

❏ NetWare 6.5 SP8

Coexistence

OES 11 can coexist with the following operating systems:

◆ NetWare 6.5 SP6
◆ SLES 11 SP1 and later

22.1.2 Migration Scenarios

To migrate DNS to the new platform, you can use the Java Management Console. During migration, the configuration details as well as the data are migrated to the destination platform.

Migrating Servers within the Same eDirectory Tree

In this scenario, both the NetWare server and the OES 11 SP3 server are on the same eDirectory tree.

Migrating Servers across eDirectory Trees

In this scenario, the NetWare server and the OES 11 SP3 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.

22.1.3 Migration Procedure

Using Java Console to Migrate Servers within the Same eDirectory Tree

1 Launch Java Console.
2 Identify the source NCP server and the corresponding DNS server object that should be migrated to the 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 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

3 Use Java Console 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 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

Using Java Console to Migrate Servers across eDirectory Trees

1 In Java Console, create the DNS server object. For more information, see the *OES 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

2 On the OES 11 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 the primary server.

Migrate primary zones on the OES 11 SP3 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 the primary and secondary server to initiate the 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 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 11 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.

22.1.4 Post-Migration Procedure

1 Use 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` using the `rcnovell-named start` command and check to see if the `/etc/opt/novell/named/named.conf` file contains zone database files with valid information.

3 Use the nslookup utility to query for records in zones.

22.2 Migrating DNS to OES 11 SP3

In these sections, the OES 2 SP3 or OES 11 server is referred to as the source server and the OES 11 SP3 server as the target server.

22.2.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DNS to the new platform.

System Requirements

◆ An eDirectory integrated DNS server is installed on the target machine.

NOTE: During DNS installation, do not select the *Create DNS Server* option. This avoids the creation of the DNS server for the temporary NCP server. So when migration is completed, the existing DNS server objects are considered.

◆ Schema extension is already done on the destination server tree and DNS-DHCP Group, and the RootServerInfo and DNS-DHCP Locator objects are created.

Supported Platforms

The following platforms are accepted as valid source platforms for the migration process:

◆ OES 2 SP3
◆ OES 11
◆ OES 11 SP1
◆ OES 11 SP2
◆ OES 11 SP3

22.2.2 Migration Scenarios

To migrate DNS to the new platform, you can use the Java Management Console. During migration, the configuration details as well as the data are migrated to the destination platform.

Migrating Servers within the Same eDirectory Tree

1 Launch Java Console.

2 Identify the source NCP server and the corresponding DNS server object that should be migrated to the target server.

The server and the server object will no longer exist on the OES 2 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 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

3 Use Java Console 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 11 SP3: Novell DNS/DHCP Services for Linux Administration Guide*.

4 After this migration, proceed with performing the service-specific proxy migration. For more information, see "Migrating Proxy Users to OES 11 SP3" on page 261.

Using Java Console to Migrate Servers across eDirectory Trees

You can migrate DNS across eDirectory trees by exporting the DNS database from the source server and importing the database to the target server.

Exporting the DNS Database

The export DNS database operation transfers the resource record data of a zone to a text file. The text file is in the DNS BIND master file format. These files can be used in other DNS servers, including BIND servers, or they can be imported back into the eDirectory database using the DNS/DHCP Java-based Management Console.

1 In the DNS Service window, select the zone you want to export, then click *Export DNS Database* on the toolbar.

2 In the Export - DNS window, enter the name of a destination file or browse to select a file name from the dialog box.

3 Click *Export* to store your zone data in a file.

4 If the export program encounters any error, the Details button is enabled. Click *Details* to view the error details.

Importing the DNS Database

The import DNS database operation transfers resource record data present in the BIND formatted DNS zone files into the eDirectory database.

1 In the DNS Service tab, click *Import DNS Database* on the toolbar.

2 Enter the DNS BIND formatted file name in the field provided. You can also browse to select the file name from the File Selection dialog box.

3 Click *Next* to select the context where the zone objects will be created.

4 Click *Next* to select the server name that manages the zone.

You can select an existing DNS server or an NCP server, where the DNS server object will be created. The selected DNS server must have the DNS/DHCP services installed in it.

If you select the zone type as primary, this DNS server will act as a designated primary. If you select the zone type as secondary, this DNS server will act as a designated secondary. If you do not want to assign a DNS server for this zone, leave this field empty.

5 Click *Next* to specify the zone type.

If you select the zone type as primary, Novell DNS servers act as primary servers for this zone. If you select secondary, servers act as secondary DNS servers.

6 Click *Next* to view the configuration that you selected.

7 Click *Import* to begin importing with this configuration.

If the import program encounters any error, the Details button is enabled. Click *Details* to view the error details. Some resource records might not have been transferred because of incorrect data. Click *Create* on the toolbar to recreate these resource records.

8 Click *Finish* to complete the import operation.

22.2.3 Post-Migration Procedure

1 Use 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` using the `rcnovell-named start` command and check to see if the `/etc/opt/novell/named/named.conf` file contains zone database files with valid information.

3 Use the nslookup utility to query for records in zones.

23 Migrating DSfW to OES 11 SP3

This section describes how to migrate DSfW to an OES 11 SP3 environment. DSfW on OES 11 supports the migration of DSfW servers existing on a 32-bit OES 2 server to an OES 11 SP3 server.

NOTE: The migration procedure described in this section is applicable only for the migration of an OES server acting as a DSfW server.

Before you proceed with the migration, review Section 17.1, "Planning Your Migration," on page 143.

- Section 23.1, "Planning Your Migration," on page 195
- Section 23.2, "Migration Procedure," on page 196
- Section 23.3, "Post-Migration Procedure," on page 198

23.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DSfW:

- Section 23.1.1, "Supported Platforms," on page 195
- Section 23.1.2, "Prerequisites," on page 195
- Section 23.1.3, "What Is Migrated," on page 196

23.1.1 Supported Platforms

Source Platforms

The following platforms are valid source platforms for the migration process:

- OES 2 SP3
- OES 11
- OES 11 SP1
- OES 11 SP2
- OES 11 SP3

Target Platform

- OES 11 SP3

23.1.2 Prerequisites

Before you proceed with the migration, review the details in Section 9.1, "Prerequisites," on page 61. For a successful migration:

- The source server and the target server must be in the same eDirectory tree.

- Ensure that the time is synchronized between the source and the target server.
- The source and target servers must be in the same subnet and gateway.
- The target server must be a non-replica server in the eDirectory tree. To make the target server a non-replica server, select the *Novell Pre-migration Server* option while installing OES 11 SP3 on the target server.
- The target server DNS entry must point to the DSfW source server IP address.
- Host name of the target server should not be the same as any other server in the DSfW tree.

23.1.3 What Is Migrated

- DSfW configuration data present in eDirectory.
- Configuration files for DSfW services such as kerberos, samba, xad, and rsync.
- Non-DSfW services such as iPrint and NSS. Non-DSfW services need to be migrated according to the migration procedure for a particular service.

23.2 Migration Procedure

DSfW migration follows the Transfer ID migration process. For more information, see Part IV, "Transfer ID Migration," on page 59.

IMPORTANT: Ensure that you do not patch or register the migration server for updating before installing the *Novell Pre-migration Server* pattern and the DSfW pattern.

To perform the migration:

1 Install and configure eDirectory with the pre-migration pattern on the target server.

NOTE: Ensure that the target server is installed only with eDirectory and the Novell pre-migration pattern. Novell pre-migration and the eDirectory pattern must be installed using the Software Management tool provided by the YaST utility.

If services such as iPrint, NSS, and SMS are configured on the DSfW server that is migrated, then configuration data related to these services will also be migrated as part of the DSfW migration process. However, migration of service?specific data needs to be migrated according to the migration procedure for a particular service. For information on migrating iPrint, see Chapter 27, "Migrating iPrint to OES 11 SP3," on page 223. For information on migrating NSS, see Chapter 16, "Migrating File Systems to OES 11 SP3," on page 97.

2 If the source server has proxy user configured for services such as LUM, see Chapter 32, "Migrating Proxy Users to OES 11 SP3," on page 261.

3 Install the DSfW pattern on top of the preexisting patterns on the target server, but do not configure it.

4 Reboot the target server.

5 Ensure that you have copied the SSH keys in order to avoid multiple password prompts:

   5a Enable SSH on the source server and the target server.

   5b Enter the `# ssh-keygen -t rsa` command on the target server.

   5c When you are prompted to enter the file in which to save the key, press Enter.

   The ssh keys are stored in the default location (`/root/.ssh/id_rsa`).

5d When you are prompted to enter the passphrase, leave it empty for no passphrase, then press Enter.

5e Copy the key value (the output of the `# ssh-keygen -t rsa` command) to the source server using the following command:

`ssh-copy-id -i /root/.ssh/id_rsa.pub root@source-ip-address`

Where `-i /root/.ssh/id_rsa.pub` is the output of the `# ssh-keygen -t rsa` command.

Replace *<source-ip-address>* with the IP address or the hostname of the source server.

6 Run the DSfW migration script on the target server. The purpose of this script is to migrate the DSfW-specific data to the target server.

`./opt/novell/xad/sbin/migrate_dsfw.pl --source=source-ip --all`

The migration script invokes the miggui tool.

The Transfer ID operation migrates eDirectory, LUM, and other associated services of the source server. For more information, see Section 10.4, "Select the Source and Target Server and the Migration Type," on page 67.

7 Reboot the target server.

8 After you reboot the server, you are prompted to configure additional features such as WINS and Sites. This can be done using the DSfW Feature Configuration Wizard.

> **IMPORTANT:** You are prompted to configure these features only once. If you fail to configure these features during the first instance, you will not be able to configure these features later.

Enter the authentication details in the login dialog box, depending on the scenario in which you are provisioning, then click *OK.*

Provisioning Scenario	Authentication Details Required
Non-name-mapped, forest root domain	The current domain credentials.
Name-mapped, forest root domain	The current domain credentials and the tree admin credentials.
Non-name-mapped child	The current domain credentials, the parent domain credentials, and the tree/container admin credentials.
Name-mapped child	The current domain credentials, the parent domain credentials, and the tree/container admin credentials.
Additional Domain Controller	The current domain credentials and the tree admin credentials.

> **IMPORTANT:** If you are installing a first-level child domain in a non-name-mapped scenario, the tree admin and the parent domain credentials are the same.

9 Select the feature that you want to configure, then click *Next*.

10 On the task list page, click *Run* to manually execute a task or click *Run All* to execute all the tasks sequentially without any manual intervention.

11 After you finish executing the DSfW Feature Configuration Wizard, verify that all of the daemons are up and running by executing the following command:

`xadcntrl status`

12 Run the following command to verify if the schema has been extended, rights on the domain controller objects have been added, and the unique domain id on the domain root has been added.

```
/opt/novell/xad/sbin/domaincntrl --preps
```

23.3 Post-Migration Procedure

After the migration procedure has completed, you need to manually cleanup certain eDirectory objects. For more information, follow the instructions specified in Chapter 13, "Post Transfer ID Migration," on page 81.

24 Migrating LUM to OES 11 SP3

This section describes how to migrate LUM from an OES 2 or OES 11 environment to OES 11 or OES 11 SP3.

24.1 Planning the Migration

Make sure your setup addresses the following requirements before you migrate LUM to the destination platform:

24.1.1 Source Servers

- OES 2 SP3
- OES 11

24.1.2 Target Servers

- OES 11 SP3

24.1.3 Prerequisite

- If the source server is OES 2 SP2, the proxy credential retrieval binary (32 or 64 bit) for LUM (lum_retrieve_proxy_cred) should be copied to the `/usr/bin` folder on the source server.

24.2 Migration Scenarios

The following scenarios are supported for LUM migration:

- **Common Proxy Migration:** If LUM is configured to use common proxy, see "Services that Are Using Common Proxy" on page 261.
- **Service-Specific Migration:** If LUM is configured to use service-specific proxy, see "Services that Are Using Service-Specific Proxy" on page 263.
- **Transfer ID Migration:** If LUM is not configured to use proxy user, see Part IV, "Transfer ID Migration," on page 59.

For common proxy and service-specific proxy migration scenarios, you must also do a Transfer ID migration. Transfer ID migration affects changes such as setting the nam configuration and mapping the target server with the existing eDirectory users and groups.

25 Migrating FTP to OES 11 SP3

Migration refers to the process of migrating FTP services from a NetWare, OES 2, OES 2 SP3, or OES 11 server to a OES 11 SP3 server. The Open Enterprise Server (OES) migration tools follow a source/target model. The following sections give you more details on the migration procedure for FTP.

- Section 25.1, "Migrating FTP from NetWare to OES 11 SP3," on page 201
- Section 25.2, "Migrating FTP to OES 11 SP3," on page 204

25.1 Migrating FTP from NetWare to OES 11 SP3

This section describes how to migrate FTP from NetWare or OES to OES 11 SP3.

25.1.1 Planning the Migration

Make sure your setup addresses the following requirements before you migrate FTP to the destination platform:

- "System Requirements" on page 201
- "Source Servers" on page 201
- "Target Server" on page 201

System Requirements

- Pure-FTPd

Source Servers

- NetWare 6.5 SP8

Target Server

- OES 11 SP3

25.1.2 Migration Scenarios

The following 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 16.

Prerequisites

For all three scenarios, eDirectory should be running so that 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 25-1 on page 203.

25.1.3 Migrating FTP

Migration of the 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 more information about eDirectory migration, see Appendix 17, "Migrating eDirectory to OES 11 SP3," on page 143.

- "Using the Migration Tool" on page 202
- "Using the Command Line" on page 202

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*, then click *Configure*. The status now changes from *Not Configured* to *Ready*.

4 When the status is *Ready*, click *Start* 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.

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.

25.1.4   Post-Migration Procedure

1 All the FTP services users must be LUM enabled.

2 Map these parameters during the FTP migration from NetWare to Linux:

Table 25-1   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
DEFAULT_USER_HOME_SERVER	DefaultHomeDirectoryServer
DEFAULT_USER_HOME	DefaultHomeDirectory
IGNORE_REMOTE_HOME	EnableRemoteHomeDirectory

Important:

◆ If ANONYMOUS_ACCESS is commented irrespective of the value set to yes or no on the source server (NetWare), after migration the value set for AnonymousOnly on the target server (OES 11 SP3) is retained.

For example, if #ANONYMOUS_ACCESS=yes or #ANONYMOUS_ACCESS=no is set on the source server and AnonymousOnly=yes or AnonymousOnly=no is set on the target server, the value set on the target server is retained after migration.

If ANONYMOUS_ACCESS is uncommented irrespective of the value set to yes or no on the source server (NetWare), after migration the value set for AnonymousOnly on the target server (OES 11 SP3) is overwritten with the value set on the source server.

For example, if ANONYMOUS_ACCESS=no is set on the source server and AnonymousOnly=yes is set on the target server, AnonymousOnly will be set to no after migration.

◆ If you use the BIND parameter in the NetWare `ftpserv.cfg` file, after migrating to OES, your FTP login will be blocked. This happens because FTP still tries to bind to the source IP address and port that you have specified in the NetWare `ftpserv.cfg` file.

To resolve this issue, change the IP address and port to that of an OES target server. This workaround is not required for a Transfer ID migration.

- If Passive Port Range on NetWare is not set or is less than twice the number of maximum allowed clients, after migrating to Linux, set the PassivePortRange to twice the MaxClientsNumber.

  For example, if you set MaxClientsNumber as 10, then set the PassivePortRange as 30000 30020.

- 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 certficate using the steps listed in "Create Certificate Procedure" (http://download.pureftpd.org/pub/pure-ftpd/doc/README.TLS).

- The ForcePassiveIP field in NetWare when left blank or set as 0.0.0.0 indicates *none* specified. However, on Linux, it is interpreted as is and therefore can lead to the server binding to an invalid IP address, resulting in loss of functionality. The migration script is updated to ignore IP 0.0.0.0, and creates `.bak` file to preserve the original linux conf file for administrative reference.

25.2 Migrating FTP to OES 11 SP3

This section describes how to migrate FTP from an OES 2 SP3 or OES 11 environment to OES 11 SP3.

Before you proceed with the migration, review Section 25.2.1, "Prerequisites," on page 204. In this section, the source server refers to an OES 2 SP3 or OES 11 server and the target server refers to an OES 11 SP3 server.

- Section 25.2.1, "Prerequisites," on page 204
- Section 25.2.2, "What Is Migrated," on page 204
- Section 25.2.3, "Migration Procedure," on page 204

25.2.1 Prerequisites

- Ensure that the OES 11 server is already installed along with the Novell FTP pattern on the target server. For more information, see "Installing Pure-FTPd" in the *OES 11 SP3: Planning and Implementation Guide*.

25.2.2 What Is Migrated

- Configuration file and script

25.2.3 Migration Procedure

Same Tree Migrations with Identity Transfer

Perform the following procedures on the target server:

1 Copy the `/etc/pure-ftpd/pure-ftpd.conf` file from the source server.

NOTE: If the migration is being performed on a cluster setup, copy the `pure-ftpd.conf` file on the shared volume of the cluster.

2 Run the `/opt/novell/pure-ftpd/novell-pure-ftpd-config.sh` script. This will update the `pure-ftpd.conf` file with the new parameters added in OES 11 SP3.

3 Remove the LD_PRELOAD statement from the `/etc/init.d/pure-ftpd` file, if present.

4 Restart pure-ftpd using the `rcpure-ftpd restart` command.

Same Tree Migrations without Identity Transfer

1 Execute steps Step 1 to Step 3 in the previous section.

2 Update the IP address of the target server for ForcePassiveIP and Bind parameters in the `pure-ftpd.conf` file.

3 Update DefaultHomeDirectoryServer if it refers to the IP of the source server.

26 Migrating iFolder to OES 11 SP3

This section describes the procedures to migrate iFolder to OES 11 SP3.

- Section 26.1, "Novell iFolder Upgrade, Migration, and Coexistence," on page 207
- Section 26.2, "Migrating iFolder to OES 11 SP3," on page 220

26.1 Novell iFolder Upgrade, Migration, and Coexistence

This section provides information about the migration and upgrade capabilities of iFolder 3.9. It also discusses how to use the Novell Migration Tool to introduce the iFolder 3.9 services into an existing network environment without disrupting existing Novell iFolder 2.*x* and iFolder 3.*x* services.

One of the top priorities in designing Novell iFolder 3.7 and later was to ensure that new iFolder services running on Novell Open Enterprise Server (OES) 2 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.

Migration: Migration is the process of moving from,

- iFolder 3.2 on OES 1 Linux
- iFolder 2.x on OES 1 Linux
- iFolder 2.x on NetWare

to iFolder 3.9.1 on OES 11 SP3.

Upgrade: Upgrade is the process of changing to a new version of iFolder on the same platform, such as from,

- iFolder 3.2 on OES 1 Linux
- iFolder 3.4 on OES 1 Linux
- iFolder 3.6 on OES 2

to iFolder 3.9.1 on OES 11 SP3.

- Section 26.1.1, "Migrating iFolder 2.x," on page 208
- Section 26.1.2, "Migrating iFolder 3.2," on page 213
- Section 26.1.3, "Upgrading iFolder 3.x," on page 217
- Section 26.1.4, "Upgrading iFolder 3.6," on page 219
- Section 26.1.5, "Coexistence of iFolder 3.9 and iFolder 2.x Servers," on page 219
- Section 26.1.6, "Coexistence of the iFolder 3.9 Client with Novell iFolder 1.x and 2.x Clients," on page 219

26.1.1 Migrating iFolder 2.x

You can move iFolders and user data from an iFolder 2.*x* domain to iFolder 3.9. In the following sections, the iFolder 2.*x* server is referred to as the source server and the iFolder 3.9 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 about the client-side migration, see Novell iFolder Migration and Upgrade (https://www.novell.com/documentation/ifolder3/ifolder39_user/data/coexistmig.html) in the *Novell iFolder 3.9 Cross-Platform User Guide (http://www.novell.com/documentation/ifolder3/ifolder39_user/?page=/documentation/ifolder3/ifolder39_user/data/bookinfo.html)*.

Server Migration

Supported Platforms

Table 26-1 *Supported Platforms*

Source Platform	Destination Platform
NetWare 6.5 SP8	OES 11 SP3
OES 2 SP3 or OES 11	OES 11 SP3

Prerequisites

☐ You must perform the File System Migration for the source data path.

For more information, see Appendix 16.4, "Migrating the File System Using the Migration GUI," on page 103.

☐ Ensure that the iFolder 3.9 servers, the iFolder 3.9 Web Access server, and the eDirectory services are up and running.

The iFolder 3.9 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 3.9 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 more information, see Deploying iFolder Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bk60n10.html) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

◆ **Web Access Server:** The Novell iFolder 3.9 Web Access console for end users must run on the target server.

◆ **Web Admin Server:** The Novell iFolder 3.9 Web Admin console for end users must run on the target server. 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 more information about policies, see Configuring System Policies (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/b9jabz2.html#b9jafmz) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

◆ **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 3.9 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.9 server uses the round-robin provisioning method to provision the users. Novell iFolder 3.9 has its own LDAP attribute for provisioning users; it does not use the iFolder 2.*x* LDAP attribute for provisioning. You can use the iFolder 3.9 LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users and groups.

Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services. (For general explanation of the scenarios supported in OES 11, see *Section 1.3, "Migration Scenarios," on page 16*.)

◆ **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 OES 11 Transfer ID scenario, ensure that the target server is installed in the same context as the source server.

◆ **Migrate:** 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 6.5 SP8, OES 2 SP1, OES 2 SP2, or OES 11. The target server must be running on OES 11 SP3 on 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Migrate scenario, both the 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 6.5 SP8, OES 2 SP3, or OES 11. The target server must be running on OES 11 SP3 on 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 6.5 SP8, OES 2 SP3, or OES 11. The target server must be running SUSE Linux Enterprise Server 11 SP4 with OES 11 SP3 on 64-bit hardware.

iFolder Migration Procedure

- "Using the Migration Tool GUI" on page 210
- "Using Command Line Utilities" on page 211

Using the Migration Tool GUI

1 Install, configure, and run iFolder 3.9 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.

IMPORTANT: Ensure that you migrate the iFolder 2.*x* file system data by using the file system migration tools. For more information, see Appendix 16.4, "Migrating the File System Using the Migration GUI," on page 103.

The default data path for iFolder 2.*x* is `/var/opt/novell/<ifolderdata>` for OES 1 Linux. For NetWare, the data path is configurable.

---

5 Fill in the following fields:

Parameter	Description
2.x Migration	Select this option if you want to migrate the iFolder 2.*x* application to iFolder 3.9 on OES 11 SP3.
	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.
iFolder 3.9 Admin Name	Specify the user name of the iFolder 3.9 administrator.
iFolder 3.9 Admin Password	Specify the iFolder 3.9 admin password.

Parameter	Description
Partial Migration	Select this option if you want to perform a partial migration that allows you to migrate a selected set of users to an iFolder 3.9 domain. You can perform partial migration either by using a user list file or by browsing and selecting users from an eDirectory tree.
	User List File: Specify the location of the user list file. This file is a text file that contains the list of user DNs for all the users selected for migration. Ensure that each user DN starts in a new line.
	Select LDAP Users: Browse the eDirectory tree and select the users for migration.

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 26-2 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.
--serveripaddress	Specifies the IP address of the iFolder 3.9 server.
--adminname	Specifies the user name of the iFolder 3.9 administrator.
--password	Specifies the password for the iFolder 3.9 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 3.9 servers must be up and running. The master server automatically provisions the home servers for each migrated user. Depending on the user provisioning priority you have set, each user is provisioned in the appropriate iFolder 3.9 server.

If you want to move each user from a single iFolder 2.*x* server to different iFolder 3.9 servers or from many iFolder 2.*x* servers to a single iFolder 3.9 server, you must set the provisioning with the iFolder 3.9 Web Admin console. By default, the round-robin provisioning method is used. For more information about using the Web Admin console, see the following sections in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html)*Novell iFolder 3.9.2 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 3.9. The flat directory structure of the iFolder 2.*x* data is changed to the hierarchical structure of the iFolder 3.9 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 3.9 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 3.9. You must set the policies again for each user by using the Web Admin console; this is because the iFolder 2.*x* policies are not compatible with iFolder 3.9.

For more information about using the Web Admin console, see the following chapters in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

 ◆ 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 3.9 client to the iFolder 3.9 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 more information about the merge functionality provided in the client, see *Merging iFolders* in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

Client Migration

There is an automatic client-side migration from Novell iFolder 2.*x* to iFolder 3.9. The Migration Wizard provided for the user in the iFolder 3.9 client migrates the existing 2.*x* iFolder data to the iFolder 3.9 domain. The Migration Wizard appears soon after the installation of the iFolder 3.9 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 3.9 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 3.9, 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 3.9 account.

- The user must use only the Migration Wizard available in the iFolder client to migrate an existing 2.*x* iFolder to a 3.9 iFolder. The user should not perform an iFolder 2.*x* to 3.9 conversion by any other means, such as using iFolder shell integration (Windows Explorer or Nautilus) or the iFolder 3.9 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 3.9 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 the 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 3.9 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 3.9 domain.

26.1.2 Migrating iFolder 3.2

You can move iFolders and the user data from an iFolder 3.2 domain to an iFolder 3.9 domain. In the following sections, the iFolder 3.2 server is referred to as the source server and the iFolder 3.9 server as the target server.

Supported Platforms

Table 26-3 *Supported Platforms*

Source Platform	Target Platform
OES 2 SP1, OES 2 SP3, or OES 11	OES 11 SP3

Prerequisites

Before proceeding with the migration, see "Prerequisites" on page 208.

Planning

- **Novell iFolder Server:** Novell iFolder 3.9 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 more information, see Deploying iFolder Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bk60n10.html) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

- **Web Access Server:** The Novell iFolder 3.9 Web Access console for end users is running on the target server.

- **Web Admin Server:** The Novell iFolder 3.9 Web Admin console is running on the target server. 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 in the server. For more information about policies, see Configuring System Policies (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/b9jabz2.html#b9jafmz) in the *Novell iFolder 3.9 Administration Guide (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html)*.

- **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 3.9 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.9 server uses the round-robin provisioning method to provision the users. Novell iFolder 3.9 has its own LDAP attribute for provisioning users; it does not use the iFolder 3.*x* LDAP attribute for provisioning. You can use iFolder 3.*9* LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users and groups.

Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services. (For a general explanation of the scenarios supported in OES 11 SP3, see Section 1.3, "Migration Scenarios," on page 16).

- **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.

- **Migrate:** 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 OES 2 SP3 or OES 11. The target server must be running on OES 11 SP3 on 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Migrate 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 OES 2 SP3 or OES 11. The target server must be running on OES 11 SP3.

- **Different Tree:** In this scenario, the source server and the target server are on different eDirectory trees. The source server must be running OES 2 SP3 or OES 11. The target server must be running on OES 11 SP3.

iFolder Migration Process

You can perform the migration through either the Migration Tool GUI or the command line.

Using the Migration Tool GUI

1 Install, configure, and run iFolder 3.9 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 the migration using Command Line Utilities. For more information about configuring the file system, see Section 16.6, "Migrating the File System Using Command Line Utilities," on page 110.

6 Select *Novell iFolder*, then click *Configure*. The iFolder configuration window displays.

IMPORTANT: Ensure that you migrate the iFolder 3.2 file system data by using the file system migration tools. For more information, see Appendix 16.4, "Migrating the File System Using the Migration GUI," on page 103.

The default data path for iFolder is `/var/lib/wwwrun/simias` for Linux.

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7 Fill in the following fields:

Parameter	Description
3.2 Migration	Select this option if you want to migrate the iFolder 3.2 application to iFolder 3.9 on OES 11 SP3. **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.
iFolder 3.2 Admin Name	Specify the user name 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 3.9 Admin Name	Specify the user name of the iFolder 3.9 administrator. For example: admin.
iFolder 3.9 Admin Password	Specify the iFolder 3.9 admin password.

Parameter	Description
Partial Migration	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 3.9 domain.
	User List File: Specify the location of the user list file. This file is a text file that contains the list of user DNs for all the users selected for migration. Ensure that each user DN starts in a new line.
	Select LDAP Users: Browse the eDirectory tree and select the users for migration.

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 the 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 user name of the iFolder 3.2 administrator.
--newadminname	Specifies the user name of the iFolder 3.9 administrator.
--oldadminpassword	Specifies the iFolder 3.2 admin password.
--previousserverurl	Specifies the IP address of the iFolder 3.2 server.
--newserverurl	Specifies the IP address of the iFolder 3.9 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.

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 3.9 updates the configuration files with the new server IP address after the migration is completed.

26.1.3 Upgrading iFolder 3.x

 You can upgrade iFolder 3.*x* on OES 2 SP3 or OES 11 to iFolder 3.9 on OES 11 SP3. This is a single-server scenario, where the source and target servers reside on the same machine.

- "Server Upgrade" on page 217
- "Client Upgrade" on page 218

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 2 SP3 or OES 11 to OES 11 SP3 upgrades the configuration values of the iFolder enterprise server from the 3.*x* iFolder server to the 3.9 iFolder server.

For details on YaST-based configuration, see Deploying iFolder Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bk60n10.html) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

1 Install OES 11 by using YaST. For more information, see *Installing iFolder on an Existing OES 11 Server SP3* in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

2 Select *Use Following Configuration*, then 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 3.9 configuration.

   The table in the Configuring the iFolder Enterprise Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bk60n10.html#bk60nye) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html) 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*

If you have upgraded an iFolder server to OES 11 in a cluster setup, the move to common proxy using the `move_to_common_proxy.sh` script fails. This is because during the upgrade, the cluster volumes are not mounted. After the upgrade successfully completes, use the following command on the node where the iFolder cluster is running:

```
/opt/novell/ifolder3/bin/ifolder_mono_setup
```

This will update the `Simias.config` file with the necessary configuration information required for the common proxy framework. In non-cluster setups, this runs automatically as part of the post-install script.

Client Upgrade

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: 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 11 SP3 home page.

2. Download the client RPMs or executables from the OES 11 SP3 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 3.9 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 3.9 server. For more information, see Automatically Upgrading to iFolder 3.9.2 client on Linux (https://www.novell.com/documentation/ifolder3/ifolder39_user/data/bctryt7.html#bctryt8) in the *Novell iFolder 3.9 Cross-Platform User Guide (http://www.novell.com/documentation/ifolder3/ifolder39_user/?page=/documentation/ifolder3/ifolder39_user/data/bookinfo.html)*.

For instructions on performing a manual upgrade, see Manually Upgrading to iFolder 3.9.2 client on Linux (https://www.novell.com/documentation/ifolder3/ifolder39_user/data/bctryt7.html#bbjs0lm) in the *Novell iFolder 3.9 Cross-Platform User Guide (http://www.novell.com/documentation/ifolder3/ifolder39_user/?page=/documentation/ifolder3/ifolder39_user/data/bookinfo.html)*.

26.1.4 Upgrading iFolder 3.6

1 On the OES 11 client Downloads page, click the *iFolder client for Linux* link to download the RPMs as desired.

For more information, see Deploying iFolder Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bk60n10.html) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

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 3.9.

26.1.5 Coexistence of iFolder 3.9 and iFolder 2.*x* Servers

If you use both iFolder 2.*x* and Novell iFolder 3.9 services, we recommend that you install each version on its own dedicated server. OES 11do not support iFolder 2.*x* service.

26.1.6 Coexistence of the iFolder 3.9 Client with Novell iFolder 1.*x* and 2.*x* Clients

Do not install the iFolder 3.9 client in the same application folder as a Novell iFolder 1.*x* or 2.*x* client.

The iFolder 3.9 client can coexist on the same workstation as the Novell iFolder 1.*x* client or 2.*x* client, with the following caveats:

- The iFolder 3.9 client and its iFolders work only with the Novell iFolder 3.9 enterprise server.

- The Novell iFolder 1.*x* or 2.*x* client and its iFolders 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 3.9 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 3.9 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 3.9 while *xyz* still remains an iFolder of type 2.*x* or 1.*x*. In addition, you should not attempt to migrate *xyz* to iFolder 3.9 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.

26.2 Migrating iFolder to OES 11 SP3

This section provides information on how to migrate iFolder running on OES 2 SP3 (32-bit) to OES 11 SP3. The OES2 SP3 or OES 11 server is referred to as the source server and the OES 11 SP3 server as the target server.

26.2.1 Prerequisites

- iFolder is installed and configured on an OES 2 SP3 32-bit machine.
- iFolder is installed and configured on the target machine.
- Perform the File System Migration for the source simias data path.

  For more information, see Appendix 16.4, "Migrating the File System Using the Migration GUI," on page 103.

Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. After 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.

What Is Migrated

The following data is migrated from the source server to the target server:

- The simias data store path
- The configuration files
- Proxy user (migrates along with simias and configuration files)

26.2.2 Migration Procedure

1 Install OES 11 by using YaST on the target server. For more information, see Installing iFolder on an Existing OES 11 Server (https://www.novell.com/documentation/ifolder3/ifolder39_admin/data/bwmvr20.html) in the *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

2 Stop apache from source server using the following command: `rcapache2 stop`.

3 Configure iFolder on the target server with the same values as the source server.

  For more information, see *Novell iFolder 3.9 Administration Guide* (http://www.novell.com/documentation/ifolder3/ifolder39_admin/?page=/documentation/ifolder3/ifolder39_admin/data/front.html).

4 Stop Apache on the target server using the following command: `rcapache2 stop`.

5 Migrate the simias data store path from the source server to the target server in the same volume and directory structure. For more information, see Appendix 16.4, "Migrating the File System Using the Migration GUI," on page 103.

6 Start Apache on the target server using the following command: `rcapache2 restart`.

Post Migration

After migrating iFolder,

- Verify that admin and web access pages are accessible with the same details.
- Ensure that all clients are able to connect to the server without issues.
- Verify that the ownership of the ifolder data source is wwwrun:www

27 Migrating iPrint to OES 11 SP3

Migration refers to the process of migrating iPrint from a NetWare system to a Linux system. For general information about the OES 11 SP3 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:

27.1 Prerequisites

This section covers the migration prerequisites for all the migration scenarios supported by iPrint.

27.1.1 Platform Specifications

Source Server Requirements

* NetWare 6.5, Open Enterprise Server (OES) 1 Linux

IMPORTANT: If your source server is OES 1 Linux, ensure that 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`.
   If the *Database XML File* field does not display the `padbtxt.xml` file, click *Backup Database* to regenerate the `padbtxt.xml` file.

- OES 2 SP 2
- OES 2 SP3
- OES 11
- OES 11 SP1
- OES 11 SP2
- OES 11 SP3

Target Server Requirements

- OES 11 SP3 server with iPrint installed, and with Print Manager and the Driver Store configured. For more information, see "Installing and Setting Up iPrint on Your Server" "Creating a Print Manager," and "Creating a Driver Store" in the OES 11 SP3: iPrint Linux Administration Guide (https://www.novell.com/documentation/oes11/iprint_lx/data/front.html).

IMPORTANT: If your target server is in a non-replica eDirectory tree, both the target Driver Store and Print Manager must be active for the migration to be successful. Configure SLP to make them active. For more information about SLP configuration, see "Configuration Parameters" in the *NetIQ eDirectory 8.8 SP8 Administration Guide*.

27.1.2 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.

- When you upgrade to OES, ensure that you migrate NDPS to iPrint. NDPS is not supported on OES Linux.

- Ensure that the file containing the printers to be migrated does not contains extra spaces or characters. For troubleshooting extra spaces, see "Printers are not migrating with the -f option" on page 241.

- Ensure that the driver paths are correct and accessible. For troubleshooting a bad driver assignment, see "Invalid driver path assignments" on page 241.

- 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 *NW 6.5 SP8: iPrint Administration Guide*.

  - For Linux source servers, follow the instructions in "Creating a Print Manager" in the *OES 11 SP3: iPrint 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 NetWare, see "Understanding the Print Manager Database" in the *NW 6.5 SP8: iPrint Administration Guide*. For Linux, see "Understanding the Print Manager Database."
- The servers involved should be accessible via SSH. If the SSH ports are not open in the firewall, ensure that they are open before trying to access the servers.

27.2 Supported 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 Transfer ID

For more information about these scenarios, see Section 1.3, "Migration Scenarios," on page 16.

27.3 What Is Migrated

During the migration process, the following objects are replicated seamlessly from the source server to the target server:

- Printers
- Drivers
- Banners
- Printer pools
- Redirected printers
- ACL (only if the source and target servers are in the same tree)
- Printer profiles
- The `iPrint.ini` file (only if the source server is NetWare 6.5)
- iPrint Client Management (only if the source and target servers are in the same tree and are sharing a common user)

27.4 Migration Procedure

Perform the following tasks for iPrint migration:

- Section 27.4.1, "Pre-Migration iPrint Configuration," on page 226
- Section 27.4.2, "iPrint Consolidate Migration," on page 226
- Section 27.4.3, "Verifying the Result of the iPrint Migration," on page 233
- Section 27.4.4, "Transfer ID," on page 234

27.4.1 Pre-Migration iPrint Configuration

Perform the following pre-migration steps on the target server:

1 Create the Driver Store. For more information, see "Creating a Driver Store" in the *OES 11 SP3: iPrint Linux Administration Guide*.

If the eDirectory server1 value is not pointing to a server that holds a reliable replica, go to `/etc/opt/novell/iprint/conf/idsd.conf` and modify the eDirectory server1 value to a server that holds a reliable replica. Change the IDSHostAddress value to the IP address (temporary IP address) of the migration server. Restart the Driver Store (`rcnovell-idsd restart`).

2 Create the Print Manager. For more information, see "Creating a Print Manager" in the *OES 11 SP3: iPrint Linux Administration Guide*.

If the eDirectory server1 value is not pointing to a server that holds a reliable replica, go to `/etc/opt/novell/iprint/conf/ipsmd.conf` and modify the eDirectory server1 value to a server that holds a reliable replica. Change the PSMHostAddress value to the IP address (temporary IP address) of the migration server. Restart the Print Manager (`rcnovell-ipsmd restart`).

3 Change the iPrint Apache configuration.

If AuthLDAPDNURL is not pointing to a reliable LDAP server, change AuthLDAPDNURL in `/etc/opt/novell/iprint/httpd/conf/iprint_ssl.conf` to a reliable LDAP server. Restart Apache (`rcapache2 restart`).

4 Ensure that the admin user is LUM-enabled.

To check this, enter `id admin` at the terminal. If the admin user is LUM-enabled, UID and GID information is returned.

5 Ensure that iprintman authentication is successful.

To check the authentication by using the IP address, enter

`iprntman psm -l -s <IP address>`

To check the authentication by using the DNS name, enter

`iprntman psm -l -s <DNS name>`

6 Test iPrint prior to the migration on the target server.

Using iManager, view the Print Manager and Driver Store. Click a few options to verify that you do not encounter any errors.

7 Continue with Section 27.4.2, "iPrint Consolidate Migration," on page 226.

NOTE: You can run `psminfo.nlm` on the source server, then copy the `psminfo.xml` file to the target server at the `/opt/novell/iprint/share` location. This avoids contacting the source server during migration.

27.4.2 iPrint Consolidate Migration

Migration of the iPrint configuration can be done through the Migration Tool or through the command line interface.

- "Using the Migration Tool" on page 227
- "Using the Command Line Utility" on page 232

NOTE: When you migrate iPrint from NetWare to OES 11SP3, Public Access Printers are not migrated.

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 enter `miggui` at the terminal prompt.

For details on configuring the source and target server information, selecting a migration type, opening a project, and on all the tool buttons, see Chapter 2, "Overview of the Migration GUI," on page 21.

2 Authenticate to the source and target servers.

3 Click *Add*.

4 Select *Novell iPrint*, then click *Yes* to configure. The iPrint configuration window is displayed.
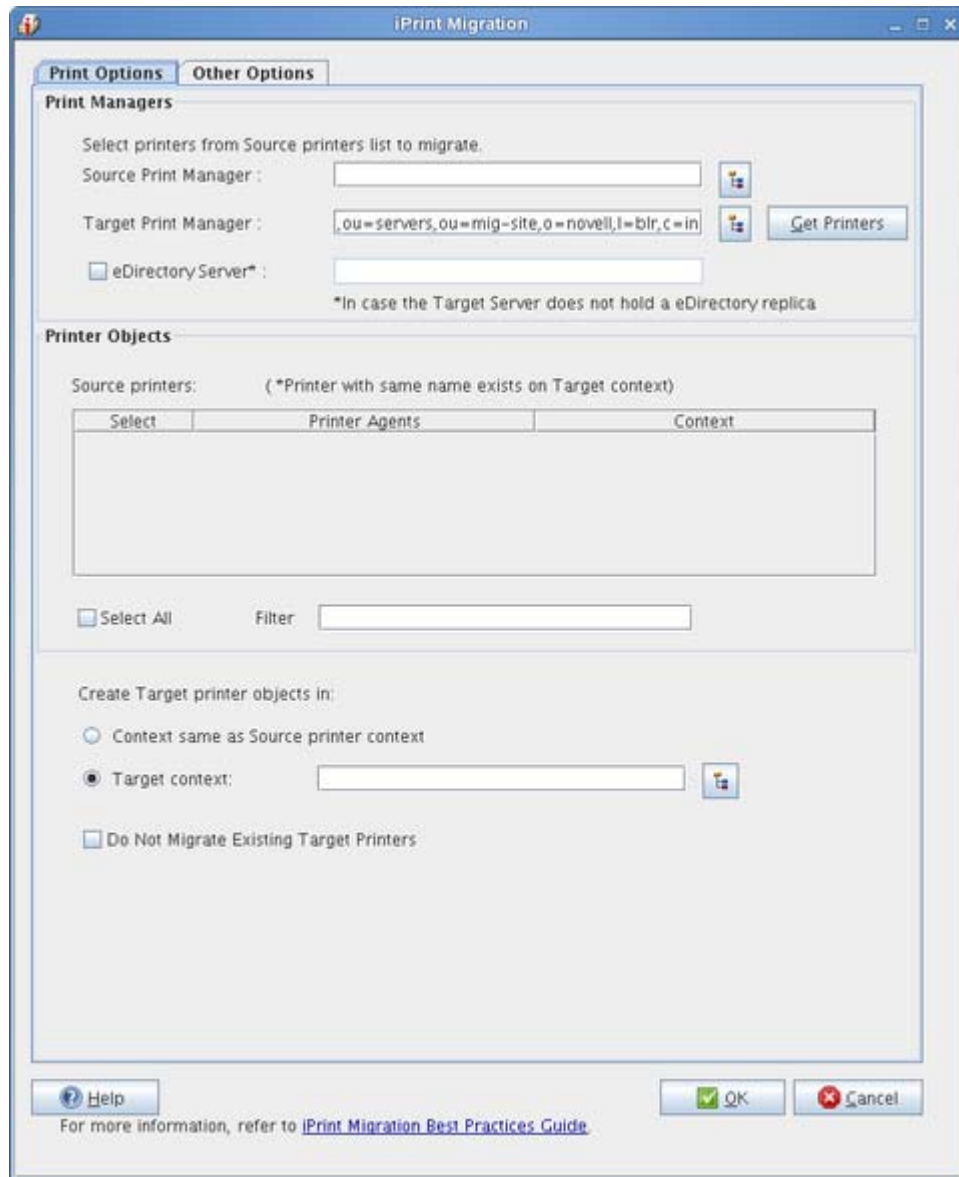
5 Configure the following parameters to proceed with the migration process:

Print Objects	Parameter	Description
Print Managers	Source Print Manager	Specify the active Print Manager on the source server. The source Print Manager can be either an NDPS manager (for NetWare 6.5) or iPrint Manager (for OES 1 and OES 2 Linux). To go directly to a context of your choice, specify the context in the search base and click *Search*. The objects in the specified context are displayed.
	Target Print Manager	The *Target Print Manager* field is populated with the name of the active Print Manager running on the target server. This field is editable; you can also specify a different name for the active Print Manager. To go directly to a context of your choice, specify the context in the search base and click *Search*. The objects in the specified context are displayed.
		Click *Get Printers* to select printer objects from the source Print Manager.
		Click *Get Printers* to select printer objects from the source Print Manager.
	eDirectory Server	Select this option if the target server does not hold an eDirectory replica. Specify the IP address of the target server that holds the reliable eDirectory replica.
Printer Objects	Source printers	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	Selects all the printers listed in the Printer Objects dialog box.
		NOTE: When you apply a new filter or modify an existing filter and click *Select All*, only printers that are displayed after applying the filter are selected. When you manually select all printers, the selected printers are migrated.
	Filter	Specify the search pattern in the *Filter* field. This displays the printers in the Printer Agents list. This field is case sensitive.
Create target printer objects in	Context same as source printer context	Select this option to use the same context as the source printers on the target server.
		NOTE: If you are migrating to a different tree and you select *Context same as Source printer context*, ensure that the context exists in the target tree.
	Target context	This option is selected by default. It allows you to create source printers under a different context on the target server. This option does not maintain the context hierarchy of the source printer.
		To go directly to a context of your choice, specify the context in the search base and click *Search*. The objects in the specified context are displayed.

Print Objects	Parameter	Description
	Do Not Migrate Existing Target Printers	If the printer names on the source server match the printer names on the target server, 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 represented by an asterisk (*).

Other Options	Parameter	Description
Source Driver Store	The Source Driver Store is not on the same server as the Source Print Manager	If the source Driver Store is running on a server different from the source Print Manager's server, this check box is selected.
		Specify the IP address or the DNS Name and the root password of the server on which the source Driver Store is located.
		For more information about using this panel, see Step 6 on page 231.
	Migrate the following additional Source Print Brokers to the Target Driver Store	This section lists the names and IP/DNS addresses of the source Print Broker volumes that need to be migrated to the target Driver Store.
		Use the + and - icons to add and delete the source Print Brokers.
Target Driver Store	Target Driver Store DN	The *Target Driver Store DN* field is auto populated with the Driver Store associated with the PSM object, if the driver store is running. This field is editable; you can also specify the name of the Driver Store. To go directly to a context of your choice, specify the context in the search base and click *Search*. The objects in the specified context are displayed.
		Specify the IP address or the DNS name and the root password of the server on which the source Driver Store is located. For more information about using this panel, see Step 6 on page 231.
		To go directly to a context of your choice, specify the context in the search base and click *Search*. The objects in the specified context are displayed.
		IMPORTANT: If the target Driver Store is hosted by a server that is not hosting the Print Manager, you cannot select the Driver Store's eDirectory server. To resolve this, go to the Driver Store's `/etc/opt/novell/iprint/conf/idsd.conf` file and update the DSServer1 value to the address of a server that holds the replica. Restart the Driver Store (`rcnovell-idsd restart`) after making the change.
	Target Driver Store is remote	If the Driver Store is running on the remote server (other than the target server), the *Target Driver Store is remote* check box is enabled.
		Specify the IP address or the DNS name of the remote server and the root password of the remote server in the corresponding entry fields.
	Additional source Print Broker to be migrated to the target Driver Store (optional)	Click the plus button (+) and specify the IP address or the DNS name of the Source Broker. Select the Source Broker volume from the drop-down list and click *OK*. The list is populated with the IP address or DNS name of the Source Broker and Broker volume name. You can add multiple Source Brokers to the list.
		To remove the Source Broker from the list, select the IP address or DNS name and click the minus button (-). You can remove one Broker at a time.

Other Options	Parameter	Description
Printer Drivers	Do not Migrate Printer Drivers and the association of the Printer Agents with the Driver	Selecting this option ensures that printer drivers and the association of Printer Agents with the drivers are not migrated.
	Migrate Printer Driver if the driver is not present in the target Driver Store	Selecting this option migrates the printer drivers for the driver platforms you have selected from the Select Driver Platforms to Migrate list if they are not present in the target Driver Store. This also migrates all the associations of the Printer Agents with the driver. **NOTE:** The default driver platform selection is *All*.
	Migrate all Printer Drivers (this overwrites the Printer Driver on the target Driver Store)	Selecting this option overwrites the target drivers for the driver platforms you have selected from the Select Driver Platforms to Migrate list, if the driver names in the target Driver Store are the same as the source Driver Store. This also migrates all the associations of the Printer Agents with the driver. **NOTE:** The default Driver Platform selection is *All*.
Printer Driver Profile	Migrate Printer Driver Profile	If the profiles are the same on the target server as the source server, the target profiles are overwritten.
iPrint.ini File	Migrate iPrint.ini File	If you migrate printer agents from two or more print managers, the `iPrint.ini` file on the target server is replaced by the `iPrint.ini` of the last source server. **NOTE:** After migration, if the target server's `iprint.ini` file is overwritten by the source server's file, and if the target server's `iprint.ini` file had new parameters that were erased, you can restore them by copying the parameters manually from the `iprint.bak` file. The `iprint.bak` file is a backup of the target server's `iprint.ini` file. After migration, the `iprint.bak` file is saved in the `/var/opt/novell/iprint/htdocs` directory.

6 In the *Source Driver Store* and *Target Driver Store* panels, the default user name is displayed as *root*. To use a user name other than *root*, make the following changes:

   ◆ Add the intended user name to the sudoers database by using the following command -

     `<new non-root user name>  ALL = (ALL) ALL`

   ◆ Comment out the following two lines from `visudo -f /etc/sudoers`:

     1. `Defaults targetpw # ask for the password of the target user i.e. root`

     2. `ALL ALL=(ALL) ALL  # WARNING! Only use this together with 'Defaults targetpw'!`

   This ensures that the system does not prompt you for a root password.

7 Click *OK* to finish the configuration and go back to the migration screen.

8 Click *Migrate*.

Using the Command Line Utility

You can use `iprintmig` to migrate iPrint. For more information, see .

Use one of the following methods to migrate to OES 11 SP3:

◆ 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 .

   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 specifying 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`

IMPORTANT: Ensure that you verify the result of the iPrint migration, as described in Section 27.4.3, "Verifying the Result of the iPrint Migration," on page 233.

27.4.3 Verifying the Result of the iPrint Migration

1 Open iManager on the server you use for iPrint management.

2 Install some printers on the test workstation.

3 Run reports to verify all the migrated information:

   3a Go to `https://<MigrationServerIP>/PsmStatus/GenerateReportSettings`.

   3b Select the check box for *Printer Drivers*, *Associated NDS Printer*, and other options for the NetWare Printer Agents.

   3c Click *Generate Report*.

   3d Verify that all the printer agents have the expected values.

27.4.4 Transfer ID

To perform an identity transfer, configure the iPrint service for migration, then select *Transfer ID*. This migrates iPrint to an OES 11 SP3 server, and then transfers the source server's identity. Migrate iPrint services to the target server before starting the Transfer ID process. For more information, see Chapter 10, "Using the Migration GUI Tool for Transfer ID," on page 65.

Before starting the Transfer ID process you must migrate all services to the target server. See Chapter 9, "Preparing for Transfer ID," on page 61.

IMPORTANT: Do not start the Transfer ID process until the migrated iPrint service on the target server successfully completes the outlined tests. To verify the result of iPrint migration, see Section 27.4.3, "Verifying the Result of the iPrint Migration," on page 233.

27.5 Migrating an iPrint Cluster Resource

Perform the following steps to migrate the iPrint cluster resource from NetWare to OES 11 SP3 without reinstalling the printers on the workstations.

NOTE: When you upgrade to OES, ensure that you migrate NDPS printers to iPrint. NDPS is not supported on OES Linux. For more information, see "How to automate the upgrade from NDPS to iPrint" (http://www.novell.com/support/php/
search.do?cmd=displayKC&docType=kc&externalId=7004661&sliceId=2&docTypeID=DT_TID_1_1
&dialogID=159879519&stateId=0%200%20159881359).

1 Set up iPrint for a cluster environment.

   For more information, see "Setting up the Cluster Environment for iPrint" in the OES 11 SP3: iPrint Linux Administration Guide (https://www.novell.com/documentation/oes11/iprint_lx/data/front.html).

2 Migrate the target cluster resource hosting iPrint from node to node.

   On each node, check the status of the Print Manager and Driver Store.

   ```
   rcnovell-ipsmd status
   ```

   ```
   rcnovell-idsd status
   ```

   Test the ability of the Print Manager to authenticate the admin user (or the user given in the Migration Tool).

   ```
   iprntman psm -l -u admin
   ```

3 Perform the pre-migration for iPrint configuration.

   For more information, see Section 27.4.1, "Pre-Migration iPrint Configuration," on page 226.

4 Perform a consolidated migration of the iPrint service. For more information, see Section 27.4.2, "iPrint Consolidate Migration," on page 226.

   When the source or target iPrint service is hosted on a cluster resource, transferring a node's identity is not necessary and not recommended.

5 Verify the result of the iPrint migration.

   For more information, see Section 27.4.3, "Verifying the Result of the iPrint Migration," on page 233.

6 Transition end-user printing from NetWare to Linux:

   6a Offline the NetWare iPrint cluster resource.

   6b View the NetWare iPrint cluster load script's /DNSNAME value.

   6c Configure DNS to resolve the /DNSNAME value to the IP address of the target Linux cluster resource hosting the Print Manager.

   The propagation of the DNS change might take time, depending on your network.

   DNSNAME is the address that the clients use to find the NetWare Print Manager. The same DNSNAME is used to find the Linux Print Manager.

   6d Update each of the Linux node `/etc/hosts` files to resolve to the Linux iPrint cluster IP address.

   6e Update the `/etc/opt/novell/iprint/conf/ipsmd.conf` PSMHostAddress value to the /DNSNAME.

   6f Restart the Print Manager.

7 Perform the post-migration steps. For more information, see xxxx.

27.6 Migrating ZENworks iPrint Policies

The ZENworks 10 Configuration Management and ZENworks 7 iPrint policies contain a list of printers to be distributed via the policy. The printer names are back-linked to the eDirectory object of the corresponding printer. When the iPrint service is migrated from a Netware, OES 2 SP3, or OES 11 server to an OES 11 SP3 server, iPrint policies containing migrated printers must also be updated. For example, if the ZENworks 7 iPrint policy contains a printer from the source server, after migration it must contain a corresponding printer from the target server.

The `novell-iprint-migration.rpm` also contains the scripts for migrating ZENworks 10 Configuration Management and ZENworks 7 policies. You must run the scripts to migrate the policies.

IMPORTANT: The target server and the source server must be in the same tree and in the same container.

27.6.1 Policy Migration in ZENworks 10 Configuration Management

Prerequisites

- The file with the list of printers to be migrated must be copied from the target server to the ZENworks 10 Configuration Management server.

- Ensure that the latest version of ZENworks 10 Configuration Management is installed. You can get the ippmanagement utilities from there.

- Install Perl on your server to run the policy migration script on the ZENworks 10 Configuration Management windows server.

Syntax: `zcm-migrate-print-policy.pl` `-a` *<Administrator name>* `-p` *<Administrator password>* `-s` *<Source server>* `-d` *<Destination server>* .

The `zcm-migration-print-policy.pl` script is located in `/opt/novell/bin`. Copy and run the script on the ZENworks 10 Configuration Management server. This script copies the original printer policies and the policies are formed in the target server. If you encounter any error, see the log file available at `zcm10-migration.log`.

Options

`-a, --admin`

Administrator name.

`-p, --passwd`

Administrator password.

`-P, --port`

(Optional) Port number (The default port is 80).

`-l, --linux`

(Optional) The source operating system is Linux.

`-n, --netware`

(Optional) The source operating system is NetWare.

`-s, --src`

Source server IP address or the DNS name.

`-d, --dest`

Target server IP address or the DNS name.

`-r, --rem`

(Optional) Deletes old policies.

`-c, --change`

(Optional) Changes the default printer.

`-f, --file`

The file name that has the list of printers to be migrated.

`-x, --xml`

(Optional) The directory containing the policies in XML form.

27.6.2 Policy Migration in ZENworks 7

The `zen7-migration-print-policy.pl` script is located in `/opt/novell/bin/`. Run the script on the target server where the replica of the eDirectory tree is present. This script copies the original printer policies and the policies are defined on the target server. If you encounter any error, see the log file at `/var/opt/novell/log/iprint/zenpolicy_migration.log`.

Syntax: *<script name> -v -v -v <log file> -s <Host name or IP address> -a <Administrator FDN> -p <Administrator password> -b <Base DN> -d <Keep default> -r <Deletes the old policies> -n <Source Operating System> -f <Filename containing a list of files containing migrated printer list>*.

Options:

`-v -v -v`

Log file.

`-s, --host`

Hostname or IP address. Source server IP address.

`-a, --admin`

Administrator FDN (such as cn=admin,o=novell).

`-p, --passwd`

Administrator password.

`-b, --base-dn`

DN of a container to search for the ZENworks 7 iprint policy objects (e.g. o=*novell*).

`-d, --keepdefault`

Retains your default printer in the ZENworks 7 policy.

`-l, --linux`

The source operating system is Linux (for an ID swap always specify -l, even if the source is NetWare.).

`-n, --netware`

The source operating system is NetWare.

`-f, --file`

A file name that has a list of printers to be migrated.

For more information about ZENworks, see ZENworks 10 Configuration Management (http://www.novell.com/documentation/zcm10/index.html).

27.7 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 27.7.1, "Using iManager," on page 238
- ◆ Section 27.7.2, "Using the Command Line," on page 238

IMPORTANT: If the Print Manager is down after migration, see Section 27.9, "Troubleshooting iPrint Migration," on page 239.

27.7.1 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*, then ensure that the Print Manager status is *Active*.

5 Click *Printer Agents*.

Depending on your setup, it might take some time to display the printers on the target server.

27.7.2 Using the Command Line

1 At the console, enter `iprintman psm -l -u admin`.

2 Enter the admin password when prompted.

This displays the status of all the Print Managers with their status. Ensure that the desired Print Manager is *Active*.

3 At the console, enter `iprintman printer -l -u admin`.

4 Enter the admin password when prompted.

This displays the printers on the target server.

27.8 Cleaning Up Stale Objects

You can 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.

`-h | --help`

Print the summary

`-s | --src <source_server>`

Source server IP address.

`-u | --src-user <user>`

Admin user FDN for the source server. For example, cn=admin,o=novell.

`-p | --src-pass <pswd>`

Password of the source server admin user.

`-f | --renamed-printers-file <filename>`

File name 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.

27.9   Troubleshooting iPrint Migration

iPrint Service does not work after the Transfer ID Process

Source: The iPrint service does not work after the Transfer ID process is complete.

Action: After the completion of the Transfer ID process, confirm the following values:

1 Go to `/etc/opt/novell/iprint/conf/ipsmd.conf` and change the PSMHostAddress value to the source server's IP address or DNS name (preferably a CNAME was used). Use the address that was used when you loaded with the /dnsname or /ipaddress switch. If you are unsure, view the name by which the iPrint printers are installed at the workstations.

2 Change the eDirectory server1 value to a reliable eDirectory server address.

3 Go to `/etc/opt/novell/iprint/conf/idsd.conf` and change the IDSHostAddress value to the source server's IP address or DNS name (which is now the target server's IP or DNS).

4 Change the eDirectory server1 value to a reliable eDirectory server address.

5 Go to `/etc/hosts` and ensure that entries are correct for the new identity.

6 Go to `/etc/opt/novell/iprint/httpd/conf/iprint_ssl.conf` and update the AuthLDAPDNURL "ldaps://[address..]" to any reliable LDAP server.

7 Go to `/etc/opt/novell/iprint/httpd/conf/iprint_g.conf` and update the address after the ServerName entry. Ensure that you choose the new identity IP address.

8 Restart the Print Manager (`rcnovell-ipsmd restart`), Driver Store (`rcnovell-idsd restart`), and Apache (`rcapache2 restart`).

9 Use iManager to test iPrint by using the Print Manager, Driver Store, and printers.

If you encounter an error while managing the Print Manager, one of the certificates might need to be updated. To troubleshoot, see the Cool Solutions article "Certificate Re-creation Script for OES 1 and OES 2" (http://www.novell.com/communities/node/5704/certificate-recreation-script-oes1-and-oes2).

Printers are not migrating to OES 11

Explanation: Occasionally the iPrint migration status is successful but the specified Print Manager is not active or is down, so printers are not migrated to the OES 11 server.

Possible Cause: Some other Print Manager is active or is already loaded on the OES 11 server.

Action: On the OES 11 server:

1 Search for the ipsmd daemons by executing the `ps ax | grep ipsmd` command. This displays two running ipsmd processes.

2 Kill the individual ipsmd daemons by executing
`kill -9 pid_of_ipsmd`

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 IP address of the target server in the cluster environment.
Action:	Enter the IP address or DNS name of the target server.

Printers are not migrating with the -f option

Explanation:	`iprintmig` skips adding printers from the file containing the printer 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 the 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 with 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 In iManager, select *Manage Print Manager*.

 2 Select an *NDPS Manager*.

 3 Click *OK*.

NOTE: If the Print Manager is down, click *Startup* to change the status to *Active*.

---

 4 Click *Printer Agents Configuration Report*.

 5 Select one or more configuration options for the operating system name displayed in the error message.

 6 Click *Generate Report*.

 7 The driver assignment path is displayed for individual Printer Agents in the report.

 8 Verify that the complete driver path is a valid assignment.

 9 (Conditional) If the path is invalid, select *Manage Printer* and do the following:

 9a Choose a required printer under *NDPS Printer Name*.

 9b Click *OK*.

 9c In the *Drivers* tab, select the specific operating system for which the assignment is invalid. A message displays this message: `The current driver does not exist`.

 9d Click *OK*.

 9e Select either *NONE* or a suitable driver.

Printers are not migrating in the same eDirectory tree under the 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 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: When you restart the source server, the migration fails if the Print Manager was not successfully unloaded.

Possible Cause: The eDirectory attributes for the unloaded PSM are not cleaned up.

Action: Restart the Print Manager.

Migration fails when the Print Manager does not have a clean shutdown

Explanation: When the Print Manager does not have a clean shutdown, migration fails with an error message stating this is an invalid print manager on target.

Possible Cause: The eDirectory status for the Print Manager is not updated when the Print Manager shutdown is not clean.

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 a new Print Manager when the 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 when the SYS volume folder is not available on the source server

Possible Cause: The sys:ndps folder was renamed or deleted from the source server.

Action: Ensure that the sys:ndps folder is on the source server.

Migration fails for container admin credentials on the source server

Explanation: Printer objects with the container admin credentials are not being migrated.

Possible Cause: There is a mismatch between the source server and container admin credentials for the user. The source server might not be in the same container where 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 `psminfo.nlm`:

  ◆ The 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: Migration fails with the following error message: `'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.

The Driver Store and Print Manager are not initialized after migration on the target server

Explanation: The Driver Store and Print Manager are not initialized on the target server when SLP configuration is used.

Possible Cause: Problems in 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 41.

Printers not coming up after Transfer ID migration

Explanation: You migrate printers by using the Transfer ID option, but printers are not coming up.

Possible Cause: Printers are not being associated with the drivers after a Transfer ID action.

Action: Use the following procedure:

  1 Run the `/opt/novell/bin/ipsmd -x /tmp/psmimport_idswap.xml -s <Server IP Address> -u admin -f` command on the OES 11 console.
  2 Enter the admin password.

Printer fails to install with the error "wrong printer URL"

Explanation: After a successful migration, the redirected printers fail to install on the target server.

Action: If the iPrint service is configured with the IP address and if the source server is down, installation fails.

Ensure that the source server is up and running, then install the redirected printer.

Action: If the iPrint service is configured with DNS and the DNS is not resolved with the target server IP address, installation fails.

Ensure that the DNS is resolved to the target server IP address, then install the redirected printer.

Migration is completed with the status "Successful with warnings. Please refer the migration log"

Explanation: The message is displayed when the drivers associated with the printers are not migrated to the target server.

The printers are migrated, but you cannot install the printers for which the driver download or upload has failed.

Action: Check the migration log for the drivers that failed to migrate. Do not perform a migration; instead, manually upload or download those drivers to the target server.

Printers migrated from the source to target in the same context are not migrated to the target in a different context

Explanation: When you migrate printers from the source to the target in the same context and then you restart the Printer Manager and try to migrate those printers again in a different context, the printers fail to migrate.

Action: Do not migrate printers in a different context if they have already been migrated from the source to the target in the same context.

Problems with accessing newly created printer agents after copying the padbtxt.xml file from the source to the target

Explanation: When you copy the `padbtxt.xml` file from the source to the `/opt/novell/iprint/share` directory on the target, the Migration Tool cannot access any newly created Printer Agents that were added to the source after copying the file.

Action: Copy the `padbtxt.xml` file from the source to the target every time you create printer agents. When you select printers to migrate and migration passes successfully, but the printers selected for migration are still not migrated, one possible reason could be the presence of an outdated `padbtxt.xml` file in the directory. Remove the file and retry the migration procedure.

Redirections are not successful when printers are migrated

Explanation: When you redirect one printer to another on the source, migrate both the redirected printer and the other printer to the target, and associate a driver to the redirected printer on the target server, and then try to install the other printer from the target server, the printer installation fails. This is because this printer on the target server points to the redirected printer on the source, which does not have any drivers associated with it.

27.10   iPrintmig Man Page

- "iprintmig(1)" on page 246

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 11 SP3.

Options

-h, --help

    Prints this summary.

-v, -vv, -vvv, -vvvv, -verbose

    Specify the level of detail to display about the execution of operations with -v displaying minimum information and -vvvv displaying maximum information.

-V, --version

    Prints version information.

-s *<server>*, --src *<server>*

    Specifies the source server hostname or address to migrate from.

-d *<server>*, --dst *<server>*

    Specifies the target server hostname or address to migrate to.

-D *<PSM DN>*, --dst-dn *<PSM DN>*

    Specifies the destination print manager DN to migrate to.

-u <user>, --src-user <user>

    Specifies the FDN format admin for the source server, such as cn=admin, 0=example.

-U *<user>*, --dst-user *<user>*

    Specifies 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).

-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).

-i<*IDS_server*>, --ids <*IDS_server*>

> Target iPrint Driver Store (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

> Migrates 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

> Creates objects on the target server with the same DN as the source server. Only valid when migrating to a new tree.

-H, --same-hostname

> Creates 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*>

> Saves the XML migration processing file to <file>.

--o, --remoteDS-root-pass<*pass*>

> Root password of the remote driver store server.

--O, --remoteDS-root-pass-fd<*fd*>

> File descriptor number (to read the root password of the remote driver store server).

--q, --src-root-pass<*pass*>

> Root password of the source server.

--Q, --src-root-pass-fd<*fd*>

> File descriptor number (to read the root password of the source server).

--srcversion

Indicates the version of the operating system on the source server.

--nodrivers

Do not migrate drivers. If drivers are not present in the 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

Stops migration of Access Control Lists (ACLs).

--noprofiles

Stops migration of profiles. If profiles are not present on the target server, clients cannot install printers.

--overwrite-profiles

Overwrites the target server profile for a driver with the same name as a profile on the source server.

--nogo

Prepares but does not perform migration. This option creates an output XML file and migrates drivers (unless `--nodrivers` was specified) but does not perform migration.

--debug

Prints debug messages to a `/var/opt/novell/log/migration/iprintmig.log` file.

--update

Synchronizes any changes in the source server data with the target server after the migration process is complete. 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

Aggregates services on a single target server from multiple source servers.

--ssl

Enables secure authentication.

--port

Indicates the LDAP port.

--treeflattening

Creates the contexts of the source printers 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

> Migrates printers from the source server to the target server without changing their identities.

--driver-platform

> Identifies the names of the platforms to migrate. All the drivers for the selected platforms are migrated. The driver platforms should be specified every time you configure the print options. For example, `--driver-platform "Windows XP" --driver-platform "Vista 64"`.

Using Passwords

For security reasons, it is 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 is 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 several 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 proceed:

- 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, such as a pipe created with socketpair(). When you use 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.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 you select. For example, to migrate all printers from a NetWare server to the new Linux server, you need to select the old PSM object, which contains the address of the server it is running on. Then you need to select the destination PSM, which has attributes for its network address, the eDirectory server it is using, and the IDS it is using. The corresponding IDS object has its own address.

There are some details that you must manually provide instead of selecting or discovering, such as details about credentials and whether or not to migrate profiles or drivers.

You can select a destination container to hold the objects created during migration, or you can choose to keep the same path for objects. This only works for a move from one tree to another, because NetWare objects already exist in the source tree and might conflict with the new Linux versions of the objects.

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See Also

iprintman

28 Migrating NetStorage to OES 11 SP3

This section provides information on how to migrate NetStorage running on OES 2 SP3 and OES 11 to OES 11 SP3 (64-bit). The OES 2 SP3 or OES 11 server is referred to as the source server and the OES 11 SP3 server as the target server.

28.1 Prerequisites

- NetStorage is installed and configured on OES 2 SP3 32-bit machine.
- NetStorage is installed on target OES 11 SP3 machine.

For more information about installing and configuring NetStorage, see "Installing NetStorage" in the *OES 11 SP3: NetStorage Administration Guide for Linux*.

28.1.1 What Is Migrated

The following data is migrated from the source server to the target server:

- Xtier registry settings and configurations

28.2 Migration Procedure

Source Server

1 Back up the `/var/opt/novell/netstorage/shared` folder.

2 Back up the `/opt/novell/netstorage/webapp/WEB-INF/classes/Settings.properties` file.

3 At the terminal prompt, use the following command to stop the xregd user: `rcnovell-xregd stop`

4 Export the registry available at `/var/opt/novell/xtier/xregd/db` as an xml file using the following command:

```
/opt/novell/xtier/bin/regutil -e srcReg.xml
```

Target Server

1 Copy the `/var/opt/novell/netstorage/shared` folder in the same volume and directory structure.

2 Copy the `/opt/novell/netstorage/webapp/WEB-INF/classes/Settings.properties` file in the same volume and directory structure.

3 Ensure that file permissions are retained.

4 Copy srcReg.xml to any location. For example, `/opt/novell/xtier/bin/regutil -i <location>/srcReg.xml`, where <location> is the location of your choice.

5 At the terminal prompt, use the following command to stop the xregd user: `rcnovell-xregd stop`

6 Navigate to `/var/opt/novell/xtier/xregd/db/` and verify that the directory `db` is empty using the following command: `ls -l`.

   If the directory is empty, continue to .

7 If any files exist in the db directory, move all the files to a temporary directory, for example, `/tmp`.

8 Generate files inside the xtier registry using the following command:

   To restore the source server registry:

   `/opt/novell/xtier/bin/regutil -i srcReg.xml`

9 Navigate to `/var/opt/novell/xtier/xregd/db/` and run the command `ls -l /var/opt/novell/xtier/xregd/db` to ensure that the following files are generated:

   ◆ `xtier_registry.db`

   ◆ `xtier_registry.lck`

   ◆ `xtier_registry.rfl`

10 Start the xregd user using the `rcnovell-xregd start` command.

11 Navigate to the xtier registry using the `/opt/novell/xtier/bin/regedit command`.

12 At the regedit prompt, execute the `cd local_machine` command and `the ls -l` command to view the contents inside the directory. If a directory named *software* is present in the *local_machine* directory, then the registry is rebuilt without any error.

13 Similarly, enter the following commands in the sequence listed along with ls -l command to view the content in the respective directories:

   ◆ `cd software`

   ◆ `cd Novell`

   ◆ `cd Xtier`

   ◆ `cd Configuration`

     If the content exists in all the respective directories, then the Xtier registry is completely rebuilt.

14 Enter `exit`.

15 Restart the machine.

28.2.1   Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. After successful completion of Transfer ID, the target server functions with the same credentials (such as IP address and host name) as the source server, and the source server node is no longer available in the network. For more information, see Chapter 10, "Using the Migration GUI Tool for Transfer ID," on page 65.

28.2.2   Post Migration

After migrating NetStorage,

   ◆ Log in to iManager and go through the NetStorage Task to ensure the configurations were properly migrated.

   ◆ Access NetStorage from a browser http://<IP-ADDRESS>/NetStorage/ and should be able to log in and access files and folders.

29 Migrating NTP to OES 11 SP3

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:

29.1 Planning the Migration

You can migrate the NTP services running the following source and target platforms:

Source Servers

- NetWare 6.5 SP8

Target Server

- OES 11 SP3

29.2 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 16.

29.3 Migration Procedure

Migration of the 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.

29.3.1 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*, 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.

29.3.2 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:

```
 migtime -s xxx.xxx.xxx.xxx
```

29.4 Post-Migration Procedure

Load the XNTPD daemon by entering the following command at the prompt:

```
rcntp restart
```

30 Migrating NCP to OES 11 SP3

This section describes how to migrate NCP environment to OES 11 SP3.

Before you proceed with the migration, review Section 30.1, "Prerequisites," on page 257. In this section, the source server refers to an OES 2 SP3 or OES 11 server and the target server refers to an OES 11 SP3 server.

- Section 30.1, "Prerequisites," on page 257
- Section 30.2, "What Is Migrated," on page 257
- Section 30.3, "Migration Procedure," on page 257

30.1 Prerequisites

- OES 11 server is already installed and NCP is configured. For more information, see the *OES 11 SP3: NCP Server for Linux Administration Guide*.
- NSS Pools and volumes are already migrated to the new OES 11 SP3 server from the OES 2 SP3 server. Use the cluster migrate `resource_name node_name` command to migrate the cluster pools and volumes. For details, see "Using the Cluster Migrate Command" in the *OES 11 SP3: Novell Cluster Services for Linux Administration Guide*.
- NCP (posix) volumes and non-cluster NSS volumes are already migrated to the new OES 11 SP3 server from the OES 2 SP3 server. This can be done by unmounting the corresponding file system from the source machine and mounting it on the target machine.

30.2 What Is Migrated

- Configuration files

30.3 Migration Procedure

1 Copy the following files from the OES 2 servers to OES 11 server
   - /etc/opt/novell/ncpserv.conf
   - /etc/opt/novell/ncp2nss.conf
   - /etc/opt/novell/ncp/ncp2nss.audit.conf
   - /etc/opt/novell/ncp/ncp2nss.log.conf
   - /etc/opt/novell/ncp/ncpserv.audit.conf
   - /etc/opt/novell/ncp/ncpserv.log.conf

IMPORTANT: The `/etc/opt/novell/ncpserv.conf` file contains the file server name in NCP_FILE_SERVER_NAME <server_name> format. If the source and target server names are different, ensure that you modify the parameter `NCP_FILE_SERVER_NAME` to `NCP_FILE_SERVER_NAME <new_server_name>` before proceeding to the next step.

2 After the files are copied, restart ndsd daemon and ncp2nss daemon using the following commands on the target server:

```
/etc/init.d/ncp2nss restart
```

```
rcndsd restart
```

31 Migrating OpenSLP to OES 11 SP3

This section describes how to migrate an OpenSLP environment to OES 11 SP3.

Before you proceed with the migration, review Section 31.2, "Prerequisites," on page 259. In this section, the source server refers to an OES 2 SP3 or OES 11 server and the target server refers to an OES 11 SP3 server.

31.1 What is Migrated

* Configuration information
* Cache of service registrations

31.2 Prerequisites

Source Server

Back up the `/etc/slp.conf` and `/etc/slp.reg.d/slpd/DABackup` files on the source SLP DA server.

Target Server

The target OES server need not be a SLP DA server.

31.3 Migration Procedure

1 Copy the following files from the source SLP server to the target server:

* `/etc/slp.conf`
* `/etc/slp.reg.d/slpd/DABackup`

NOTE: The `/etc/slp.reg.d/slpd/DABackup` file will only be present in the source server if the `net.slp.isDABackup` parameter is set to true in the `/etc/slp.conf` file.

2 The following steps are needed only if the IP address of the target server is different from the IP address of the source server.

    2a If the SLP agent has been configured to listen on only selected interfaces in the `/etc/slp.conf` file, then after copying the configuration file to the target server, in the net.slp.interfaces section include the IP address of the target system.

    2b If DHCP is used in the network to advertise SLP Agent addresses to clients, then the `dhcpd.conf` file must be updated with IP address of the new system.

    2c If the SLP clients are configured to contact SLP agents through configuration files or by providing SLP Agent IP address in the Novell Client, then the changes should be manually updated on the clients.

3 Stop the SLP service on the source SLP DA by executing the following command:

`rcstop slpd`

4 Reboot the target SLP server.

31.4 Verification

Verify that the Clients are able to connect to services already registered before migration and whose service registration lifetime is still valid.

32 Migrating Proxy Users to OES 11 SP3

This section describes how to migrate Proxy users to the OES 11 SP3 server.

Ensure that you review "Prerequisites" on page 41 before proceeding with proxy migration. In this section, the source server refers to an OES 2 SP3 or OES 11 server and the target server refers to an OES 11 SP3 server.

- Section 32.1, "What Is Migrated," on page 261
- Section 32.2, "Transfer ID Migration Procedure," on page 261

32.1 What Is Migrated

- The proxy users (common proxy and service proxy users) and their access rights.

32.2 Transfer ID Migration Procedure

- Section 32.2.1, "Services that Are Using Common Proxy," on page 261
- Section 32.2.2, "Services that Are Using Service-Specific Proxy," on page 263
- Section 32.2.3, "Troubleshooting," on page 264
- Section 32.2.4, "Enabling SSH," on page 265

32.2.1 Services that Are Using Common Proxy

- "Prerequisites" on page 261
- "Pre-Migration Procedure" on page 261
- "Post-Migration Procedure" on page 262

Prerequisites

- Ensure that the source server and target server are updated with the latest patches.
- Enable SSH on the source server. For more information, see "Enabling SSH" on page 265.

Pre-Migration Procedure

Before services are migrated to the OES 11 SP3 server, you must identify the services using common proxy and the common proxy credentials on the source server.

1 On the source server, log in as a `root` user.

2 Retrieve the common proxy credentials on the source server by executing the following commands:

`/opt/novell/proxymgmt/bin/cp_retrieve_proxy_cred username`

Displays the common proxy DN.

```
/opt/novell/proxymgmt/bin/cp_retrieve_proxy_cred password
```

Displays the common proxy password.

Make a note of the common proxy credentials.

3 Identify the services using common proxy on the source server by executing the following command:

```
/opt/novell/proxymgmt/bin/retrieve_proxy_list.sh
```

This command writes all the OES services and their proxy users to the file `/var/opt/novell/log/proxymgmt/pxylist.txt`. Using the common proxy credentials that are identified in Step 2, determine the services using common proxy from the `pxylist.txt` file.

IMPORTANT: Do not delete, modify, or rename the common proxy user from eDirectory.

Post-Migration Procedure

After the services are migrated to the OES 11 SP3 server, you must update CASA on the target server with the common proxy credentials and then reconfigure the services using common proxy to use the updated credentials.

1 Update CASA on the target server with the common proxy credentials retrieved in Step 2 on page 261.

    1a On the target server, log in as a `root` user.

    1b Run the following command:

```
/opt/novell/proxymgmt/bin/cp_update_proxy_cred.sh
```

You are prompted to enter the common proxy user DN and password. Enter the details retrieved in Step 2 on page 261. This updates CASA with the common proxy credentials.

2 Verify that the common proxy credentials are updated properly by executing the following commands:

```
/opt/novell/proxymgmt/bin/cp_retrieve_proxy_cred username
```

Displays the common proxy DN.

```
/opt/novell/proxymgmt/bin/cp_retrieve_proxy_cred password
```

Displays the common proxy password.

3 Reconfigure the services identified in Step 3 on page 262 to use the updated common proxy credentials.

```
/opt/novell/proxymgmt/bin/move_to_common_proxy.sh -d <LDAP Admin FDN> -w <LDAP
Admin Password> -i <LDAP Server IP address> -p 636 -s <comma separated list of
services>
```

For example:

```
/opt/novell/proxymgmt/bin/move_to_common_proxy.sh -d cn=admin,o=novell -w
novell -i 192.168.1.254 -p 636 -s novell-afp,novell-cifs,novell-dns
```

32.2.2   Services that Are Using Service-Specific Proxy

Proxy migration reconfigures the services on the target server with the source server proxy credentials. The `migrate_services_proxy.sh` script retrieves the service-specific proxy credentials from the source and reconfigures the services on the target server with the proxy credentials of the source server.

The progress of proxy migration is recorded in the `/var/opt/novell/log/proxymgmt/pxymgmt.log` file.

- "Prerequisites" on page 263
- "Proxy Migration Procedure" on page 263
- "Verifying Proxy Migration" on page 264

Prerequisites

- **Platform Support for the Target Server:**
    - OES 11 SP3
- **Platform Support for the Source Server:**
    - OES 11
    - OES 2 SP3 Linux on 32-bit or 64-bit
    - OES 2 SP2 Linux on 32-bit or 64-bit for only DNS, DHCP, LUM, and NetStorage.
- Ensure that the source and target servers are updated with the latest patches.
- Enable SSH on the source server. For more information, see "Enabling SSH" on page 265.
- For OES 2 SP2, see TID 7010507 to download the binaries and to perform proxy migration.

Proxy Migration Procedure

1 Migrate the services to the target server.

   After a successful migration of services for OES 2 SP3 and OES 11 servers, proceed to Step 4 for proxy migration.

2 (Conditional) Proxy migration of DNS, DHCP, and LUM services on OES 2 SP2 server: On the source server, create the folders to store the proxy credentials retrieval scripts (`/opt/novell/proxymgmt/bin/`) and log files (`/var/opt/novell/log/proxymgmt/`). To download the scripts, see TID 7010507.

3 (Conditional) Proxy migration of NetStorage on OES 2 SP2 server:

   3a On the target server, install NetStorage

   3b Using YaST, configure NetStorage.

   3c When prompted for proxy user credentials, specify the proxy user credentials of the source server. NetStorage stores these credentials.

4 (Conditional) Proxy migration of services on OES 2 SP3 and OES 11 servers: On the target server, run the command as a `root` user to reconfigure the services with the source server proxy credentials.

   ```
   /opt/novell/proxymgmt/bin/migrate_services_proxy.sh -s <Source_server_IP> -d
   <LDAP Admin FDN) -w <LDAP_Server_Password> -i <LDAP_server_IP> -p <LDAP Port>
   ```

   For example:

```
/opt/novell/proxymgmt/bin/migrate_services_proxy.sh -s 192.168.1.1 -d
cn=admin,o=novell -w xxxx -i 192.168.1.255 -p 636
```

Option	Description
Mandatory Parameters:	
-s	Specify the IP address of the source server to copy the proxy credentials.
-d	Specify the LDAP Admin DN (comma format).
-w	Specify the LDAP Admin Password. The password is stored in encrypted format.
-i	Specify the LDAP server IP address.
-p	Specify the LDAP Port. The default secure port is 636.
Optional Parameters:	
-e	Specify the value as "yes" or "no." Default value is "yes." This ensures that the credentials in the file are encrypted.
-l	Specify the value as "yes" or "no." Default value is "yes." This ignores the services using Common Proxy.

After successful completion of proxy migration, the services on the target server will run with the proxy credentials of the source server.

Verifying Proxy Migration

 - Verify that the services using service specific proxy on the target server are running with the proxy credentials of the source server.

32.2.3 Troubleshooting

 -

Service Specific Proxy Migration Fails

Proxy users failed to migrate using the `migrate_services_proxy.sh` script. To resolve this issue, perform the following:

1 Migrate the services to the target server.

   After successful migration of the services, proceed to the next step.

2 On the source server, login as a `root` user.

3 (Conditional) If the source server is OES 2 SP2 and services are DNS, DHCP and LUM, create the folders to store the proxy credentials retrieval scripts (`/opt/novell/proxymgmt/bin/`) and log files (`/var/opt/novell/log/proxymgmt/`). To download the scripts, refer the TID 7010507.

4 Copy the `/opt/novell/proxymgmt/bin/services_get_proxy_cred.sh` script from the target server to the source server in the `/opt/novell/proxymgmt/bin/` folder.

5 Retrieve the service specific proxy credentials on the source server by executing the following command:

   `/opt/novell/proxymgmt/bin/services_get_proxy_cred.sh`

After successful execution, a list of proxy user credentials is written to the `/var/opt/novell/log/proxymgmt/proxycred` file on the source server. The `proxycred` file contains the proxy user name in clear text format and the password in encrypted format.

The proxycred file stores the information in the following format:

<servicename>=<proxydn>:<proxypass>

Considering CIFS as an example:

```
CIFSPROXY=cn=user123,ou=users,o=novell:<pwd>
```

6 Copy the proxycred file to the target server by executing the following command:

`scp /var/opt/novell/log/`proxymgmt/proxycred root@<Target Server IP>:/var/opt/novell/log/proxymgmt/

7 On the target server, run the command as a `root` user to reconfigure the services with source server proxy credentials

`/opt/novell/proxymgmt/bin/services_reconfig_proxy.sh -d <LDAP Admin DN> -w <LDAP Admin Password> -i <LDAP Server IP> -p <secure LDAP Port=636>`

The progress of proxy migration is recorded in the `/var/opt/novell/log/proxymgmt/pxymgmt.log` file.

After successful execution, the services are reconfigured with the proxy credentials available in the `/var/opt/novell/log/proxymgmt/proxycred` file.

8 (Optional) On completion of Proxy migration, we recommend that you delete the following files and folders to clean up the source server. If the files are not deleted, they do not impact the working of the source server.

- **Source server is OES 2 SP3:**
  - services_get_proxy_cred.sh file
  - proxycred file
- **Source server is OES 2 SP2:**
  - /opt/novell/proxymgmt folder
  - /var/opt/novell/log/proxymgt folder

32.2.4 Enabling SSH

1 Enable SSH on the source server and the target server.

2 Enter the `# ssh-keygen -t rsa` command on the target server.

3 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.

4 When you are prompted to enter the passphrase (empty for no passphrase), press Enter.

We recommend that you do not include the passphrase.

5 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.

6 Log in to the 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`

33 Migrating QuickFinder to OES 11 SP3

This section provides information on how to migrate QuickFinder running on OES 2 SP3 or OES 11 to OES 11 SP3. The OES 2 SP3 or OES 11 server is referred to as the source server, and the OES 11 SP3 server as the target server.

33.1 Prerequisites

- QuickFinder is installed and configured on the source OES 2 SP3 or OES 11 32-bit machine.
- QuickFinder is installed on the target OES 11 SP3 machine.

For more information, see "Installing and Setting Up QuickFinder Server" in the *OES 11 SP3: Novell QuickFinder Server 5.0 Administration Guide*.

33.1.1 What Is Migrated

The following data is migrated from the source server to the target server:

- QuickFinder service level configuration files
- QuickFinder site-specific configuration files

33.2 Migration Procedure

1. Install OES 11 SP3 on the target server.

2. Stop Tomcat on the source server, using the following command: `rcnovell-tomcat5 stop`.

3. Configure QuickFinder on the target server with the same values as the source server.

4. Stop Tomcat on the target server, using the following command: `rcnovell-tomcat6-32bit stop`.

5. Migrate the `/var/lib/qfsearch/*.properties` files from the source server to the target server in the same volume and directory structure.

6. Migrate the virtual server settings from the source server to the target server in the same volume and directory structure. The default location is `/var/lib/qfsearch/Sites`. If the location is configured to a different location from the source server, then migrate it to a similar location on the target server. The location can be obtained from the source server (QuickFinder > Global Settings > General Service Settings > Server Management Settings > Default location of virtual server settings).

7. Restart Tomcat on the target server, using the following command: `rcnovell-tomcat6-32bit start`.

8. Restart Apache on the target server, using the following command: `rcapache2 restart`.

33.2.1 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 host name) as the source server and source server node is no longer available in the network. For more information, see Chapter 10, "Using the Migration GUI Tool for Transfer ID," on page 65

33.2.2 Post Migration

After the migration, log in to QuickFinder and verfy that the configuration was properly migrated.

33.3 Migrating QuickFinder to OES 11 SP3

This section provides information on how to migrate QuickFinder running on OES 2 SP3 or OES 11 to OES 11 SP3. The OES 2 SP3 or OES 11 server is referred to as the source server, and the OES 11 SP3 server as the target server.

34 Documentation Updates

This section contains information about documentation content changes made to the *OES 11 SP1: Migration Tool Administration Guide* since the initial release of Novell Open Enterprise Server 11.

This document was updated as follows:

- Section 34.1, "January 2014 (OES 11 SP2)," on page 269
- Section 34.2, "August 2012," on page 270

34.1 January 2014 (OES 11 SP2)

- Section 34.1.1, "Name Changed of Migration Scenario," on page 269
- Section 34.1.2, "Overview of the Migration GUI," on page 269
- Section 34.1.3, "What's New," on page 269
- Section 34.1.4, "Transfer ID Migration," on page 270
- Section 34.1.5, "Migrating File Systems to OES 11 SP2," on page 270

34.1.1 Name Changed of Migration Scenario

The name of the Consolidate scenario is changed to Migrate. This has no functionality change.

34.1.2 Overview of the Migration GUI

Location	Change
Section 2.1.4, "View Logs," on page 26	New section.
Section 2.4.1, "Status," on page 33	This section is updated with new migration progress fields.
Section 2.4.2, "Service Information," on page 33	New section.

34.1.3 What's New

Location	Change
Section 3.2, "What's New (OES 11 SP2)," on page 37	This section is new.

34.1.4 Transfer ID Migration

Location	Change
Section 9.2, "Preparing the Source Server for Migration," on page 62	Added a new prerequisite, "If the source server is NetWare, ensure that you comment the line, "LOAD DSMETER" in the autoexec.ncf file and restart the NetWare server before performing Transfer ID."
Chapter 11, "Using Migration Commands for Transfer ID," on page 71	Updated Step 9e Others > Common Proxy with new information, "If the source is Linux, to perform common proxy migration on the target OES 11 SP1 server, see Chapter 32, "Migrating Proxy Users to OES 11 SP3," on page 261.
Section 14.1, "Copying NICI Keys Fails When Performing Transfer ID," on page 85	New Issue.

34.1.5 Migrating File Systems to OES 11 SP2

Location	Change
Section 16.2.3, "Migrating Compressed Files," on page 100	New migration scenario.
Section 16.4, "Migrating the File System Using the Migration GUI," on page 103	• In Step 7, added a new line, "The names of the source cluster volumes can only include "_" as a special character to be listed in the Migration GUI." • In Step 9, updated New User Options with an Important note to specify the default password in the eDirectory password field.

34.2 August 2012

34.2.1 Overview of the Migration Tools

Location	Change
Table 1-2, "Source Platform Support for OES 11 SP3 Services," on page 19	The table is updated with the following: • Platform support for OES 11 SP1 • Updated with new services like DSfW, NetStorage, NCP, OpenSLP, QuickFinder.

34.2.2 What's New

Location	Change
Section 3.3, "What's New (OES 11 SP1)," on page 37	This section is new.

34.2.3 Migrating File Systems to OES 11 SP1

Location	Change
Section 16.4, "Migrating the File System Using the Migration GUI," on page 103	Updated the Sync Options task with Copy Trustees Only At The Directory Level option and Do Not Copy Trustees option.
Section 16.6.4, "File System Migration Commands," on page 119	Updated migfiles command with the --trustees-dirs-only option.

34.2.4 Service Migration

Location	Change
Part VII, "Service Migration," on page 141	All service chapters are updated with manual steps to migrate OES 2 to OES 11 SP1 server.
Chapter 23, "Migrating DSfW to OES 11 SP3," on page 195	New chapter
Chapter 24, "Migrating LUM to OES 11 SP3," on page 199	New chapter
Chapter 28, "Migrating NetStorage to OES 11 SP3," on page 253	New chapter
Chapter 30, "Migrating NCP to OES 11 SP3," on page 257	New chapter
Chapter 31, "Migrating OpenSLP to OES 11 SP3," on page 259	New chapter
Chapter 32, "Migrating Proxy Users to OES 11 SP3," on page 261	New chapter
Chapter 33, "Migrating QuickFinder to OES 11 SP3," on page 267	New chapter
Section 20.2, "Migrating CIFS to OES 11 SP3," on page 172	Added a new section, Section 20.2.4, "Post Transfer ID Migration Procedure," on page 173.