Migration Tool Administration Guide

Open Enterprise Server 2 SP3

June 2013

Novell

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About This Guide

This guide describes the functionality and usage of the Novell Open Enterprise Server 2 (OES 2) SP3 migration tool. This guide covers the following topics:

- Chapter 1, “Overview of the Migration Tools,” on page 15
- Chapter 2, “Overview of the Migration GUI,” on page 21
- Chapter 3, “What’s New,” on page 33
- Chapter 4, “Planning for Migration,” on page 39
- Chapter 5, “Using the Migration Tool GUI,” on page 43
- Chapter 6, “Troubleshooting Issues,” on page 47
- Chapter 7, “Preparing for Server Consolidation,” on page 51
- Chapter 8, “Using the Migration GUI Tool for Consolidation,” on page 53
- Chapter 9, “Preparing for Transfer ID,” on page 59
- Chapter 10, “Using the Migration GUI Tool for Transfer ID,” on page 63
- Chapter 11, “Using Migration Commands for Transfer ID,” on page 71
- Chapter 12, “Post Transfer ID Migration,” on page 79
- Chapter 13, “Troubleshooting Issues,” on page 83
- Chapter 14, “Security Considerations for Data Migration,” on page 89
- Chapter 15, “Migrating Data from Windows to OES 2 SP3 Linux,” on page 95
- Chapter 16, “Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP3 Linux,” on page 107
- Chapter 17, “Migrating eDirectory to OES 2 SP3 Linux,” on page 161
- Chapter 18, “Migrating AFP from NetWare to OES 2 SP3 Linux,” on page 167
- Chapter 19, “Migrating Novell Archive and Version Services to OES 2 SP3 Linux,” on page 171
- Chapter 20, “Migrating CIFS from NetWare to OES 2 SP3 Linux,” on page 177
- Chapter 21, “Migrating DHCP from NetWare to OES 2 SP3 Linux,” on page 189
- Chapter 22, “Migrating DNS from NetWare to OES 2 SP3 Linux,” on page 201
- Chapter 23, “Migrating FTP from NetWare to OES 2 Linux,” on page 205
- Chapter 24, “Novell iFolder Upgrade, Migration, and Coexistence,” on page 209
- Chapter 25, “Migrating iPrint from NetWare or OES 2 Linux to OES 2 SP3 Linux,” on page 223
- Chapter 26, “Migrating Timesync/NTP from NetWare to NTP on OES 2 Linux,” on page 247
- Appendix A, “Documentation Updates,” on page 249

Audience

This guide is intended for network administrators, installers, and consultants who are involved in migrating data and services to OES 2 SP3 Linux.

Feedback

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

Documentation Updates

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

Additional Documentation

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

Overview

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

1 Overview of the Migration Tools

Migration is the process of migrating services, file system data, and eDirectory information from an existing NetWare 5.1, NetWare 6.0, NetWare 6.5, Open Enterprise Server (OES) 1 Linux, OES 2 Linux, or OES 2 SP3 Linux server to an OES 2 SP3 Linux server. The OES 2 Migration Toolkit is designed to meet all your OES migration needs.

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

The following topics are discussed in this section:

- Section 1.1, “Migration Tool Enhancements,” on page 15
- Section 1.2, “Different Migration Tools,” on page 15
- Section 1.3, “Migration Scenarios,” on page 16
- Section 1.4, “Support Matrix for NetWare and OES Services,” on page 18

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 e-mail 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: • OES 2 Linux • OES 1 SP2 Linux • NetWare 5.1 SP8 • NetWare 6.0 SP5 • NetWare 6.5 SP7 • NetWare 6.5 SP8 • OES 2 SP1 Linux • OES 2 SP2 Linux • OES 2 SP3 Linux	To this physical or virtualized server: • OES 2 SP3 Linux	Migration Tool	Chapter 2, "Overview of the Migration GUI," on page 21
From any of these physical servers: • NetWare 5.1 SP8 or later	To this physical or virtualized server: • NetWare 6.5 SP8	Server Consolidation Migration Toolkit 1.2	*Novell Server Consolidation and Migration Toolkit Administration Guide*
From Windows Server	To this physical or virtualized server: • OES 2 SP3 Linux	Migrate Windows Share Utility	Appendix 15, "Migrating Data from Windows to OES 2 SP3 Linux," on page 95

1.3 Migration Scenarios

The Migration Tool supports the following scenarios:

- Section 1.3.1, "Consolidate," on page 16
- Section 1.3.2, "Transfer ID," on page 18

1.3.1 Consolidate

The Consolidate scenario helps you reorganize your network by copying the service configuration and data from any number of source servers to the target server. By consolidating data 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.

- "NetWare-to-OES 2 SP3 Linux Consolidations" on page 16
- "Example Consolidation Scenarios" on page 17
- "Cross-Platform Data Consolidations" on page 18

NetWare-to-OES 2 SP3 Linux Consolidations

For NetWare-to-OES 2 SP3 Linux consolidations, the service configuration and data from the source servers is copied to the target server.

Example Consolidation Scenarios

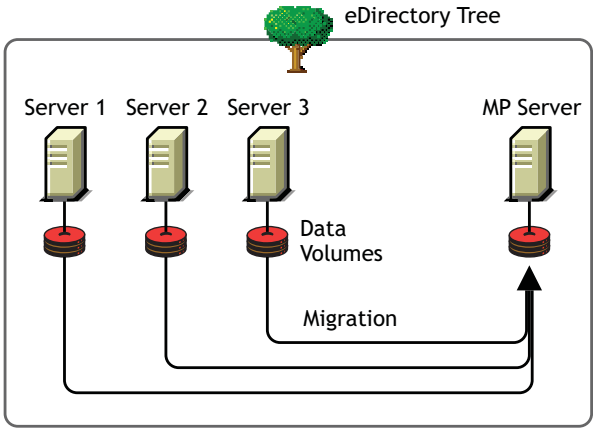
The benefits of the Migration Tool can be better understood through examining some sample consolidation scenarios.

- "Basic Server Consolidation: Many-to-One" on page 17
- "Consolidating Data from Multiple Servers onto a Two-Node Cluster" on page 17

Basic Server Consolidation: Many-to-One

In this scenario (see Figure 1-1), you have three existing NetWare servers. You recently purchased a multiprocessor server and installed OES 2 SP3 Linux on it. You want to copy the data from each of the three servers to the single OES 2 SP3 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 2 SP3 Linux server, you can use the Migration Tool to automate the process.

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

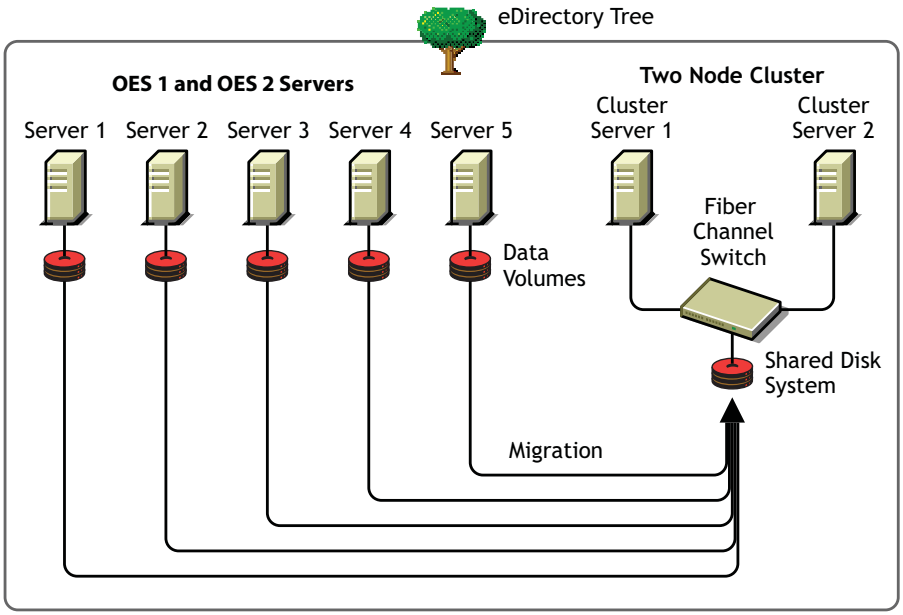


Although Figure 1-1 shows a consolidation scenario in which all servers are in the same eDirectory tree, you can also perform tree-to-tree consolidations.

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 2 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 Linux, or OES 2 Linux servers to an OES 2 SP3 Linux server.

You must use the Migrate Windows Share Utility to copy data from Windows servers in a Windows NT domain or Windows 2000/2003 mixed mode domain to OES 2 SP3 Linux servers.

1.3.2 Transfer ID

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

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

1.4 Support Matrix for NetWare and OES Services

The Table 1-2 lists the supported scenarios for OES 2 SP3 services and Table 1-3 lists the support for the source platforms for OES 2 SP3 services.

The symbols used in Table 1-2 are:

✓	Supported Scenario
✗	Unsupported Scenario

Table 1-2 *Migration Scenario Support for OES 2 SP3 Services*

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

The symbols used in Table 1-3 are:

✓	Supported source platform
✗	Unsupported source platform
NA	Service is not available on that platform

Table 1-3 *Source Platform Support for OES 2 SP3 Services*

Services	NW 5.1 SP8	NW 6.0 SP5	NW 6.5 SP7/SP8	OES 1.0 SP2	OES 2.0	OES 2.0 SP1	OES 2.0 SP2	OES 2.0 SP3
AFP	✗	✓	✓	NA	NA	✗	✗	✗
Archive and Version Services	NA	NA	✓	NA	✗	✗	✗	✗
CIFS	✗	✓	✓	NA	NA	✗	✗	✗
DHCP	✓	✓	✓	✗	✗	✗	✗	✗
FTP	✓	✓	✓	✗	✗	✗	✗	✗
iFolder	NA	NA	*	* **	✗	✗	✗	✗
iPrint	✓	✓	✓	✓	✓	✓	✓	✓

Services	NW 5.1 SP8	NW 6.0 SP5	NW 6.5 SP7/SP8	OES 1.0 SP2	OES 2.0	OES 2.0 SP1	OES 2.0 SP2	OES 2.0 SP3
NTP	✓	✓	✓	NA	NA	NA	NA	NA
NCP	NA	NA	NA	✓	✓	✓	✓	✓
NSS	✓	✓	✓	✓	✓	✓	✓	✓
NetWare Traditional	✓	✓	✓	NA	NA	NA	NA	NA

* iFolder 2

** iFolder 3.2

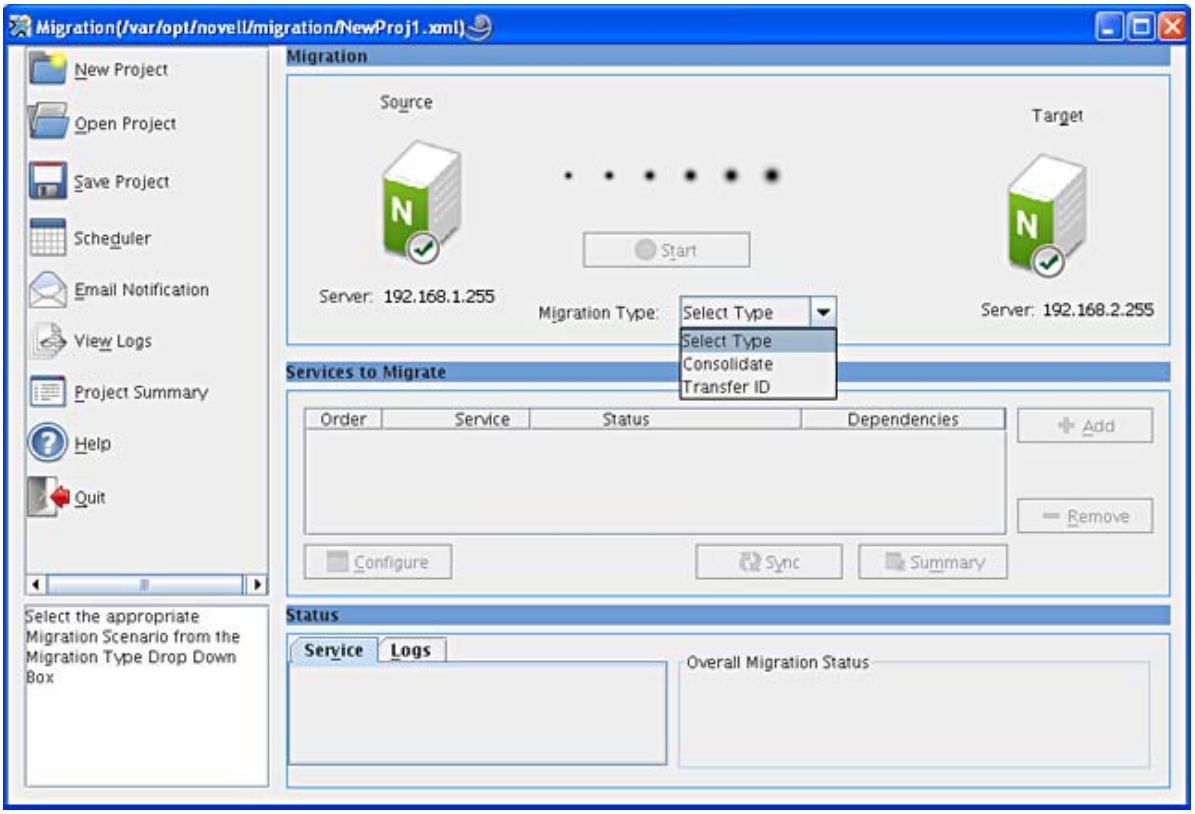
NOTE: Detailed information on configuring and migrating the above services is documented in Part VII, "Service Migration," on page 159.

2 Overview of the Migration GUI

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

- Section 2.1, “Project Pane,” on page 21
- Section 2.2, “Migration Pane,” on page 27
- Section 2.3, “Services to Migrate Pane,” on page 29
- Section 2.4, “Service Migration Status,” on page 31
- Section 2.5, “Overall Migration Status,” on page 32

Figure 2-1 *Migration Tool GUI*



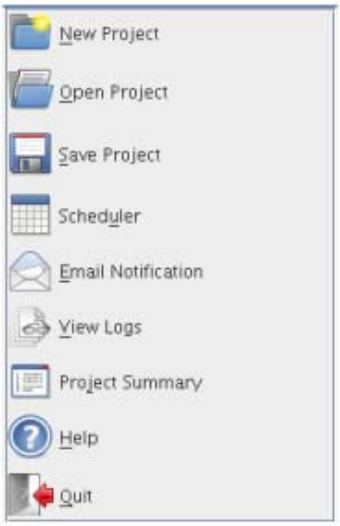
2.1 Project Pane

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

- Section 2.1.1, “Create Project,” on page 22
- Section 2.1.2, “Schedule Service,” on page 23

- Section 2.1.3, “Mail Notification,” on page 24
- Section 2.1.4, “Log Files,” on page 26
- Section 2.1.5, “Project Summary,” on page 26
- Section 2.1.6, “Help,” on page 27
- Section 2.1.7, “Quit,” on page 27
- Section 2.1.8, “Whiteboard,” on page 27

Figure 2-2 *Project Pane*



2.1.1 Create Project

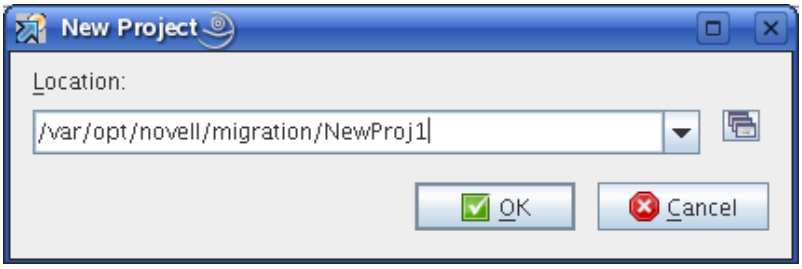
When you start Migration Tool GUI, a default project opens. You can save that project, create a new project or open an existing migration project.

- “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

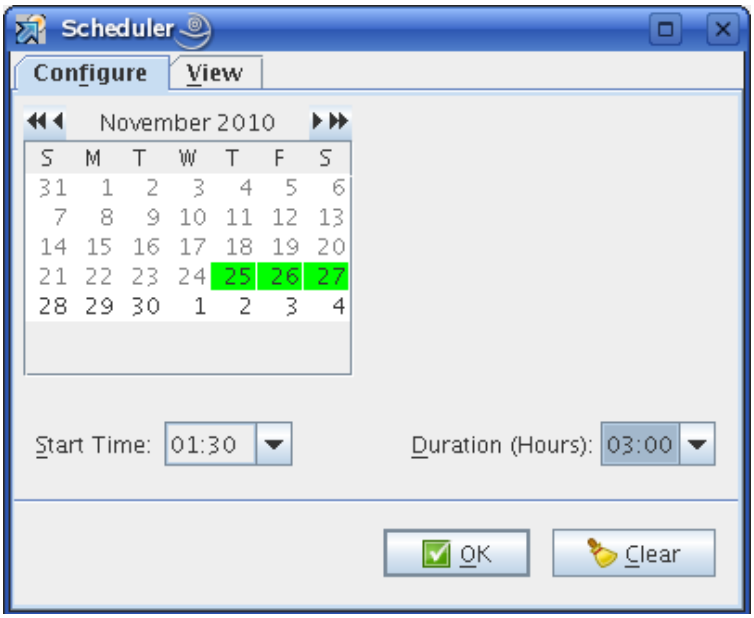
To save a migration project, click *Save Project*, then click *Yes*. Click *No* to save the project to a different location.

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" on page 23
- "View" on page 24

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 *Start* to migrate, or click *Sync*, to synchronize the data at the specified time.

The migration project runs on the scheduled date and time.

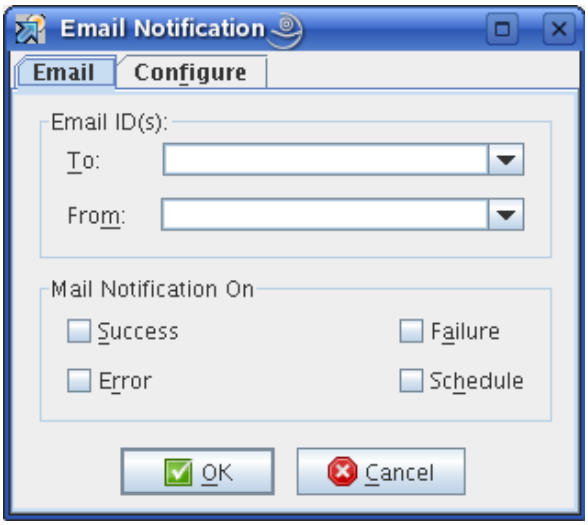
View

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

2.1.3 Mail Notification

You can set e-mail 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 e-mail address of an individual or group to receive notifications. You can include multiple e-mail addresses separated by a comma.

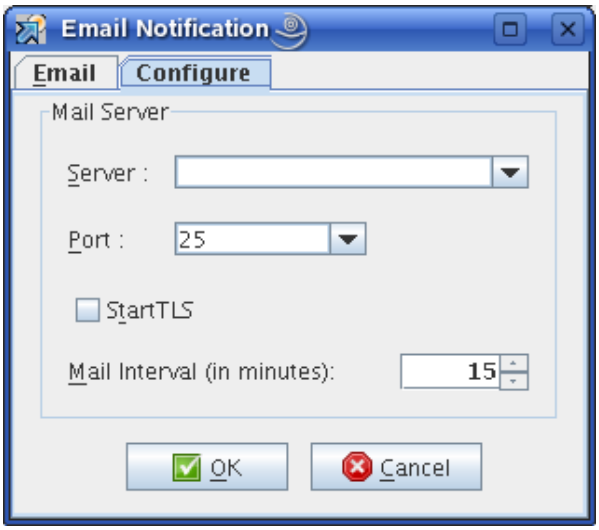
2 In the *From* field, type the e-mail address that the notification e-mail messages will be sent from.

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

If you select all the options, you receive notification through mail, depending on the state of migration. For example, when migration fails, you receive an e-mail message notifying you that 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 e-mail message through a secure SMTP connection, select *StartTLS*.

   For example, to send an e-mail to a gmail account, the IP address is *gmail-smtp-in.l.google.com* and the port is *26*.
4. Specify the mail interval (in minutes) to send e-mail messages for errors encountered. The default time is 15 minutes, but you can increase or decrease the interval as necessary. The e-mail messages are sent only if error notification in the *Email* tab is set and if errors are encountered.

   NOTE: To set up your default mail settings, update the details in the `migconf.properties` file.

   The e-mail 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
   - mail_server_port
   - mail_to
   - mail_from
   - populate_values_from_httpstkd

   However, if you want default e-mail settings specified in `/etc/opt/novell/httpshkd.conf` file, then set the populate_values_from_httpstkd parameter to *yes* in the `migconf.properties` file.
5. Click *OK* to save the settings.

2.1.4 Log Files

The progress of overall migration is recorded in the `migration.log` file. For example, `/var/opt/novell/migration/NewProj1/log/migration.log`.

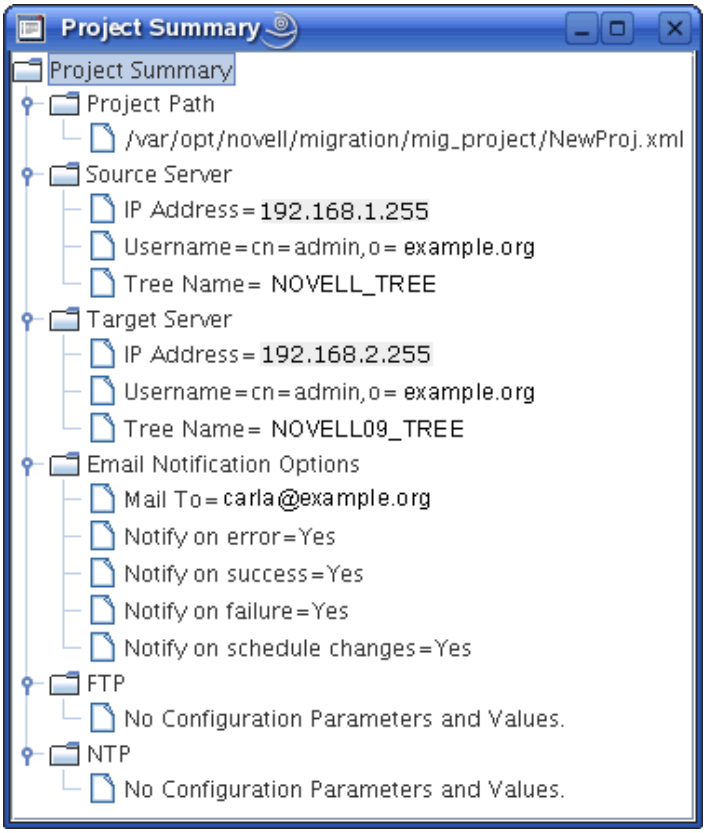
You can modify the size and number of log files to be created for any log, including the service-specific logs, by editing the `Log.xml` configuration file, which is located in the `/etc/opt/novell/migration` folder. Customize the following parameters for each log file you want to modify:

Parameter	Description
MaxFileSize	Specifies the size of the log file. Default value: 10 MB
maxBackupIndex	Specifies the maximum number of files created before the first log file is overwritten. Default value: 10

2.1.5 Project Summary

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

Figure 2-6 *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 display instructions and tips to perform a successful migration.

2.2 Migration Pane

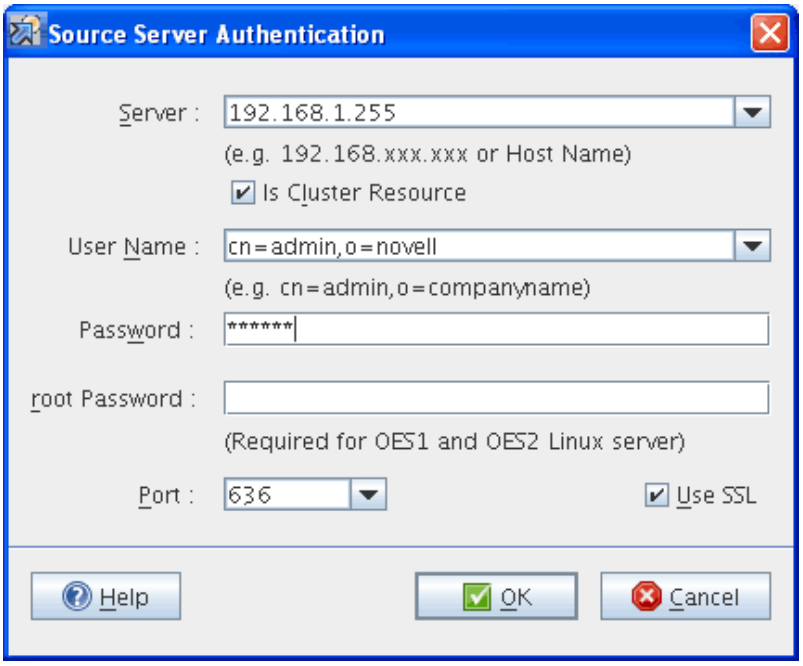
This is the top pane of the Migration Tool GUI. Use this pane to perform the following tasks:

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

2.2.1 Authenticate Source Server and Target Server

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

Figure 2-7 *Source Server Authentication Screen*



1 In the *Server* field, specify the IP address or hostname of the source server.

(Optional) Is Cluster Resource: This option supports only Consolidate scenario and does not support Transfer ID.

If you want to migrate cluster volumes specify 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 can be migrated. For example, use the NSS Cluster Pool IP to migrate NSS cluster volumes and use the iPrint cluster IP to migrate iPrint

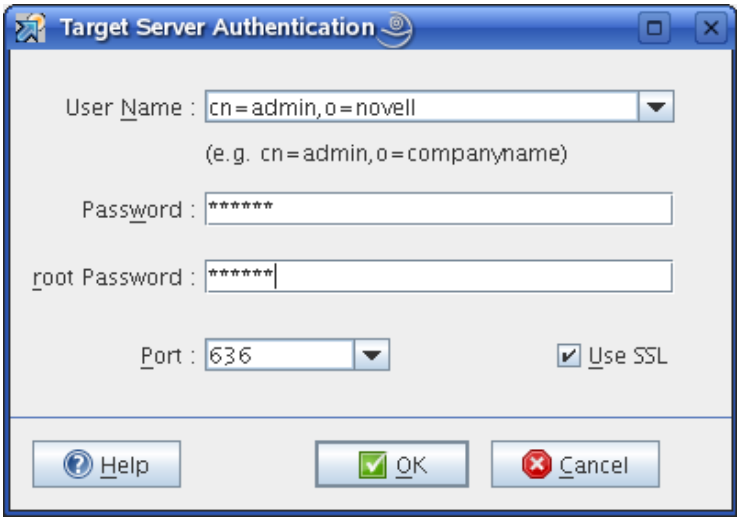
Use the node IP address for migrating other services.

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. (Optional) In the *Root Password* field, specify the password for authentication, if the source server is OES 1 or OES 2 Linux.
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 2-8 *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

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

1 Depending on your requirements, select the migration type:

- **Consolidate:** Select this option if you want to consolidate the services from the source server into an already running instance of the service on the target server. The source server and the target server can be in the same eDirectory tree or a different eDirectory tree.
- **Transfer ID:** Select this option to transfer the server identity of the source server to the target server. The source server and 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 29

2.3 Services to Migrate Pane

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

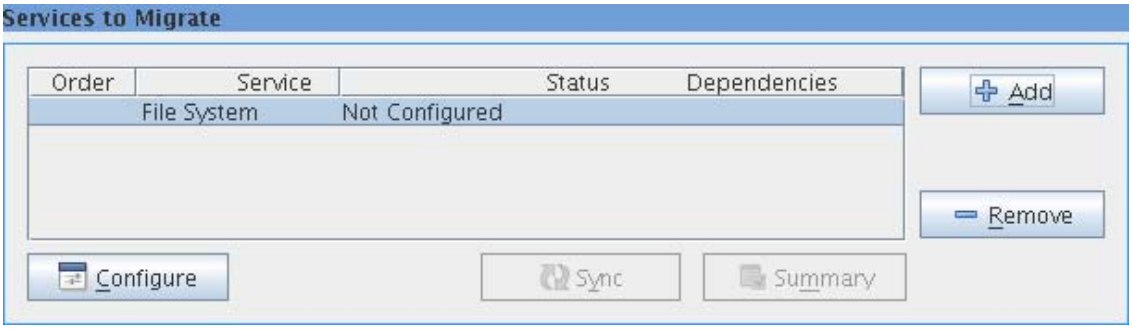
IMPORTANT: You must install all the services on the target server that you plan to migrate from the source server.

For a list of service migration chapters and their corresponding documentation, see the Part VII, "Service Migration," on page 159.

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.

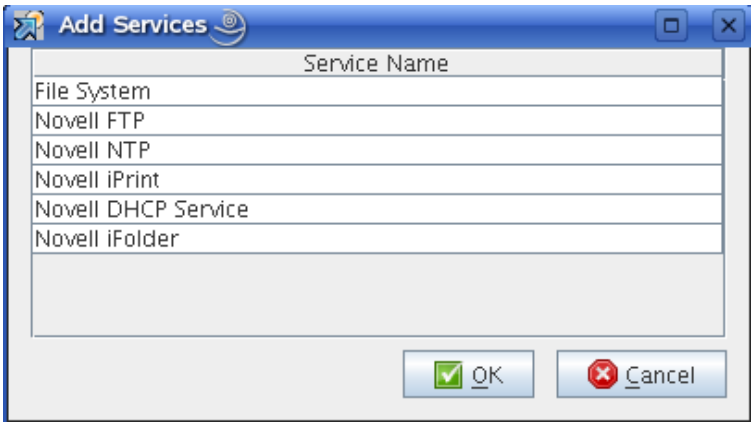
Figure 2-9 *Services to Migrate*



2.3.1 Options

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

Figure 2-10 *List of Services to Migrate*



- **Remove:** In the *Services to Migrate* pane, select the service you do not want to migrate and click *Remove*.
- **Order:** The number indicates the order in which each service migrates. The order is displayed by the migration tool and cannot be edited.
- **Service:** Lists the name of service to be migrated.
- **Status:** Displays the status of the service and 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*.

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

- **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.

   Details to configure and migrate the services are documented as an Appendix in this guide.

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

2.4 Service Migration Status

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

- Section 2.4.1, "Service," on page 31
- Section 2.4.2, "Logs," on page 31

2.4.1 Service

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

Table 2-1 *Migration Status*

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

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

Elapsed: Displays the service migration execution time.

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

2.4.2 Logs

Displays the service migration log. A log directory is created in the same path as the migration project.

NOTE: If there is a Fatal error, the overall migration process is stopped and details are logged in `migration.log`.

2.5 Overall Migration Status

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

Table 2-2 *Migration Status*

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

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

Elapsed: Displays the overall migration execution time.

Percentage: The percentage of the overall migration that is complete.

3 What's New

This section describes the enhancements and changes to the Migration Tool for Novell Open Enterprise Server 2 (OES 2).

- Section 3.1, "What's New (OES 2 SP3 April 2013 Patches)," on page 33
- Section 3.2, "What's New (OES 2 SP3 January 2013 Patches)," on page 33
- Section 3.3, "OES 2 SP3," on page 34
- Section 3.4, "OES 2 SP2," on page 35
- Section 3.5, "OES 2 SP1," on page 35

3.1 What's New (OES 2 SP3 April 2013 Patches)

Upgrade to eDirectory 8.8.7

An upgrade to Novell eDirectory 8.8 SP7 is available in the April 2013 Scheduled Maintenance for OES 2 SP3. For information about the eDirectory upgrade, see TID 7011599 (http://www.novell.com/support/kb/doc.php?id=7011599) in the Novell Knowledgebase.

There will be no further eDirectory 8.8 SP6 patches for the OES platform. Previous patches for Novell eDirectory 8.8 SP6 are available on Novell Patch Finder (http://download.novell.com/patch/finder/#familyId=112&productId=29503).

3.2 What's New (OES 2 SP3 January 2013 Patches)

- Section 3.2.1, "Upgrade to Novell iManager 2.7.6," on page 33
- Section 3.2.2, "New Novell Cluster Services Plug-in for iManager 2.7.5 and Later," on page 34

3.2.1 Upgrade to Novell iManager 2.7.6

The January 2013 Scheduled Maintenance for OES 2 SP3 includes a channel upgrade from Novell iManager 2.7.5 to Novell iManager 2.7.6.

Novell iManager 2.7.6 provides the following enhancements:

- Microsoft Internet Explorer 10 certification in the desktop user interface view on Windows 8 (excluding Windows 8 RT) and Windows Server 2012.
- Apple Safari 6.0 certification on Mac OSX Mountain Lion (version 10.8).
- iManager Workstation certification on Windows 8 Enterprise Edition (32-bit and 64-bit).
- Manager 2.7.6 support for Tomcat 7.0.32. and Java 1.7.0_04 versions.

iManager documentation links in this guide have been updated to reflect this change.

iManager 2.7.6 documentation is available on the Web (https://www.netiq.com/documentation/imanager/). For earlier iManager versions, see "Previous Releases" (https://www.netiq.com/documentation/imanager27/#prev).

3.2.2 New Novell Cluster Services Plug-in for iManager 2.7.5 and Later

The Clusters plug-in for Novell iManager 2.7.5 or later supports the management of OES and NetWare clusters and resources. The availability of different cluster management features depends on the version of Novell Cluster Services and the server platform that are installed on the cluster being managed. A comparison of the old and new interface is available in "What's New (January 2013 Patches)" (http://www.novell.com/documentation/oes2/clus_admin_lx/data/ncs_new_jan2013.html) in the *OES 2 SP3: Novell Cluster Services 1.8.8 Administration Guide for Linux* (http://www.novell.com/documentation/oes2/clus_admin_lx/data/h4hgu4hs.html).

3.3 OES 2 SP3

- Section 3.3.1, "Overall Migration," on page 34
- Section 3.3.2, "File System Migration," on page 34
- Section 3.3.3, "iPrint Migration," on page 34

3.3.1 Overall Migration

- The size and number of log files can be customized. For more information, see Section 2.1.4, "Log Files," on page 26.
- The credentials on the target server are automatically populated when the source and target server are in the same tree.
- In *Email Notification*, the mail interval for error notification and the address in the *From* field can be specified. For more information, see Section 2.1.3, "Mail Notification," on page 24.
- The partially restored or 0 byte files can be deleted by using migfiles.

3.3.2 File System Migration

- Migration can now be performed for DST volumes.
- The successfully migrated files are logged in the `filesystem.success.log` file.
- In the file system GUI, under *File Options*, an option has been added to ignore the quotas that are set on the target server.

3.3.3 iPrint Migration

- Capability to migrate without prompting for target Driver Store and Print Manager

  The Target Print Manager field is populated with the name of the Active Print Manager running on the target server. If the driver store is running, the *Target Driver Store DN* field is populated with the Driver Store associated with the PSM object.
- Automation of manual checks in iPrint migration.

3.4 OES 2 SP2

- Section 3.4.1, “Overall Migration,” on page 35
- Section 3.4.2, “File System Migration,” on page 35

3.4.1 Overall Migration

- The migration fields are populated with values used in previous migrations.
- Improved error logging and better health checks.
- Auto-refresh for log messages is enabled while migration or synchronization is in progress. You can also click the Refresh button for viewing the offline log messages.
- In the Migration Tool GUI, *Services to Migrate* pane, the *Status* field is updated with the status and last executed date and time of the migration or the synchronization activity.

3.4.2 File System Migration

- Two options *Is Cluster Resource* and *Follow Cluster Resource* are provided to perform cluster migration.These options are valid only on the source server clusters. On selecting *Follow Cluster Resource* option, migration continues uninterruptedly during cluster resource migration to different cluster nodes.
- Supports migration of non-English directories and trustees.
- Supports disabling logins on the source server during data migration.
- During a consolidation scenario, in the Volume Information tab, multiple volumes or directories can be copied to the target server tree.

3.5 OES 2 SP1

Migration Tool has a single interface that helps to migrate all the services from a source server to the target server. Migration Tool uses a plug-in architecture and is made up of Linux command line utilities with a GUI wrapper.

The Migration Tool supports the Consolidate and Transfer ID scenario.

The following tasks are performed during migration:

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

II Getting Started

- Chapter 4, “Planning for Migration,” on page 39
- Chapter 5, “Using the Migration Tool GUI,” on page 43
- Chapter 6, “Troubleshooting Issues,” on page 47

4 Planning for Migration

The following topics are discussed in this section:

- Section 4.1, “Prerequisites,” on page 39
- Section 4.2, “Preparing the Source Server for Migration,” on page 40
- Section 4.3, “Preparing the Target Server for Migration,” on page 40
- Section 4.4, “Installing and Accessing the Migration Tool,” on page 41
- Section 4.5, “What’s Next,” on page 41

4.1 Prerequisites

- Section 4.1.1, “Source Server Requirements,” on page 40
- Section 4.1.2, “Target Server Requirements,” on page 40
- Section 4.1.3, “Unsupported Target Platforms,” on page 40

The Migration Tool is installed as part of the Open Enterprise Server (OES) 2 SP3 installation. The source server and the target server must meet the requirements outlined in this section.

- **Platform Support for the Source Server:**
  - NetWare 5.1 SP8. Upgrade to eDirectory 8.6.2 or later
  - NetWare 6.0 SP5. Upgrade to eDirectory 8.6.2 or later
  - NetWare 6.5 SP7 or later and eDirectory 8.8.x or later
  - OES 1 SP2 on 32-bit
  - OES 2 Linux on 32-bit or 64-bit
  - OES 2 SP1 Linux on 32-bit or 64-bit
  - OES 2 SP2 Linux on 32-bit or 64-bit
  - OES 2 SP3 Linux on 32-bit or 64-bit
- **Platform Support for the Target Server:**
  - OES 2 SP3 Linux on 32-bit or 64-bit
- **Time Synchronization:** The source and target servers must be using the same time synchronization method. For more information on time synchronization, see “Time Services” in the *OES 2 SP3: Planning and Implementation Guide*.

4.1.1 Source Server Requirements

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

- ❒ The source server must be running supported versions of NetWare, OES 1 or OES 2, and eDirectory.
- ❒ Update the source server with the latest NetWare Support Pack.
- ❒ Ensure that the user performing the migration has read/write/access rights on the source server.

4.1.2 Target Server Requirements

- ❒ The OES 2 SP3 Linux target server must be installed and updated with the latest patches. For instructions on updating an OES 2 SP3 Linux server, see "Updating (Patching) an OES 2 SP3 Server" in the *OES 2 SP3: Installation Guide*.
- ❒ 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 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 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 eDirectory in the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/).
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 eDirectory in the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/).

2. Make sure that you have installed and configured the services that you are migrating from the source server.

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

4.4 Installing and Accessing the Migration Tool

The Migration Tool is automatically installed with the OES 2 SP3 (target server) server in the `/opt/novell/migration/sbin` folder.

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 the terminal prompt, enter:

  ```
  miggui
  ```

4.5 What's Next

To get started with the Migration Tool GUI, see "Using the Migration Tool GUI" on page 43.

5 Using the Migration Tool GUI

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

After you have completed the prerequisite procedures in Chapter 4, "Planning for Migration," on page 39, you are ready to perform migration. To do this, complete the following tasks in the order they are listed:

- Section 5.1, "Getting Started," on page 43
- Section 5.2, "Launch the Migration Tool Utility," on page 43
- Section 5.3, "Migration Process," on page 43

5.1 Getting Started

The Migration Tool is automatically installed with the OES 2 SP3 in the `/opt/novell/migration/sbin` folder.

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

5.2 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:

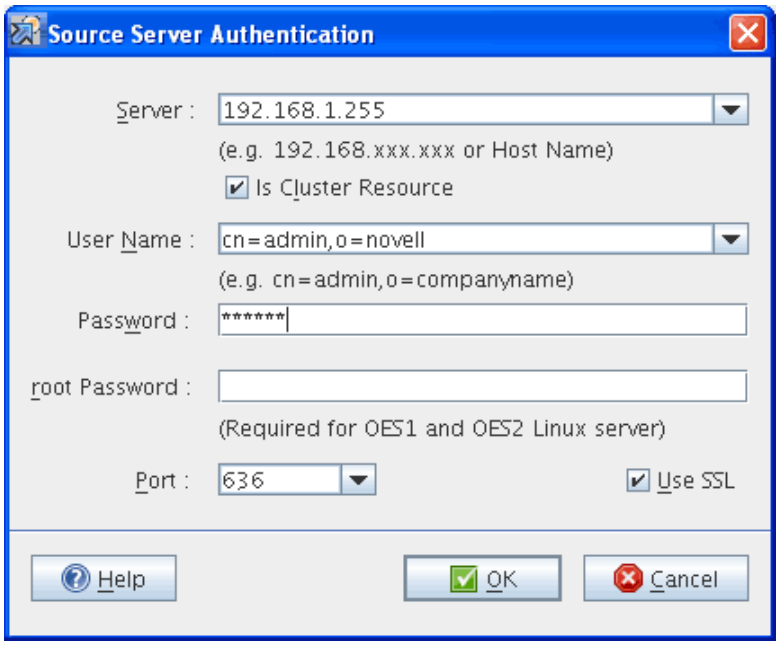
Desktop: Click *Computer* > *More Applications* > *System* > *Novell Migration Tools*.

Console: At the terminal prompt, enter:

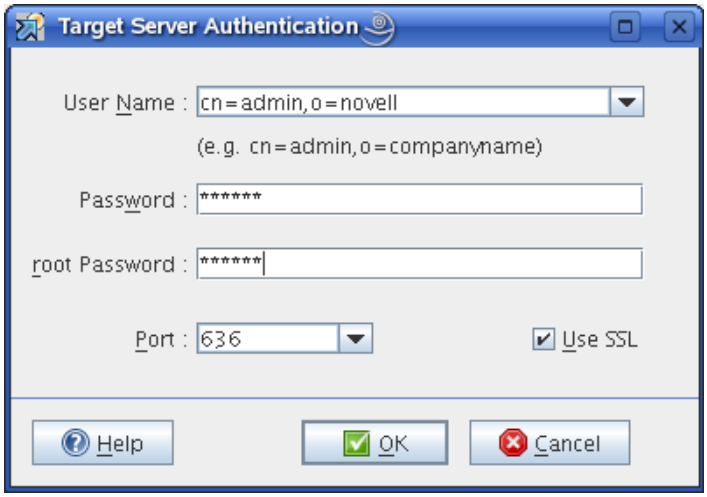
```
miggui
```

5.3 Migration Process

1. Launch the Migration Tool.
2. Do one of the following to create, open, or save the migration project:
   - To create a new migration project, click *New Project*, 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:

- Consolidate. To perform consolidation, see Chapter 7, “Preparing for Server Consolidation,” on page 51
- Transfer ID. To perform a Transfer ID, see Part IV, “Transfer ID Migration,” on page 57.

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

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

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

6 Troubleshooting Issues

- Section 6.1, “Unable to Browse the eDirectory Tree in the Services Migration GUI,” on page 47
- Section 6.2, “The Authentication Dialog Box is Blank,” on page 47

6.1 Unable to Browse the eDirectory Tree in the Services Migration GUI

Description: On a new OES2 SP3 server, the services Migration GUI is unable to display eDirectory objects on browsing the tree or LDAP secure bind fails displaying an empty eDirectory tree.

The Migration Tool creates a private Java certificate store on 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 when the keystore does not exist, the LDAP bind fails during authentication or when performing an eDirectory search.

Action: The error is resolved on performing the following steps:

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.

6.2 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

- Chapter 7, “Preparing for Server Consolidation,” on page 51
- Chapter 8, “Using the Migration GUI Tool for Consolidation,” on page 53

7 Preparing for Server Consolidation

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

- Section 7.1, “Prerequisites,” on page 51
- Section 7.2, “Consolidation Support Matrix,” on page 51

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) 2 SP3 with the following components enabled:
  - Novell eDirectory
  - Novell NCP Server for Linux
  - Novell Storage Management Services (SMS)

For more information on installing and configuring OES on Linux, see the *OES 2 SP3: Installation Guide*.

7.2 Consolidation Support Matrix

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

The Table 7-1 explains the behavior of the service on selecting the Consolidate scenario.

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

Table 7-1 *Support Matrix*

Services	Consolidate		Details
	Overwrites the existing configuration	Append to the existing configuration	
AFP	No	Yes	Section 18.2, “Migration Scenarios,” on page 167

Services	Consolidate		Details
Archive and Version Services	Yes	No	Section 19.2.1, “Consolidate - Same Tree,” on page 171
CIFS	CIFS configuration	◆ Shares ◆ Context	Section 20.2.1, “Consolidate - Same Tree,” on page 178
DHCP	No	Yes	Section 21.3.2, “Consolidation,” on page 198Section 21.3.2, “Consolidation,” on page 198
FTP	Yes	No	Section 23.2, “Migration Scenarios,” on page 206
iFolder 3	No	◆ User’s iFolder ◆ Sharing information of iFolder 3.2	“Migration Scenarios” on page 211
iPrint	No	Yes	Section 25.2, “Supported Migration Scenarios,” on page 225
NTP	No	Yes	Section 26.2, “Migration Scenarios,” on page 247

8 Using the Migration GUI Tool for Consolidation

After you have completed the general prerequisites in Chapter 4, “Planning for Migration,” on page 39 and prerequisite procedures in Chapter 7, “Preparing for Server Consolidation,” on page 51, 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 53
- Section 8.2, “Create the Project File,” on page 54
- Section 8.3, “Select the Source Server, Target Server, and Migration Type,” on page 54
- Section 8.4, “Configure the Services,” on page 55
- Section 8.5, “Run the Migration,” on page 56

8.1 Launch the Migration Tool Utility

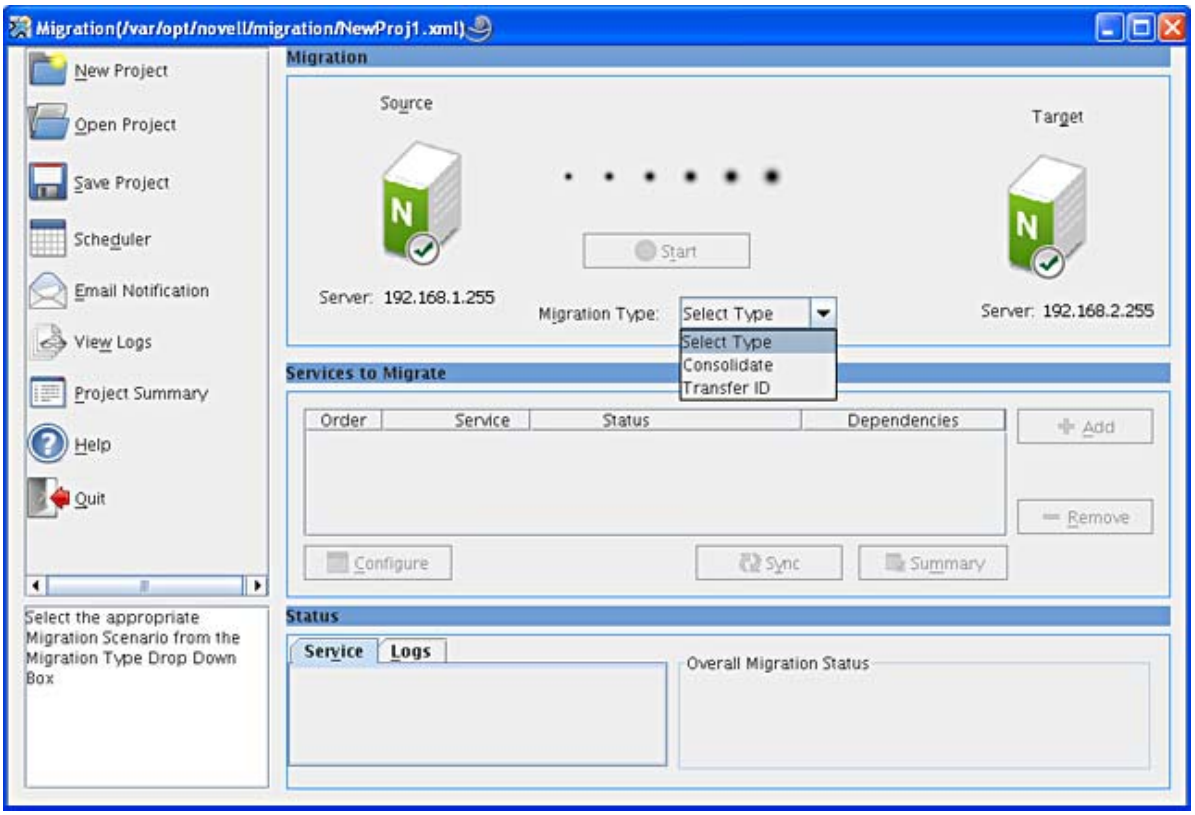
Log in as the `root` user and use one of the following methods to access the Migration Tool on your target server:

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*.

   or

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

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

2. Type the project filename in the field provided.

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

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

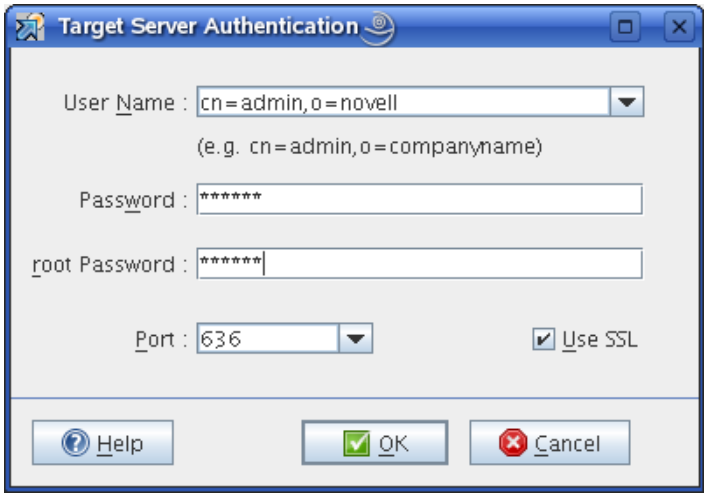
4. Continue with Section 8.3, "Select the Source Server, Target Server, and Migration Type," on page 54.

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*.



On successful authentication, both the servers change to green.

3 Select the migration type as *Consolidate*.

4 Continue with Section 8.4, “Configure the Services,” on page 55.

8.4 Configure the Services

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

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

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

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

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

For a list of service migration chapters and their corresponding documentation, see *Part VII, "Service Migration," on page 159*.

3 Continue with Section 8.5, "Run the Migration," on page 56.

8.5 Run the Migration

1 Click *Start* to proceed with migration.

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

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

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

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

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

IV Transfer ID Migration

- Chapter 9, “Preparing for Transfer ID,” on page 59
- Chapter 10, “Using the Migration GUI Tool for Transfer ID,” on page 63
- Chapter 11, “Using Migration Commands for Transfer ID,” on page 71
- Chapter 12, “Post Transfer ID Migration,” on page 79
- Chapter 13, “Troubleshooting Issues,” on page 83

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:

- Section 9.1, “Prerequisites,” on page 59
- Section 9.2, “Preparing the Source Server for Migration,” on page 60
- Section 9.3, “Preparing the Target Server for Migration,” on page 60

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.
- You must have specific rights to perform migration.
- 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 as a non-replica server, select the *Novell Pre-migration Server* option while installing OES 2 on the target server.
- Verify the health of eDirectory by executing the `ndsrepair` command on Open Enterprise Server (OES) 2 SP3 Linux 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 on time synchronization, see “Time Services” in the *OES 2 SP3: Planning and Implementation Guide*.

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

    All the eDirectory replicas are synchronized.

  If any errors are reported, resolve them before attempting migration.
- Ensure that the names and properties of 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 source server and target server are mapped correctly. The `/etc/hosts` file on the source server must contain correct entries for resolving source server's DNS hostname to IP address.
- On performing successful Transfer ID, the target server takes the identity of the source server and the container in which source server is installed is not retained.

9.2 Preparing the Source Server for Migration

- Shut down any applications, products, or services (virus scan software, backup software, etc.) running on the server to be migrated.
- (Recommended) Back up all your data on the target server.

  For information on creating a backup of eDirectory, see Backing Up and Restoring Novell eDirectory in the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/).

  You must back up the data and trustee of the source servers, even though the source data is not modified during migration.
- Remove any unnecessary applications, then delete and purge unused files and folders. Files that are deleted from the source server prior to migration are not migrated to the target server.
- Ensure the NetWare server has a valid license. If Transfer ID is performed on the NetWare server with evaluation license, then it might fail due to insufficient user connections.
- (Conditional) If the source server is OES 1 Linux or OES 2 Linux, enable SSH service. Ensure you have copied the SSH keys to avoid multiple password prompts on execution of the *DIB Copy* step.
- Ensure that the `/root/.ssh/known_hosts` file contains the entries of both the hostname and its corresponding IP address.

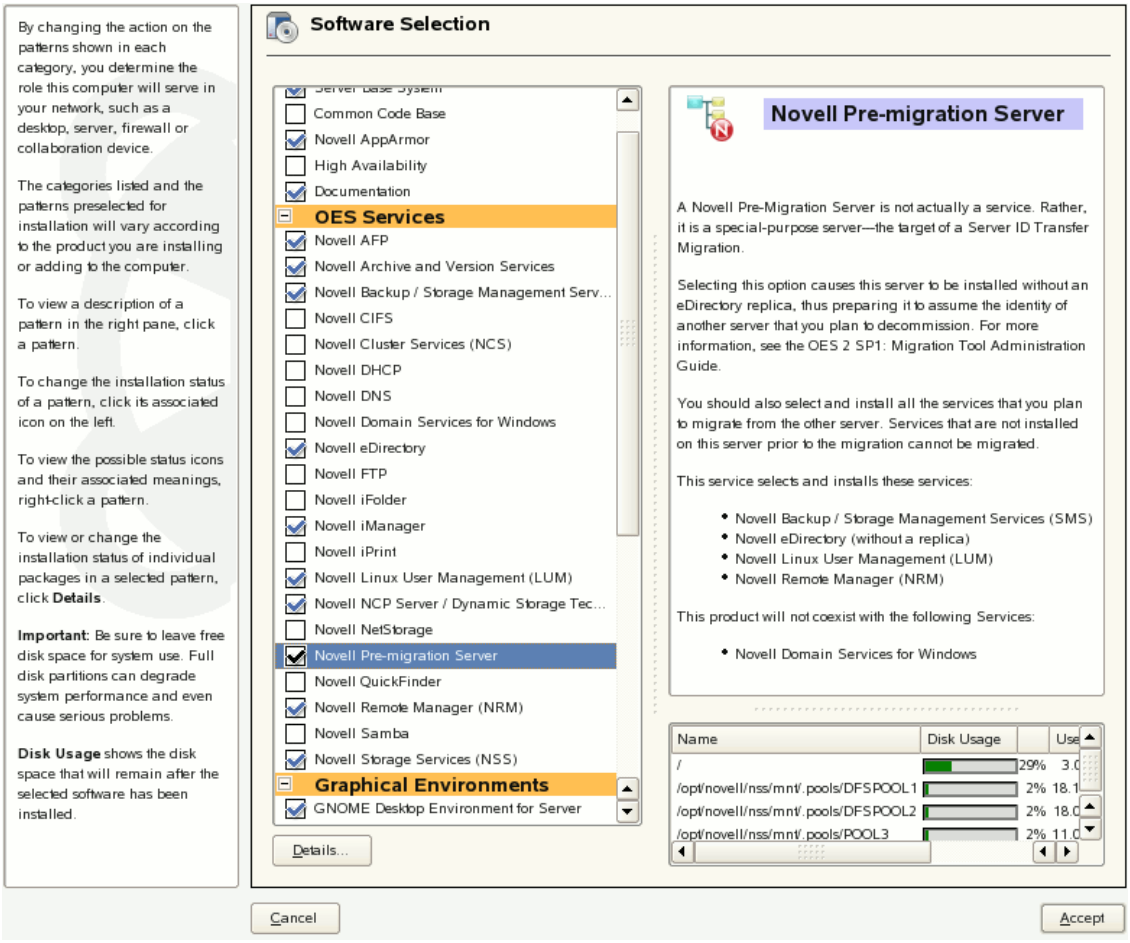
On successfully transferring the server identity of the source server to the target server, the container in which the source server is installed is not retained.

9.3 Preparing the Target Server for Migration

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

  When you install OES 2 on the target server for a Transfer ID migration and you reach the Software Selection window, you must 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 OES 2 SP3 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 2 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 2 SP3 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 Novell eDirectory in the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/).

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 59, you are ready to migrate the source server. To do this, complete the following tasks in the order they are listed:

- Section 10.1, “Understanding Transfer ID GUI,” on page 63
- Section 10.2, “Launch the Migration Tool Utility,” on page 64
- Section 10.3, “Create the Project File,” on page 64
- Section 10.4, “Select the Source and Target Server and the Migration Type,” on page 65
- Section 10.5, “Configure the Services and Run Migration,” on page 65
- Section 10.6, “Run Transfer ID,” on page 66

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

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

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

- Section 10.1.1, “Left Pane,” on page 63
- Section 10.1.2, “Right Pane,” on page 64

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.

Icon	Description
	The task is complete.
	Errors must be resolved before proceeding with the next step. An error is displayed in the *Errors* text box.
	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 tasks and the overall Transfer ID.
- **Send E-mail Notification:** Select this option to receive an e-mail for a main task. An e-mail is sent only if you have already configured the *Email Notification* tab in the main Migration GUI screen. E-mail is not sent for suggests.
- **Ignore:** Ignores a task and proceeds with the next task.
- **Back:** Click *Back* to re-execute a task.

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

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

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

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 Tools.*

Console: At a terminal prompt, enter

```
miggui
```

10.3 Create the Project File

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

or

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

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

2 Type the project filename in the field provided.

The filename can 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.

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

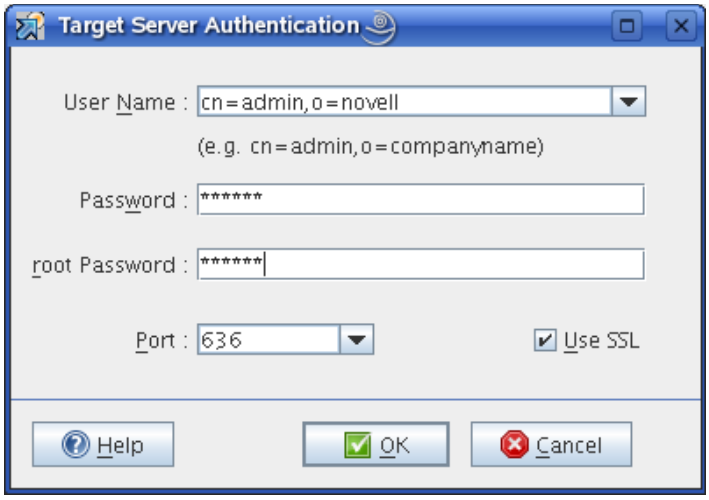
10.4 Select the Source and Target Server and the Migration Type

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, Transfer ID scenario is not available.

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



On successful authentication, both the servers change to green.

3 Select the migration type as *Transfer ID*.

4 You can either migrate all the services to an OES 2 SP3 server and then transfer the NetWare or OES server's identity, or only transfer NetWare or OES server's identity to an OES 2 SP3 server.

4a To migrate services, continue with Section 10.5, "Configure the Services and Run Migration," on page 65.

4b To transfer only the NetWare server's identity, click the *Start* button.

4b1 Click *Yes* to perform identity transfer without migrating the services.

4b2 Click *No* to configure and migrate services, refer to Section 10.5, "Configure the Services and Run Migration," on page 65.

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*.

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

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

For a list of service migration chapters and their corresponding documentation, see the Part VII, "Service Migration," on page 159.

---

3 Click *Start* to proceed with migration.

In the *Services to Migrate* pane, select the service to view the service-specific progress in the *Status* > *Service* tab. On completion of migration, the *Status* of a service changes to *Migrated*.

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

In the *Status* pane, *Overall Migration Status* tab, you can view the progress of overall migration. A message *Migration completed for all Services* is displayed on completion of migration.

4 Check the status of the migration. If the migration is successful, the *Start* button changes to *Transfer ID*.

5 (Optional) We recommend you to complete synchronization of the services before proceeding for Transfer ID.

6 (Optional) Back up the eDirectory database and NICI keys. For more information, see Section 11.1, "Backup eDirectory Database and NICI Keys," on page 77.

7 Perform Transfer ID either using graphical user interface or the command line options.

- To launch the Transfer ID GUI, click *Transfer ID*. For more information on performing the steps in the GUI, see Section 10.6, "Run Transfer ID," on page 66.
- 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, "Backup eDirectory Database and NICI Keys," on page 77.

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.

On 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 or OES 2 Linux, 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 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 a eDirectory DIB (Directory Information Base) copy of the source server on to the target server.

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

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

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 shutdown 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 67 on the target server. This includes the NICI keys and the eDirectory related information.

WARNING: If the backup in Step 3 on page 67 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 details, refer to Chapter 13, "Troubleshooting Issues," on page 83.

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

- **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 is 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 e-mail is sent in this step, even if you have selected the settings to receive an e-mail.

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, may cause the system to hang. For more details, refer to Chapter 13, "Troubleshooting Issues," on page 83.

- **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 e-mail is sent in this step, even if you have selected the settings to receive an e-mail.

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, LUM, 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 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, then the Migration Tool skips this step and 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 `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 12, "Post Transfer ID Migration," on page 79.

11 Using Migration Commands for Transfer ID

Before running Transfer ID, ensure you have met all the prerequisites and prepared your servers as described in Section 4.2, “Preparing the Source Server for Migration,” on page 40 and Section 4.3, “Preparing the Target Server for Migration,” on page 40.

Before you begin, remember the following considerations:

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

To perform a Transfer ID using CLI:

1 **eDirectory Precheck:** Executes prerequisites that need to be done for Transfer ID scenario.

1a Use the following command to do 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 username and password of the source server.

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

1b Check the availability of the hostname and IP address on the source server. The hostname or IP address can be resolved using the DNS server or using the `/etc/hosts` file of the source server.

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 `/etc/nam.conf` file on the target server by executing the 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 OES1 or OES2, create a backup of the `/etc/nam.conf` file of 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 <source short hostname> -a <admin dn> -S <ldap-server-ip> [--use-unsecure-ldap] [--ldap-port] -p <password> --grp <group FDN> -l <LUM enabled user and groups>
```

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

To copy the ssh keys:

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

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

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

   The ssh keys are stored in the default location.

   b. "Enter passphrase (empty for no passphrase)", press `Enter`.

   We recommend you not to include passphrase.
3. Copy the key value i.e. the output of the above command to the source server

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

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

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

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

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

2b To remove eDirectory from the target server, enter

`/opt/novell/eDirectory/bin/ndsconfig rm -c -a "admin" -w ADM_PASSWD --config-file /etc/opt/novell/eDirectory/conf/nds.conf`

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

`migedir -s <sourceipaddress> -u -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 username and password of the source server.

---

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

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

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

On running the above command, you are prompted for the username and password of the source server. Enter the admin credentials when prompted.

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

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

---

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

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

IMPORTANT: Ensure to backup the target eDirectory database and NICI keys, see Section 11.1, "Backup eDirectory Database and NICI Keys," on page 77 for more information.

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

```
migedir -R
```

On running the above command, you will be prompted for the 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 may 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.

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

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

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

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

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

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

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

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

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

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

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

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

---

7 **Host Name Change:** Hostname of the services is changed to source server hostname.

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

<hostname-script> <targethostname> <sourcehostname>

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

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

For example, `./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 on performing Transfer ID migration.

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

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

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

---

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

- To re initialize the server, enter

  `/etc/init.d/network restart`

- To restart eDirectory, enter

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

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

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

9a **eDirectory:** Performs repair of eDirectory.

To repair eDirectory, enter

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

To restart eDirectory, enter

`/etc/init.d/ndsd restart`

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`

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

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

`/opt/novell/oes-install/util/getSSCert -a <new ip address> -t <treename> -u <admindn>`

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

You are prompted for the password of the administrator.

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

Next, you need to LUM enable the target server.

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

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

9c LUM: Create or modify the existing Unix Workstation object:

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

  ```
  ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-
  reconf.rb -a <admin dn> -p <admin password> -S <ldap-server-ip> -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 or OES 2 Linux, 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 <admin dn> -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.

9c1 To copy the certificate for LUM operations, enter

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

9c2a `ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-grpmod.rb -H <source short hostname> -a <admin dn> -S <ldap-server-ip> [--use-unsecure-ldap] [--ldap-port] -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.
--use-unsecure-ldap	Specify unsecure LDAP for all LDAP commands.
--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 distinguised 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 or OES 2 Linux, modify the users and groups by entering the following command:

```
ruby /opt/novell/migration/sbin/serveridswap/scripts/repair/nam-fix.rb
-H <source short hostname> -a <admin dn> -p <password>
```

9c4 Refresh LUM Cache, run `/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
```

9d **Services:** The scripts are executed for the services that are migrated before performing Tansfer ID.

- To repair File System, enter

  ```
  /opt/novell/migration/sbin/serveridswap/scripts/repair/volrepair.rb -a
  <admin name in ldap format> -p <password> -f <project_path>/fs
  ```

  A return value 0 indicates success.

- To repair iPrint service, enter

  ```
  /opt/novell/migration/sbin/serveridswap/scripts/repair/iprintrepair.sh
  -s <source server IP> -u <admin name in ldap format> -T -L -p <ssl port>
  -S
  ```

  Specify -S option only when LDAP server is configured for SSL. And do specify SSL port only if its configured.

- To repair CIFS service, enter

  ```
  sh /opt/novell/migration/sbin/migcifs.sh -s <source server IP> -p
  <port> -a <admin name> {-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
  ```

  A return value 0 indicates success.

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

- 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 `/etc/sysconfig/novell/netstore2_sp3` file.

  `/usr/sbin/rcnovell-xregd restart`

  `/usr/sbin/rcapache2 restart`

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

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

11.1 Backup eDirectory Database and NICI Keys

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

For more information on backing up and restoring eDirectory, refer to the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/edir88/?page=/documentation/edir88/edir88/data/a2iii88.html).

For more information on backing up and restoring NICI keys, refer to the Novell eDirectory 8.8 Administration Guide (http://www.novell.com/documentation/edir88/edir88/?page=/documentation/edir88/edir88/data/a2iii88.html).

12 Post Transfer ID Migration

- Section 12.1, “Manually Configuring Quick Finder Service for Change in IP Address and Hostname,” on page 79
- Section 12.2, “Cleanup Objects,” on page 79
- Section 12.3, “DFS Junctions are Not Restored,” on page 81

12.1 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 IP address is 172.16.200.201. After Transfer ID migration, the new IP address is 172.16.100.101 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-tomcat5 restart`.
5. Restart Apache by entering `rcapache2 restart`.

The QuickFinder service runs with the changed IP address.

12.2 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 working of the target server.

- Section 12.2.1, “AFP,” on page 80
- Section 12.2.2, “CIFS,” on page 80
- Section 12.2.3, “eDirectory,” on page 80
- Section 12.2.4, “NSS,” on page 80

- Section 12.2.5, “iPrint,” on page 81
- Section 12.2.6, “DHCP, FTP, NTP and iFolder,” on page 81

12.2.1 AFP

If you decide to delete the proxy username having the old hostname, you must recreate 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
   ```

12.2.2 CIFS

If you decide to delete the proxy username having the old hostname, you must recreate 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
   ```

12.2.3 eDirectory

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

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

12.2.4 NSS

- “NSS Admin User Object” on page 80
- “Pools and Volumes” on page 81

NSS Admin User Object

You must not delete the `<old server hostname>admin` user object from eDirectory. All the NSS management operations fail on deleting this admin user object.

If you plan to delete the admin user object having the old hostname, you must recreate the admin user object with new hostname:

1. Delete `<old server hostname>admin` user object.
2. Launch `yast2 nss` and recreate the admin object with new server hostname.

Pools and Volumes

The pools and volumes created on the Linux server before performing Transfer ID are associated with the old hostname, perform the following post Transfer ID:

1. To update the source server's volume object GUID references in the target NSS file system, run `/opt/novell/migration/sbin/serveridswap/scripts/repair/volrepair.rb`
2. Using iManager, delete the pool and volume object containing the temporary Linux hostname name.
3. (Conditional) If the target server contains pools or volumes which are not available on the source server, recreate these objects using *Update NDS* option from NSSMU.

12.2.5 iPrint

1. To delete NDPSPrinter, NDPSManager and NDPSBroker objects, run `/opt/novell/iprint/bin/iprintcleanup.pl` script.

12.2.6 DHCP, FTP, NTP and iFolder

These services require no additional steps after Transfer ID.

12.3 DFS Junctions are Not Restored

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

After performing Transfer ID, delete the `~DFSINFO.8-P` file from the migrated volumes on the target server, then run VLDB repair to update the file from eDirectory. For more information about VLDB repair, see "Repairing the VLDB" in the *OES 2 SP3: Novell Distributed File Services Administration Guide for Linux*.

13 Troubleshooting Issues

- Section 13.1, “On Completing Transfer ID migration, iManager or Novell Remote Manager is Not Accessible via a Web browser on the Target Server,” on page 83
- Section 13.2, “System Might Hang on Terminating the IP Address Change Step when Performing the Transfer ID Scenario,” on page 83
- Section 13.3, “System Might Hang on Terminating the Hostname Change Step when Performing the Transfer ID Scenario,” on page 84
- Section 13.4, “On Failure of Migration and Restoring eDirectory to the Source Server, LDAP Does Not Bind,” on page 84
- Section 13.5, “eDirectory Error 626 on Performing Transfer ID Migration,” on page 85

13.1 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.

   On 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.

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

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

13.3 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.

13.4 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 a message, "Config version 10 is greater than 8 in attribute" or any such 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. In *General > Other* tab, in Valued Attributes column, select *ldapConfigVersion* and click *Edit*.
5. Change the *LDAP Configuration Version* value as defined in the error, then click *OK*.

   For example, if the LDAP server displays a message, "Config version 10 is greater that 8 in attribute" or any such 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 of the source server.
8. Restart LDAP module on the source server:

   On NetWare:

   ```
   unload nldap.nlm
   load nldap.nlm
   ```

   On OES 1 or OES 2 Linux

   ```
   nldap -u
   nldap -l
   ```

On performing the preceding steps the server returns to the status before it is removed from the eDirectory tree.

13.5 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 (http://www.novell.com/documentation/edir88/edirin88/data/a79kg0w.html#ai39bze) in the Novell eDirectory 8.8 Installation Guide (http://www.novell.com/documentation/edir88/edirin88/?page=/documentation/edir88/edirin88/data/a2iii88.html).

2. (Conditional) If SLP is not used, create `/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, refer to the manpage `hosts.nds`.

V Security Considerations

- Chapter 14, “Security Considerations for Data Migration,” on page 89

14 Security Considerations for Data Migration

This section describes how the Novell Open Enterprise Server 2 (OES 2) 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 these tools.

For additional security implementation information, see "Security" in the *OES 2 SP3: Planning and Implementation Guide*.

- Section 14.1, "Root-Level Access Is Required," on page 89
- Section 14.2, "Securing User Credentials," on page 89
- Section 14.3, "Mounting Remote File Systems," on page 91
- Section 14.4, "Transmitting Data Across the Network," on page 92
- Section 14.5, "Managing Passwords for Migrated Users," on page 92

14.1 Root-Level Access Is Required

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

14.2 Securing User Credentials

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

- Section 14.2.1, "How User Credentials Are Stored During a Migration," on page 89
- Section 14.2.2, "How Credentials Are Passed from the Migration GUI Utilities to the Migration Commands," on page 90
- Section 14.2.3, "Managing Credential Storage with migcred," on page 91
- Section 14.2.4, "Securing Credentials When Piping Commands," on page 91

14.2.1 How User Credentials Are Stored During a Migration

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

- "Migration Commands" on page 90
- "Migration GUI Utilities" on page 90

Migration Commands

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

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

```
export MIG_USE_CASA=1
```

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

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

The migration commands use the CASA API library to securely store and retrieve credentials from 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 `ncpshell` command.
- To retrieve Windows source shares, the NTFS Migration Utility issues the `ntresource` command.
- To carry out migrations, the GUI utilities execute the required migration commands (`mls`, `migfiles`, `maprights`, `maptrustees`, `ntfsmls`, etc.).

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

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

14.2.2 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.

14.2.3 Managing Credential Storage with migcred

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

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

14.2.4 Securing Credentials When Piping Commands

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

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

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

14.3 Mounting Remote File Systems

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

- Section 14.3.1, “NetWare and OES 1 Linux Source Servers,” on page 91
- Section 14.3.2, “Windows Source Servers,” on page 91

14.3.1 NetWare and OES 1 Linux Source Servers

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

For source NetWare and OES 1 Linux servers, the `mls` command uses nbackup tool to build the list of trustees.

14.3.2 Windows Source Servers

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

14.4 Transmitting Data Across the Network

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

14.5 Managing Passwords for Migrated Users

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

- Generate random passwords for the migrated users (by using the `-r` option of the `maptrustees` command)

  or

- Assign a specific password for all migrated users (by using the `-S` option of the `maptrustees` command)

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

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

For an example of how to use `mignotify` to notify migrated users of their new passwords, see "mignotify" on page 148.

VI Data Migration

- Chapter 15, “Migrating Data from Windows to OES 2 SP3 Linux,” on page 95
- Chapter 16, “Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP3 Linux,” on page 107

15 Migrating Data from Windows to OES 2 SP3 Linux

This section explains how to migrate data from Microsoft Windows servers to Novell Open Enterprise Server 2 (OES 2) SP3 Linux servers.

NOTE: To migrate data from Windows to an OES 2 SP3 Linux server, use the Migrate Windows Shares utility. The Migration Tool with OES 2 SP3 does not support Windows migration.

- Section 15.1, "Prerequisites," on page 95
- Section 15.2, "Using the Migration Commands," on page 96
- Section 15.3, "Using the Migrate Windows Shares Utility," on page 98

15.1 Prerequisites

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

For the source server:

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

For the target server:

- ❒ Make sure that the `samba-client` software package is installed on the OES 2 Linux server.

  The `samba-client` package is installed by default with SUSE Linux Enterprise Server (SLES) 10 SP4. To verify that it is installed, select *Computer* > *YaST* > *Software* > *Software Management* and search for `samba-client`.
- ❒ Create the required target volumes by using nssmu (for NSS volumes) or ncpcon (for NCP volumes).
- ❒ If you want to use the CASA secret store to store usernames and passwords during the migration, ensure that the following RPM is installed on the OES 2 Linux server:

`CASA-1.7-xxx.i586.rpm`

  Restart the CASA daemon by entering the following command:

  `/etc/init.d/micasad restart`

15.2 Using the Migration Commands

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

- Section 15.2.1, "Migration Commands to Use," on page 96
- Section 15.2.2, "Migration Steps," on page 96
- Section 15.2.3, "Example," on page 96
- Section 15.2.4, "Limitations," on page 97
- Section 15.2.5, "Troubleshooting," on page 98

15.2.1 Migration Commands to Use

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

15.2.2 Migration Steps

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

   ```
   maptrustees
   ```

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

   ```
   ntfsmap
   ```

   ```
   migrights
   ```

15.2.3 Example

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

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

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

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

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

   The `migfiles` command mounts the Windows share by using a CIFS mount and copies the files using `rsync`.
2. Capture the ACL and rights information of the Windows share to an output file:

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

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

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

Be sure to include the `-g` option.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

15.2.4 Limitations

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

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

  description
  mail
  facsimileTelephoneNumber
  fullName
  givenName
  initials
  language
  physicalDeliveryOfficeName
  postOfficeBox
  postalCode

st
street
telephoneNumber
title

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

15.2.5 Troubleshooting

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

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

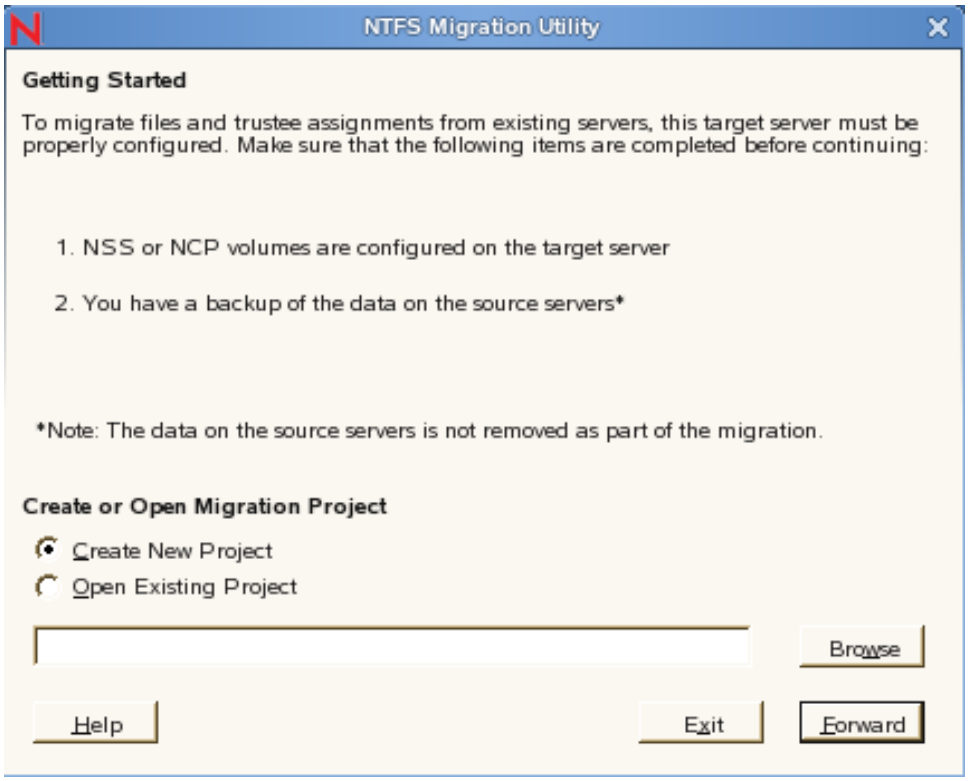
```
umount -i /tmp/migrate
```

15.3 Using the Migrate Windows Shares Utility

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

To migrate Windows data shares:

1. Prepare the source and target servers as instructed in Section 15.1, “Prerequisites,” on page 95.
2. On the target server, access the utility from the desktop by selecting *Computer* > *YaST Administrator Settings* > *Open Enterprise Server* > *Migrate Windows Shares*.



3 (Optional) Create a new migration project:

3a Select *Create New Project*.

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

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

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

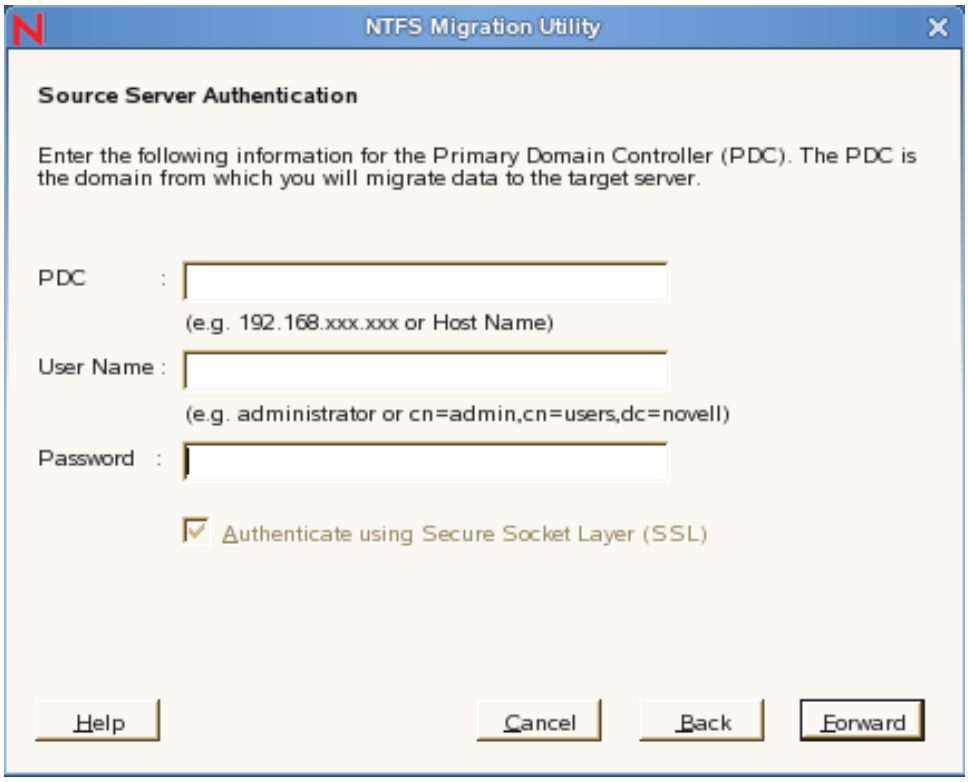
If a project with the same name already exists in the specified path, you are prompted whether you want to replace the old file. If you click *OK*, the new project overwrites the old one.

3c Click *Forward*.

3d Skip to Step 5.

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

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



5 Authenticate to the source Windows domain:

5a In the *PDC* (Primary Domain Controller) field, specify the IP address or DNS name of the PDC server.

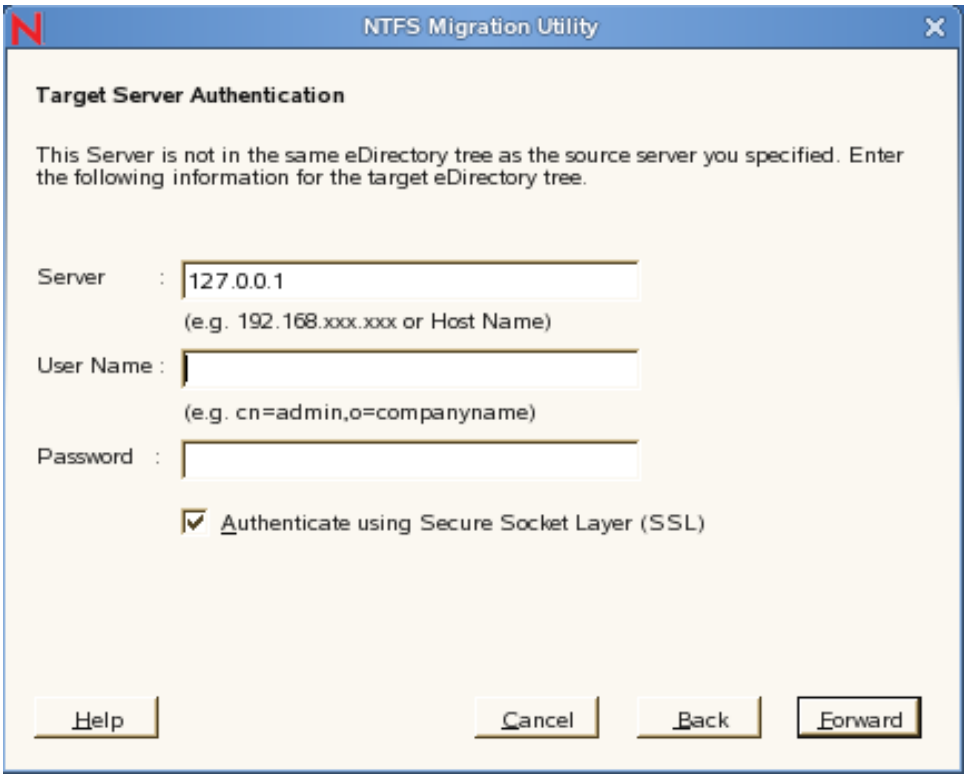
5b In the *User Name* field, specify the fully distinguished, typeful name of an Active Directory user with admin rights, or the Windows administrator of the source server.

Use either the simple form (Administrator) or the LDAP comma-delimited format (cn=admin,cn=users,dc=novell).

5c In the *Password* field, specify the password for the user.

The *Authenticate using Secure Socket Layer (SSL)* option is unavailable for Windows source servers.

5d Click *Forward*.



6 Authenticate to the target tree.

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

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

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

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

6d Decide whether to use a secure connection.

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

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

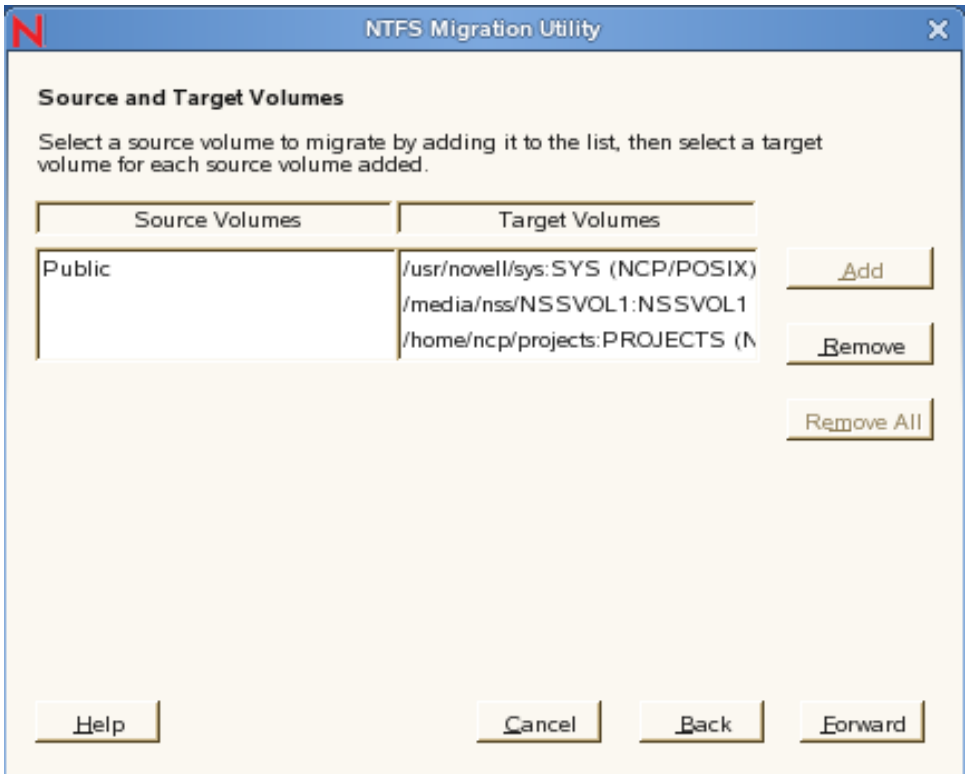
- If you do not want to use a secure connection, deselect the *Authenticate using Secure Socket Layer (SSL)* option.

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

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

6e Click *Forward*.

7 Select the source and target volumes.



7a Click *Add*.

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

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

The target volume type is displayed after the volume path:

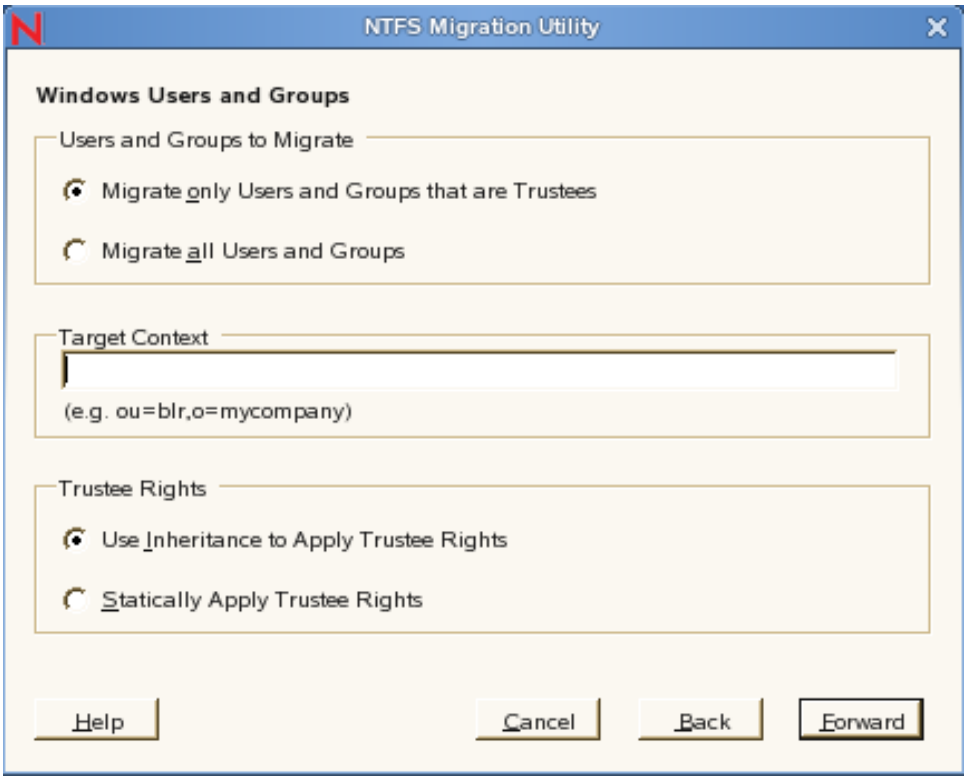
- NSS indicates a Novell Storage Services volume.
- NCP/POSIX indicates a NetWare Core Protocol volume on a Linux POSIX file system, such as EXT3 or XFS.

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

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

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

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



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

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

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

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

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

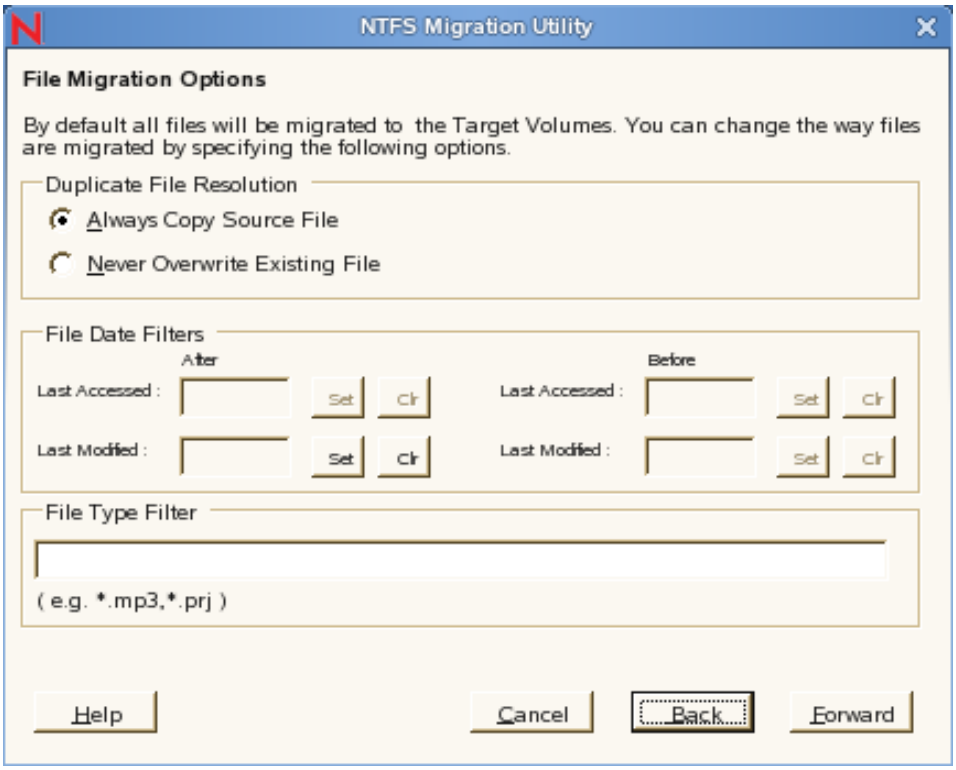
If the specified context does not exist, it is created in the target tree.

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

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

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

8d Click *Forward*.



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

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

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

9b Select the filter options you want.

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

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

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

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

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

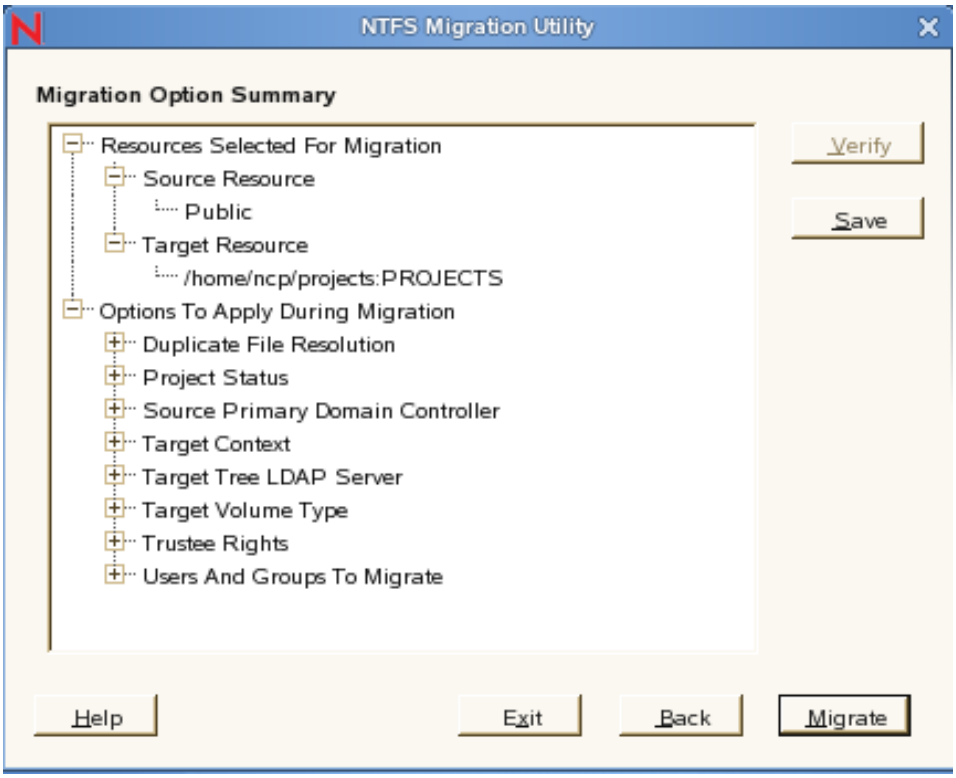
9c (Optional) Select File Type filter options.

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

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

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

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



10 Review the migration option summary:

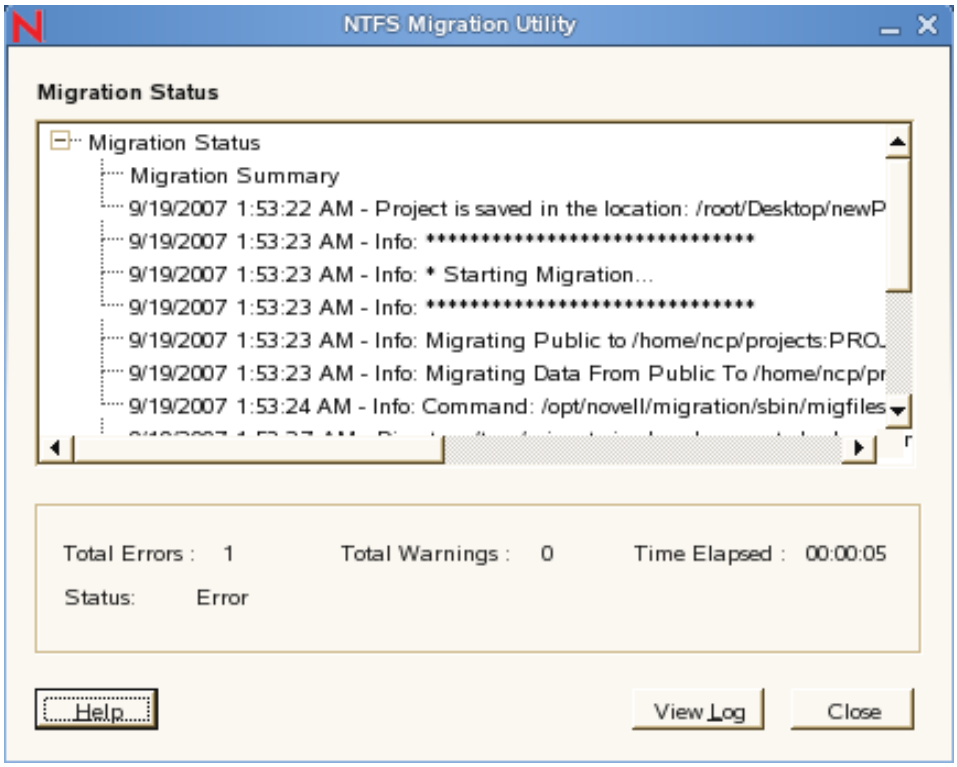
10a Expand the entries to verify that you have made the correct selections.

10b Take the appropriate action:

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

The *Verify* button is enabled only after the migration has completed (see Step 14 on page 106).

11 Monitor the progress of the migration project.



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

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

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

If errors occurred, the messages recorded in the log file can help you determine what needs to be corrected before you attempt the migration again.

13 Click *Close* to close the Migration Status window.

14 (Conditional) To ensure that everything was migrated correctly, click *Verify* and review the log file again.

15 Click *Exit* to exit the *Migrate Windows Shares* utility.

16 Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP3 Linux

This section provides information on how to migrate the file system running on NetWare or Open Enterprise Server (OES) Linux to OES 2 SP3 Linux. In this section, the NetWare server, OES 1 Linux, and OES 2 Linux servers are referred to as the source server and the OES 2 SP3 Linux server is referred to as the target server.

- Section 16.1, “Preparing for File System Migration,” on page 107
- Section 16.2, “Migration Scenarios,” on page 109
- Section 16.3, “Moving Devices for Migrating the Data from NetWare to OES 2 SP3,” on page 113
- Section 16.4, “Migrating File System Using GUI,” on page 113
- Section 16.5, “Migrating File System Using Command Line Utilities,” on page 123
- Section 16.6, “Troubleshooting,” on page 152

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

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 107
- Section 16.1.2, “Target Server Requirements,” on page 108

16.1.1 Source Server Requirements

- “NetWare Server” on page 107
- “OES 1 or OES 2 Linux Server” on page 108

NetWare Server

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

  SMS updates can be downloaded from the Novell Downloads Web site (http://www.novell.com/download).
- When migrating data from a Traditional NetWare volume, ensure that the NPM files for NFS and the NFS name space is 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.
- (Conditional) For NetWare 6.0 server, you need to extract tsafs.nlm and smsut.nlm from the latest tsa5up patch, shipped for NetWare 6.5 and load it on the NetWare 6.0 server.

OES 1 or OES 2 Linux Server

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

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

- To migrate data from NCP volumes on OES 1 server, ensure that you have done the following:
  - Install the Novell Client 2.0 SP2 for Linux
  - Restart SMS by running the following command:

    ```
    rcnovell-smdrd restart
    ```

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

16.1.2 Target Server Requirements

- Ensure that the server is running OES 2 SP3.
- Services to be migrated must be installed and configured on the target server.
- If the source server is running NetWare 5.1 SP7 and your data contains extended ASCII or Unicode characters, add the following setting to the `/etc/opt/novell/sms/tsafs.conf` file of the target server:

`useCodeSet=`*`xxx`*

For *xxx*, substitute the code page value set on the NetWare server. For example, the default code page is 437. (Alternate forms include CP437, CSPC8CODEPAGE437, and IBM437).

Restart SMS by running the following command:

```
rcnovell-smdrd restart
```

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

- “For NSS Target Volumes” on page 109
- “For NCP Target Volumes” on page 109

For NSS Target Volumes

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

`CASA-1.7-xxx.i586.rpm`

Restart the CASA daemon by entering the following command:

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

For NCP Target Volumes

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

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 2 Linux vary depending on whether the source server and target server are in the same eDirectory tree or in different eDirectory trees. This section covers the following scenarios:

- Section 16.2.1, “Consolidating Data to a Server in the Same Tree,” on page 110
- Section 16.2.2, “Consolidating Data to a Server in a Different Tree,” on page 110
- Section 16.2.3, “Data Migration for Clustered Volumes,” on page 110
- Section 16.2.4, “Data Migration for DST Volumes,” on page 111
- Section 16.2.5, “Transfer ID,” on page 112
- Section 16.2.6, “Migration Procedure,” on page 113

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 target server:

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

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 target server:

- Volumes, folders and files
- Users and their trustee rights
- 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 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" on page 110
- "Upgrading NetWare Cluster and Shared Storage" on page 110

Upgrading NetWare Cluster Nodes

One or more NetWare nodes are replaced with OES 2 SP3 Linux nodes. Novell Cluster Services supports rolling server upgrade, using which one or more NetWare nodes can be replaced with OES 2 SP3 Linux nodes. For performing upgrade, refer to the *Novell Cluster Services 1.8.7 for Linux Administration Guide* (http://www.novell.com/documentation/oes2/clus_admin_lx/?page=/documentation/oes2/clus_admin_lx/data/ncsconvertnw2lx.html#ncsconvertnw2lx).

Upgrading NetWare Cluster and Shared Storage

All nodes and shared storage is replaced with new cluster with OES 2 SP3 Linux configured on a new shared storage. Migrating cluster volumes from NetWare cluster to a new Linux cluster can be achieved using OES 2 SP3 Migration Tool.

The OES 2 SP3 Migration Tool provides two options *Is Cluster Resource* and *Follow Cluster Resource* to perform cluster migration.

If you select *Follow Cluster Resource* option, migration continues uninterruptedly during cluster resource migrations to different cluster nodes. This option is valid only on the source server clusters. On migrating data to cluster volume on the target server, migration stops when the resource migrates to a different node. To continue 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 source server. Once the resource comes up on the different node, re-start migration to continue the migration from where it failed.

16.2.4 Data Migration for DST Volumes

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

When performing migration, consider the following:

Source Server as DST

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

  For more information on stopping the policies, see "Stopping a Running Policy" in the *OES 2 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 on removing the shadow volume relationship, see "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 2 SP3: Dynamic Storage Technology Administration Guide*.
- Configure the file system GUI to perform migration. For more information, go to Section 16.4, "Migrating File System Using GUI," on page 113.

Target server as DST

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

  For more information on stopping the policies, see "Stopping a Running Policy" in the *OES 2 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 on removing the shadow volume relationship, see "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 2 SP3: Dynamic Storage Technology Administration Guide*.
- Configure the file system GUI to perform migration. For more information go to Section 16.4, "Migrating File System Using GUI," on page 113.

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 space and secondary volume *Vol5* with 10 GB space. In this scenario you can migrate the data by using any of the following:

- "Migrating without the Shadow Volume Relationship:" on page 112
- "Migrating with the Shadow Volume Relationship:" on page 112

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.

Perform the following to migrate the data:

1. Remove the shadow volume relationship. For more information see, "Removing the Shadow Relationship for a Non-Clustered DST Shadow Volume" in the *OES 2 SP3: Dynamic Storage Technology Administration Guide*.
2. Configure the file system GUI to perform migration. For more information go to Section 16.4, "Migrating File System Using GUI," on page 113.

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 source server to be migrated to the target server, perform the following:

NOTE: You require to stop the DST policies temporarily before performing 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 the entire data is migrated.

16.2.5 Transfer ID

In the Transfer ID scenario a series of tasks are executed for transferring the server identity of the source server to the target server. In the Migration Tool GUI, the file system is configured, then migrated. On successful migration of all of the services, the Start button changes to Transfer ID. For more information, see Part IV, "Transfer ID Migration," on page 57.

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

16.2.6 Migration Procedure

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

- Section 16.4, “Migrating File System Using GUI,” on page 113
- Section 16.5, “Migrating File System Using Command Line Utilities,” on page 123

16.3 Moving Devices for Migrating the Data from NetWare to OES 2 SP3

You can move devices containing NSS volumes from NetWare to OES 2 by decommissioning the volumes on the device in the eDirectory, then recommissioning the volumes on the new server. For more information, see the “Moving Non-Clustered Devices From NetWare 6.5 SP8 Servers to OES 2 Linux Servers” in the *OES 2 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 2 Linux. For information about converting shared pool cluster resources and service resources, see the *OES 2 SP3: Novell Cluster Services NetWare to Linux Conversion Guide*.

16.4 Migrating File System Using GUI

After you have completed the prerequisites procedures in Section 16.1, “Preparing for File System Migration,” on page 107, 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 Consolidate scenario and does not support Transfer ID. If you want to migrate data in a cluster environment, you can perform either of the following:

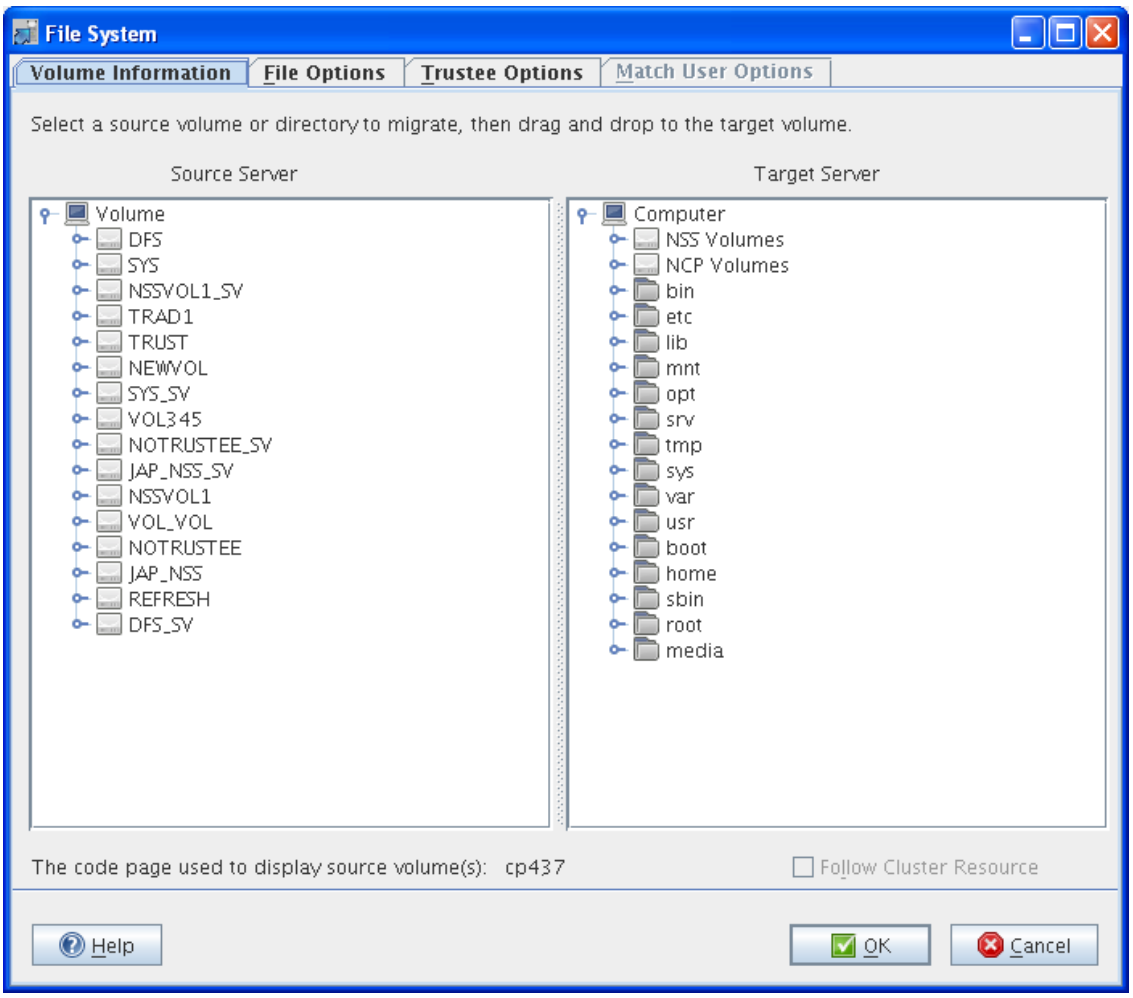
   - **Migrating Cluster Volumes:** In the *Source Server Authentication* screen, specify the cluster resource IP and select the *Is Cluster Resource* option. On configuring file system the Volume Information tab displays all cluster volumes from the cluster resource as part of the source volume.
   - **Migrating Non Cluster Volumes from a Cluster Node:** In the *Source Server Authentication* screen, specify the cluster node IP and do not select the *Is Cluster Resource* option. On 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. Depending on the type of migration to perform, select the *Migration Type* as *Consolidate* or *Transfer ID*.
5. In the *Services* panel, click *Add* and 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 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.
File Options	Customize the files and quotas that are migrating to the target server. You can also specify the home directory location and set options to synchronize the file system.
Trustee Options	You can migrate the trustee rights of the users from the source server to target server. You can also specify the global password for the new users created on the target server. This tab is enabled only in a Different Tree scenario.
Match User Options	You can specify which users to migrate and how to handle the migration if the user already exists on the target server. This tab is enabled when you select the Custom User mapping option in the Trustee Options page.

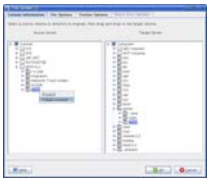
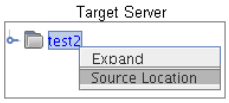
7 In the *Volume Information* tab, in the *Source Server* tree, select volumes or folders that you want to migrate, then drag and drop it in the *Target Server* tree.

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 are not migrated to the target server and migration fails.

On 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 (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 explanation on different tasks that can be performed in the Volume Information tab, refer to the table below, else proceed with default settings to Step 8.

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. 
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.
Code Page	This option is applicable only on source NetWare 5.1server. The Migration Tool detects the source server code page and mounts the source volumes. If the tool fails to detect the source server code page, it uses the default code page from the migration configuration file `migconf.properties` located in the `/opt/novell/migration/plugin/conf/` folder on the target server.

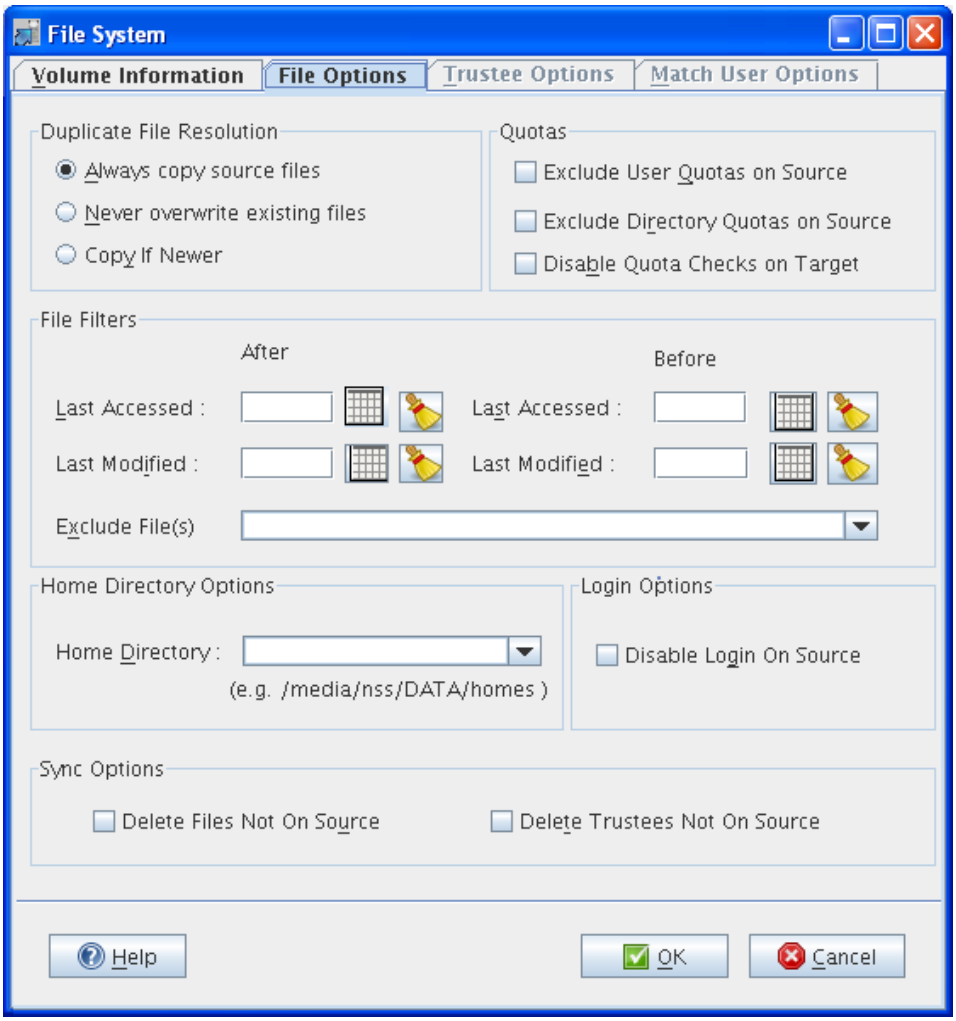
Task	Description
Follow Cluster Resource	Select this option to perform uninterrupted migration when cluster resources migrate to different cluster nodes. This option is valid only on the source server clusters. For example, when a failure occurs on one node of the cluster, the resources are relocated to another node in the cluster. The migration tool connects to the cluster instead of individual server and performs 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 had stopped. On migrating data to cluster volume on the target server, migration stops when the resource migrates to a different node. To continue 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 explanation of the different tasks that can be performed in the File Options page, refer to the Table below.



Task	Description
Duplicate File Resolution	Determines what action to take when a file copied from the source server has the same filename as an existing file on the target server. Specify one of the following resolutions: ◆ **Always Copy Source File (default):** The migrated file always overwrites the existing file. ◆ **Never Overwrite Existing File:** The file from the source server is not migrated, if a file of the same name exists on the target server. ◆ **Copy if Newer:** The migrated file overwrites the existing file on the target server, only if its last modified date is newer than the existing file's date.

Task	Description
Quotas	You might need to remove user quotas, If you are migrating the volume or folder to a larger NSS pool/ volume on the target server. **NOTE:** If you are migrating to a different file system (NSS to NCP volumes or from NSS to Linux POSIX volumes) on the target server, user quotas are not valid. ◆ **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 quotas set on the target server are ignored by the migration tool when performing data copy.
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 filenames or file extensions. ◆ **Last Accessed/ Last Modified:** The date range to include files for migration. ◆ **Exclude File(s):** The filenames or file extensions to exclude from migration. Wildcards (*) are permitted. For example: `*.mp3`, `*.mov`, `*.tmp`, `samplefile.txt`, "`my sample file.txt`." Specifying `*.mp3` excludes all files with an extension of `.mp3` from being migrated. Specifying `samplefile.txt` excludes all samplefile.txt from being migrated.
Home Directory Options	Type the path where you want to create home directories for the users who are being migrated to the target server. For example, `/media/nss/DATA/homes`
Sync Options	The *Sync* option performs synchronization of the target server with the source server. After completion of file system migration, if the source server is updated with new information, you can use the *Sync* option for synchronizing the servers. The *Sync* option is also 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 same tree migration. Set this option to update trustee information on target server when trustees are deleted on the source volume on completion of migration or synchronization. Trustee information on the target server is deleted that is not available on the source server. To modify handling of trustees, or user options, change the options in the Trustee Options tab.
Login Options	This option indicates whether you want users to be logged in during the data migration. **Disable Login On Source:** This option is only applicable on source NetWare server. If you disable user login, the users cannot log in to the network and 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.

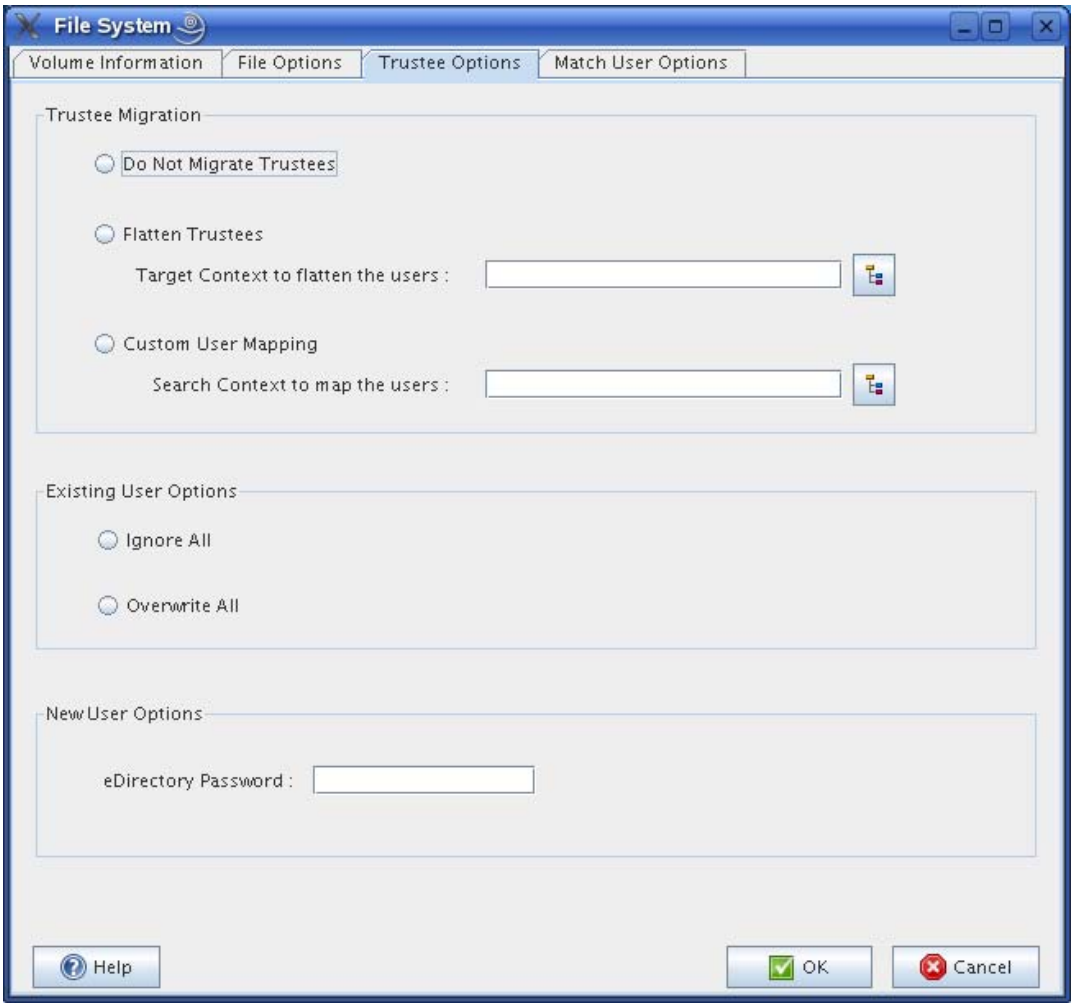
9 Click the *Trustee Options* tab, then click *OK* to accept the defaults and migrate the trustee rights of users on the source server to target server.

or

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

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

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

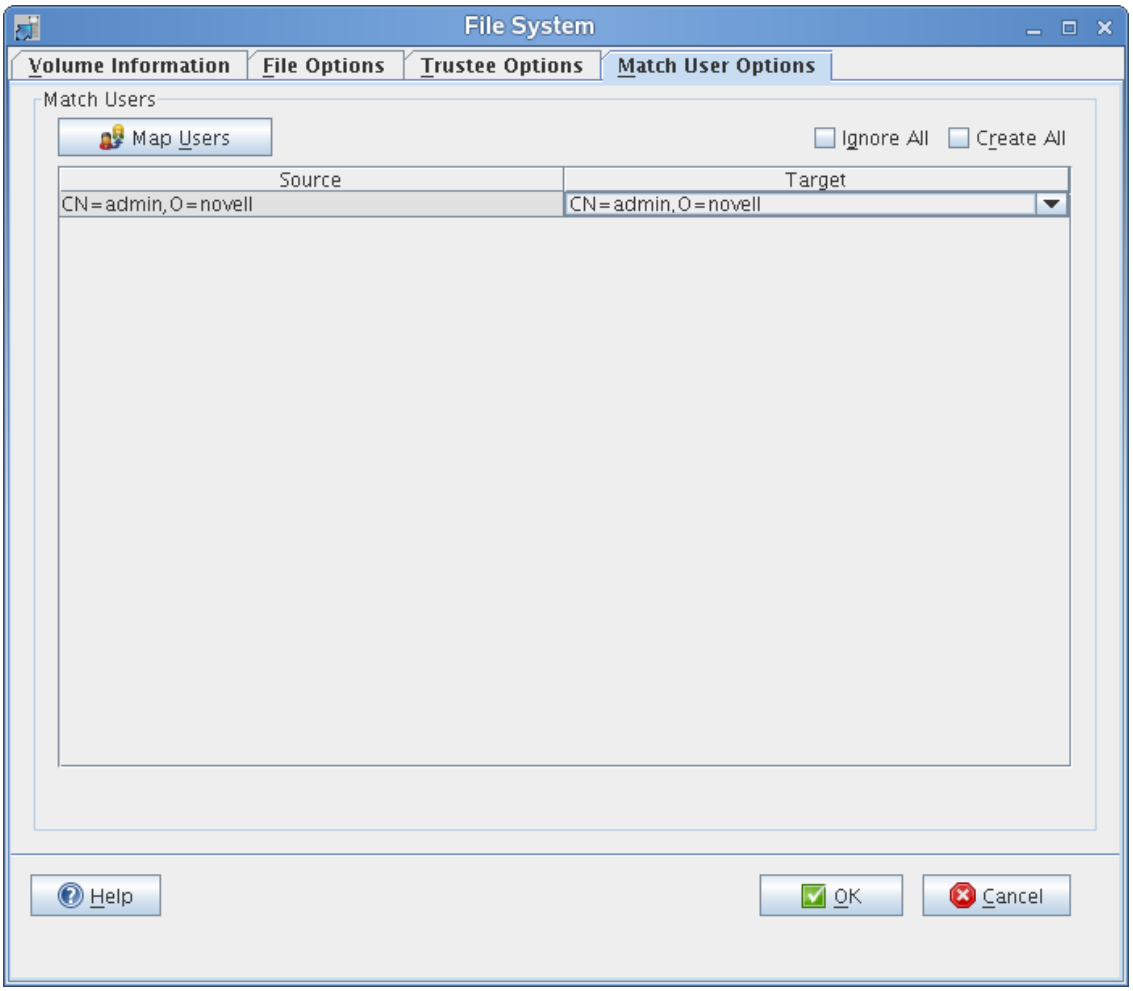


Task	Description
Trustee Migration	Specify an option to migrate trustee rights of users from the source server to the target server. ◆ **Do Not Migrate Trustees (default):** The user rights to the access folder and its content on the source server are not migrated to the target server. ◆ **Flatten Trustees:** The users on the source server are migrated to a selected context on the target server, irrespective of whether the users are in 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 username on the source server has a corresponding username on the target server. You can overwrite the trustee details of the user on the target server, or ignore the user. ◆ **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.

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.

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

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 username, then assign one of the migration options from the drop-down menu:

- **Create:** Create users on the target server and assign the trustee rights.

  The users are created on the target server that is using the same FDN as the source server. The search context is used only to match the source server users to target server users in that context.
- **Ignore:** Ignore the user and do not assign the trustee rights of the source user.

- **Browse:** Assign an equivalent user by browsing the same context or a different context on the target server and assigning trustee rights.

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 *Start* 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`. 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.

16.5 Migrating 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 or OES Linux to OES 2 SP3 Linux.

This section covers the following scenarios:

- Section 16.5.1, "Migrating Data to a Server in the Same Tree," on page 123
- Section 16.5.2, "Migrating Data to a Server in a Different Tree," on page 125
- Section 16.5.3, "Migrating Data to a POSIX File System," on page 130
- Section 16.5.4, "File System Migration Commands," on page 133
- Section 16.5.5, "Additional Migration Options," on page 150

16.5.1 Migrating Data to a Server in the Same Tree

This section describes how to migrate file system data from a NetWare or OES 1 Linux server to an OES 2 SP3 Linux server in the same eDirectory tree.

- "Migrating the Data" on page 123
- "Examples" on page 124
- "Limitations" on page 125

Migrating the Data

`migfiles` is command to migrate 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" on page 124
- "Directory-to-Directory Migration" on page 124
- "Volume-to-Directory Migration" on page 124
- "Source Linux NSS Directory-to-Directory Migration" on page 124
- "Remapping Home Directories" on page 124

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

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
```

Source Linux NSS Directory-to-Directory Migration

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

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

Remapping Home Directories

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

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

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

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

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

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

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

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

4 Migrate the information generated in the previous step:

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

Limitations

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

16.5.2 Migrating Data to a Server in a Different Tree

When the source server and target servers are in different eDirectory trees, your file system user and group trustees must be migrated from the source tree to the target tree, along with their associated data. The `maptrustees` and `migtrustees` commands are used to migrate users and groups assigned as trustees in the source tree to the target tree. Alternatively, you can use Novell Identity Manager to migrate the eDirectory users and groups, and then use the `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" on page 125
- "Examples" on page 126
- "Limitations" on page 129

Migrating the Data

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

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

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

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

  ```
  mls
  maptrustees
  migtrustees
  ```

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

  ```
  mls
  ```

  ```
  migmatchup
  ```

2 Run the `migfiles` command to copy the data from the source to the target server.

3 (Conditional) If you are migrating users and groups to a different context or matching the user with different name, run the following commands in the order shown:

```
maprights
migrights
```

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

`maptrustees - (Run the maptrustees command if it was not run earlier) mignotify`

The output of `maptrustees` is needed for `mignotify`

Examples

- "Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees" on page 126
- "Tree-to-Tree Migration Using the Migration Tool to Migrate Trustees and Flatten the Trustee Structure" on page 127
- "Tree-to-Tree Migration with Trustees Already Migrated to the New Tree and Reorganized in the New Tree." on page 128

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

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

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

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

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

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

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

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

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

3. Migrate the trustees to the target server:

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

4. (Conditional) When migrating to an NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For information about LUM-enabling users, see "LUM Implementation Suggestions" in the *OES 2 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 this command to migrate other volumes on the source server.

6. Notify users about the data migration:

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

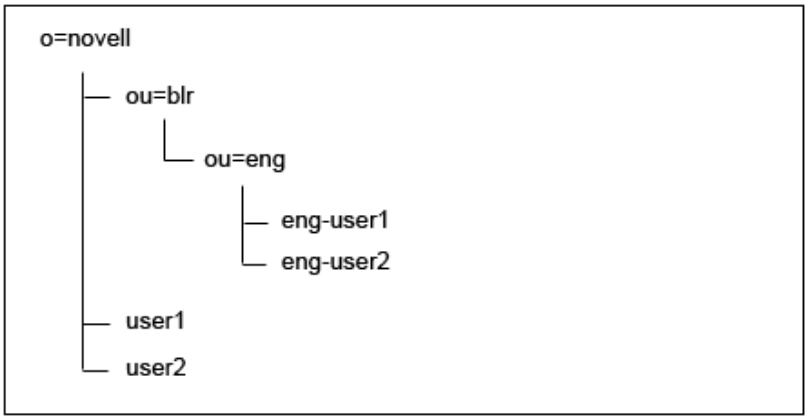
This command sends an e-mail containing the message specified in the `message` text file to all users who have been migrated to the new server. See "mignotify" on page 148 or the `mignotify` man page for a sample message file.

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

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

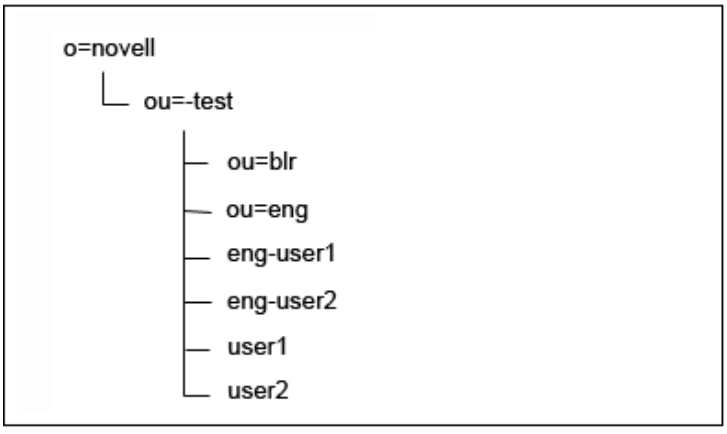
For example, suppose your source eDirectory tree looks like the one shown in Figure 16-1.

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 OES 1 Linux server in one tree to a target OES 2 Linux server in another tree. In this example, the target volumes are NCP Linux volumes and the new user context is `ou=new-context.o=company`.

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

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

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

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

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

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

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

---

3 Migrate the trustees to the target server:

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

4 (Conditional) When migrating to an NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For more information on LUM-enabling users, see "LUM Implementation Suggestions" in the *OES 2 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 this command to migrate other volumes on the source server.

6 Map the trustee rights on the source server:

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

7 Migrate the trustee rights to the target server:

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

Repeat Step 1, Step 6, and Step 7 for each source volume being migrated.

8 Notify users about the data migration:

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

This command sends an e-mail containing the message specified in the `message` text file to all users who have been migrated to the new server. See "mignotify" on page 148 or the `mignotify` man page for a sample message file.

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

The following example shows how to migrate data from a source NetWare server in one tree to a target OES 2 Linux server in another tree. In this example, the target volume is an NSS volume, and the users have already been migrated by using tools like Novell Identity Manager so that they now reside in different contexts in the target tree. In this example, the migration 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' >
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 a NCP Linux volume, if you want to preserve file ownership in the target tree, you should LUM-enable the migrated users before continuing. For more information on LUM-enabling users, see "LUM Implementation Suggestions" in the *OES 2 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 this command to 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 for each source volume being migrated.

Limitations

Following are the limitations when performing tree-to-tree migrations:

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

- Login Disabled (loginDisabled)
- Login Expiration Time (loginExpirationTime)
- Login Grace Limit (loginGraceLimit)
- Login Grace Remaining (loginGraceRemaining)
- Login Intruder Limit (loginIntruderAttempts)
- Login Maximum Simultaneous (loginMaximumSimultaneous)
- Login Script (loginScript)
- Network Address Restriction (networkAddressRestriction)
- Organizational Name (o)
- Organizational Unit Name (ou)
- Password Allow Change (passwordAllowChange)
- Password Expiration Interval (passwordExpirationInterval)
- Password Expiration Time (passwordExpirationTime)
- Password Minimum Length (passwordMinimumLength)
- Password Required (passwordRequired)
- Password Unique Required (passwordUniqueRequired)
- Physical Delivery Office Name (physicalDeliveryOfficeName)
- Post Office Box (postOfficeBox)
- Postal Address (postalAddress)
- Postal Code (postalCode)
- State or Province Name (st)
- Street Address (street)
- Surname (sn)
- Telephone Number (telephoneNumber)
- Title (title)

- When LUM-enabled users are migrated to a new tree, they are no longer LUM-enabled.

16.5.3 Migrating Data to a POSIX File System

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

- "Mapping Users, Groups, and File Attributes to POSIX" on page 130
- "Example" on page 131
- "Limitations" on page 132

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 details 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
   ```

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

   ```
   mls
   maptrustees
   mignotify
   ```

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

Example

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

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

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

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

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

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

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

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

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

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

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

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

---

4 Migrate the trustees to the target server:

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

5 Map the trustee rights on the source server:

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

6 Migrate the trustee rights to the target server:

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

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

7 Notify users about the data migration:

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

This command sends an e-mail containing the message specified in the message text file to all users who have been migrated to the new server. See "mignotify" on page 148 or the `mignotify` man page for a sample message file.

Limitations

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

16.5.4 File System Migration Commands

The OES 2 migration tool include several command line tools for file system migrations. Each tool performs a subtask of the migration by taking the required input and outputting the converted output or results to stdout. Table 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 or OES 1 Linux 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 1.0 Linux NSS file system rights to OES 2 Linux file system rights.
`migrights`	Sets file rights on the target server as defined by the output from the `maprights` command.
`ntfsmls`	Lists all files under a given Windows share path, with associated owners and their rights to files and folders.
`ntuserls`	Lists all users and groups associated with a specified windows share in Windows Active Directory domain.
`ntfsmap`	Maps the Windows NTFS rights and ACLs to OES 2 Linux NSS, NCP or POSIX rights and permissions.
`ntresource`	Provides detailed information about a Windows source server.
`mignotify`	Sends e-mail notifications to the migrated users.
`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 or OES 1 Linux source servers. The output from this command is used as input for both `maprights` and `maptrustees`.

To gather the required information for NetWare Traditional or NSS volumes, `mls` copies `tcnvlnx.nlm` to the NetWare server. To gather this information for OES 1.0 Linux NSS volumes, it uses the `.trustee_database.xml` file in the `._NETWARE` directory.

Syntax

`mls -s -V|-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 usernames 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.
[-c]	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.
	--modified-after	Scans files which are modified after this date.
	--modified-before	Scans files which are modified before this date.
	--accessed-after	Scans files which are accessed after this date.
	--accessed-before	Scans files which 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 NetWare specific user like "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.
-E	--obj-exclude-file	Excludes the objects listed in this file from migration. The entries can contain pattern with wild cards * and ?. Refer to the object exclude file `/etc/opt/novell/migration/obj-exclude-list.conf` for more details.
-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 usernames 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 or 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` or `ntuserls` to produce and map user and group data from the source server. You must use `maptrustees` when migrating data to a different tree or when migrating users and groups to a different context.

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

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

Syntax

```
maptrustees -s [-W] [-H] [--map-homedir-only] [-p] [-k] [--matchup-file] [-g] [-C]
[-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`
-W	--windows	Specifies a Windows file server as a source server for migration.
`[-H]`	`--homedir`	Specifies the path to the directory for migrating user's home directories. This option is used to map users' home directories to the new path on the target server. Example: `-H /media/nss/nssvol1/homedir`
	[--map-homedir-only]	This option is used when source and destination servers are in same tree. This option forces maptrustees to generate only home directory information of users, so that migtrustees can just modify home directories of users. 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 2 SP3 Linux server. 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. This option is mandatory for Windows-to-Linux migrations. Example: `-k ou=merged,o=company`

Option	Long Name	Purpose
	--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 usernames 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.
-C	--user-context	Specifies Active Directory User context. Default is CN=Users.
[-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 138 for more information.
[-c]	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.
	inputfile	Indicates the output file produced from the `mls` or `ntuserls` command or from stdin.

Examples

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

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

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

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

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

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

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

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

Excluding Objects

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

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

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

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

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

---

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.

Option	Long Form	Purpose
[-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 destination server. Default is LDAP.
	[--use-casa]	Uses CASA to store and retrieve usernames 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.
	--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 usernames are stored in the file.
	--newusers-password-file	The newly created usernames 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 else 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 maptrustees.yaml
  ```

- To audit the outcome of a trustee migration:

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

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

  ```
  migtrustees -i maptrustees.yaml
  ```

migfiles

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

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

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

Syntax

```
migfiles -s [-W] [-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]
```

General Options

Option	Long Form	Purpose
`-s`	`--source-server`	Specifies the source server's IP address. Example: `-s 192.168.1.3`
`[-w]`	`[--windows]`	Specifies that a Windows file server is the migration source.
`[-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 or Windows share name 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`

Option	Long Form	Purpose
-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 usernames 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.
[-c]	--session-file --progress --progress-interval --debug --precheck	These options are explained in the Additional Migration Options.
	--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 --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 which are modified after this date.
	--modified-before	Migrates files which are modified before this date.

Option	Long Form	Purpose
	--accessed-after	Migrates files which are accessed after this date.
	--accessed-before	Migrates files which 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 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 source server and target server. You must use this option with --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.

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 filename, `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 143 for more information.

`[-u]`	`[--update]`	Migrates files newer than the date specified with this option. See "Updating Modified Files" on page 143 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.

Option	Long Form	Purpose
	[--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.

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 reentering the `migfiles` command by passing the same session file `V1-to-V1 090907`

Updating Modified Files

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

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

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

maprights

The `maprights` command gleans file system rights information from the `mls` output and maps the rights to a specified volume or path on the OES 2 SP3 Linux 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 2 SP3 Linux target server where the rights information is mapped. This option cannot be used with the `-x` option. Example: `-v NSSVOL`
-x	`--destination-full-path`	Specifies the volume path on the OES 2 SP3 Linux target server where the rights information is mapped. You must use `-x` in `maprights` if you have 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 have 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` or `ntfsmap` to set file rights on the target server. All details for setting rights are stated in the input file. `migrights` uses this information to set the rights appropriately on the target file system.

Syntax

```
migrights [-i] [-A] [-t] [-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 `ntfsmap` command 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 target LDAP server IP address of 192.168.1.5, with the test results being redirected to `migrights-t.yaml`:

  ```
  migrights -i maprights.yaml -td 192.168.1.5 > migrights-t.yaml
  ```

ntfsmls

The `ntfsmls` command is used to list file attributes and user permissions for files on a Windows NTFS file system. The output from this command is in YAML file format and is used as input for both `maprights` and `maptrustees`.

Syntax

`ntfsmls -s -v [--use-casa] [--debug] [--precheck]`

Options

Option	Long Form	Purpose
`-s`	`--source`	Specifies the Windows source server's IP address.
`-v`	`--source-path`	Specifies the share name on the Windows source server.
	`[--use-casa]`	Uses CASA to store and retrieve usernames and passwords.
	`[--debug]`	Prints debug messages to the `ntfsmls` log file located at `/var/opt/novell/log/migration/`.
	[--precheck]	Checks whether system meets all pre-requisite to start `ntfsmls` utility.

Example

To list file rights and user permissions of the data share on a Windows server with the IP address 192.168.1.3, and with all information being redirected to `ntfsmls.yaml`:

```
ntfsmls -s 192.168.1.3 -v data > ntfsmls.yaml
```

ntuserls

The `ntuserls` command lists the users and groups in the Windows source server's domain. Use the `-g` option to generate the user and groups list based on the output generated by `ntfsmls`.

Syntax

`ntuserls -s [-g] [--use-casa] [--debug] [--precheck] <inputfile>`

Options

Option	Long Form	Purpose
`-s`	`--source`	Specifies the Windows source server's IP address.
`[-g]`	`[--generate]`	Outputs the list of users and groups based on the output generated by `ntfsmls`. If this option is not specified, the command lists all users and groups.
	`inputfile`	Specifies the input file produced by running `ntfsmls`. If no filename is provided, the command reads input from stdin.
	`[--use-casa]`	Uses CASA to store and retrieve usernames and passwords.
	`[--debug]`	Prints debug messages to the `ntuserls` log file located at `/var/opt/novell/log/migration/`.
	[--precheck]	Checks whether system meets all pre-requisite to start `ntuserls`

Examples

To generate a list of users and groups from a Windows server with the IP address of 192.168.1.3, using a file produced by running `ntfsmls`, and redirecting the output to `ntuserls.yaml`:

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

ntfsmap

The `ntfsmap` command gleans all rights information from `ntfsmls` output and maps it to a specified volume or a specified path on the OES 2 Linux target server. It also maps all the Windows users to a specified eDirectory container. The output from this command is in YAML file format.

Syntax

```
ntfsmap -k [-n] [-I] [-m] -V|-x [--debug] [--precheck] <inputfile>
```

Options

Option	Long Form	Purpose
`-k`	`--destination-ldap-container`	Specifies a container where all Windows users and groups will be migrated.
`[-n]`	`[--nss]`	Specifies that Windows permissions are to be mapped to NSS rights. The default is NCP.
`[-I]`	`[--inheritance]`	Specifies an inheritance type of static or inherited. The default is inherited.
`[-m]`	`[--mapfile]`	Specifies a user-specified rights mapping file.
`-V`	`--destination-volume`	Specifies the volume on the OES 2 Linux target server where all the rights information should be mapped.
`-x`	`--destination-path`	Specifies the path on the OES 2 Linux target server where all the rights information should be mapped.
	`inputfile`	Output file produced from the `ntfsmls` command or from stdin.
	`[--debug]`	Prints debug messages to the `ntfsmap` log file located at `/var/opt/novell/log/migration/`.
	--precheck	Checks whether system meets all pre-requisite to start ntfsmap.

Example

To obtain all rights information from `ntfsmls.yaml`, map it to an NCP volume named TEST, migrate the user rights to the container ou=test1,o=novell, and redirect the output to `ntfsmap.yaml`:

```
ntfsmap -V TEST -k ou=test1,o=novell ntfsmls.yaml > ntfsmap.yaml
```

ntresource

The `ntresource` command displays information about the Windows source server, including shares, computer information, NetBIOS information, and domain information. You can use this command with the `-l` option to display the share names to be used in the `migfiles` command.

Syntax

```
ntresource -s [-l] [-c] [-n] [-d] [--use-casa] [--debug] [--precheck]
```

Options

Option	Long Form	Purpose
-s	--source	Specifies the Windows source server's IP address.
[-l]	[--shares-info]	Lists the shares defined on the Windows server.
[-c]	[--computer-info]	Lists information about the Windows server computer.
[-n]	[--netbios-info]	Lists NetBIOS information from the Windows server.
[-d]	[--domain-info]	Lists the domain information from the Windows server.
	[--use-casa]	Uses CASA to store and retrieve usernames and passwords.
	[--debug]	Prints debug messages to the ntresource log file located at /var/opt/novell/log/migration/.
	[--precheck]	Checks whether system meets all pre-requisite to start ntresource

Examples

- To list the shares defined on a Windows source server with the IP address of 192.168.1.3:

  ```
  ntresource -s 192.168.1.3 -l
  ```

- To list NetBIOS information about a Windows source server with the IP address of 192.168.1.5:

  ```
  ntresource -s 192.168.1.3 -n
  ```

mignotify

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

Syntax

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

Options

Option	Long Form	Purpose
-e	--email-address	Specifies the string that should be used in the #{from} field in the e-mail message. Example: -e "Mail admin <admin@company>"
	--mail-server	Specifies the SMTP mail server's IP address for posting messages to users. Example: --mail-server smtp1.company.com

Option	Long Form	Purpose
-m	--message-file	Specifies the message file that is to be sent to the users. Example: -m message.txt
-a	--authentication	Specifies the type of authentication required by the mail server: plain, login, cram_md5. Example: -a login
[-i]	[--verbose]	Prints verbose information about which users have been sent e-mail messages.
	--precheck	Checks whether system meets all pre-requisite to start mignotify.
	inputfile	Indicates the output file produced from the maptrustees command or from stdin.

Example

To notify users of the data migration and new passwords:

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

Here is an example of a message file:

```
<intentional line> Hello #{first} #{last} with email address #{email},

This email is to inform you that you must re-login in order to transfer over to the
new file server. Your new password is #{password}.

Regards,

#{from} of your friendly IT staff
```

migcred

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

Syntax

```
migcred -i -l|-n|-N|-c|-o|-W|-e [-w] [-r] [-d][--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.
`-W`	`--windows`	Specifies credential details as a Windows username. Example: `-W administrator`
`-e`	`--email`	Specifies credential details as an e-mail address. Example: `-e admin@company.com`
`[-w]`	`[--password]`	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
  ```

16.5.5 Additional Migration Options

The OES 2 SP3 Migration Tool provides additional options to be executed with file system migration utilities.

You can execute these commands with file system migration utilities, except Windows migration utilities (ntfsmls, ntfsmap, ntuserls, ntuserls, ntresource).Table 16-2 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 migration.
`--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 `-session-file` option.

An example to create a session file for the `migfiles` command:

```
migfiles -s 192.168.1.3 -iV src_volume -v dest_volume -session-file /home/
migfiles_session.session
```

This command migrates data from the source NSS volume `src_volume` to the target NSS volume `dest_volume`. You can stop the command and re-execute it at a later stage. On executing the command at a later stage, the `migfiles_session.session` file is taken as an input and the `migfiles` command starts at the point when it was last stopped.

For example, your source volume contains 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 `-progress` option to specify the time interval for displaying the progress of a command. The default time interval is 30 seconds for refreshing the progress of a command.

To view progress every 10 seconds on executing the `migtrustees` command:

```
migtrustees -d 192.168.1.3 maptrustees.yaml -i -progress -progress-interval 10
```

The migtrustees command refreshes the progress every 10 seconds.

Debug

The `-debug` option executes the command in debug mode and creates a log file in `/var/opt/novell/log/migration` folder.

To execute `mls` command in debug mode:

```
mls -s 192.168.1.3 -V src_volume -debug
```

This command creates an `mls.log` file that is stored in the `/var/opt/novell/log/migration` folder.

Precheck

The `-precheck` option validates the arguments passed in a command.

To execute the `migfiles` command:

```
migfiles -s 192.165.1.1 -iV src_volume -v dest_volume -precheck
```

On executing this command, the `-precheck` option validates the existence of the src_volume and dest_volume on the source server and the target server. The command authenticates to the source server and target server and also checks if SMS is running on the target server.

16.6 Troubleshooting

- Section 16.6.1, “Same Tree Scenario,” on page 152
- Section 16.6.2, “Different Tree Scenario,” on page 153
- Section 16.6.3, “General Issues,” on page 154

16.6.1 Same Tree Scenario

- “The Migration Tool File System GUI, Volume Information Tab Displays Empty Boxes for Non-English Directory Names.” on page 153
- “Error nbackup: open file” on page 153
- “Error nbackup: execute only files” on page 153
- “Error nbackup: A file cannot be read and nbackup: Failed to read dataset” on page 153

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

In the migration tool file system GUI, 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`, and select languages in the Secondary Languages pane. After installing 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 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.

16.6.2 Different Tree Scenario

- "Ownership Information is Changed on Migrating from NSS to NCP" on page 153

Ownership Information is Changed on Migrating from NSS to NCP

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

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

1. At the OES 2 Linux 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
   ```

16.6.3 General Issues

- "Migration Fails Due to Failure of the migtrustees Command" on page 154
- "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" on page 154
- "When You Configure the File System GUI, an Error is Displayed that the Volumes on the Source Server (NetWare 5.1) are Not Mounted" on page 156
- "When You Start Migration, an Error is Displayed and Migration Fails" on page 156
- "Not Getting the Code Page and Non-English Characters" on page 156
- "Source Cluster Volumes are Not Displayed" on page 157
- "Files or Trustees are Not Synchronized" on page 157

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 failure in migration.

To troubleshoot this issue, perform the following steps:

1. Open the iManager page on the source server.
2. Click *Users* > *Modify Users*.
3. Select the username, which 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 on *apply* then *ok*.
7. Remove the `migtrustees.session`, `maptrustees.session` and the `maptrustees.yaml` files from the `/var/opt/novell/migration/<Project name>/fs/` folder of the target server.

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

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 in `/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 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 and click *Configure*.

3 (Conditional) If the error is displayed after restarting novfsd and novell-xregd services, refer to the log file to verify if 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 in it: `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*.

4 (Conditional) If the error is displayed after performing the preceding steps, mount the source volumes manually.

4a On target server create directories in `/var/opt/novell/migration/<project name>/fs/mnt/source` with the same name as the source volumes you want to migrate.

For example, if *VOL1* is the source volume you want to migrate and *NewProj1* is the name of the project, then create a *VOL1* directory on the target server by executing the following command:

```
md /var/opt/novell/migration/NewProj1/fs/mnt/source/VOL1
```

4b Mount the source volumes on the directories created in the preceding step by executing the following command:

```
ncpmount -m -A <source_server> -S <source_server> -U <source_user(FDN format)> -o tcp -V <volname> -p <code_page> -y utf8 -f 400 -d 500 <path_to_mount>
```

For example: `ncpmount -m -A 10.0.0.7 -S 10.0.0.7 -U cn=admin.o=novell -o tcp -V VOL1 -p cp437 -y utf8 -f 400 -d 500 /var/opt/novell/migration/NewProj1/fs/mnt/source/VOL1`

4c Select the file system and configure it.

4d Unmount all source volumes, then continue migration.

When You Configure the File System GUI, an Error is Displayed that the Volumes on the Source Server (NetWare 5.1) are Not Mounted

The source server volumes are not mounted because the `ncpmount` command failed . Refer to the `/var/opt/novell/migration/<project name>/log/filesystem.log` file and resolve the issue manually, then reconfigure the file system.

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.

- "Source Server is OES 1" on page 156
- "Source Server is OES 2" on page 156

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 *Start* to start migration.

Source Server is OES 2

Migration might fail if there is some 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 start the migration.

Not Getting the Code Page and Non-English Characters

- "Migrating from Netware 5.1" on page 157
- "Migrating from Netware 6.0 or Later" on page 157

Migrating from Netware 5.1

The migration tool runs the `volmount` script to generate the `CONFIG.TXT` file on the source server and copy the file to the target server. If the `CONFIG.TXT` is not generated on the source server or is not copied to the target server, the migration tool fails to detect the source server code page, so the non-English character folders or volumes are missing under the *Volume Information* tab.

- If `CONFIG.TXT` is generated and `ncpshell` failed to copy the file, you need to manually copy the file in the project folder and launch file system GUI again.
- If the value of the code page `ncp_src_code_page` parameter is missing in the `/opt/novell/migration/plugin/conf/migconf.properties` file, add the appropriate value.

  For example, if the value of the code page is 437, specify the value as `ncp_src_code_page = cp437` in the `/opt/novell/migration/plugin/conf/migconf.properties` file. This displays the English character folders.
- If the code page value in the file system GUI is not same as the code page value in `CONFIG.TXT`, close the file system GUI and mount the source volumes by using `ncpmount` with the correct code page. This displays the missing non-English folders or volumes under the *Volume Information* tab.

Migrating from Netware 6.0 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 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

- Chapter 17, “Migrating eDirectory to OES 2 SP3 Linux,” on page 161
- Chapter 18, “Migrating AFP from NetWare to OES 2 SP3 Linux,” on page 167
- Chapter 19, “Migrating Novell Archive and Version Services to OES 2 SP3 Linux,” on page 171
- Chapter 20, “Migrating CIFS from NetWare to OES 2 SP3 Linux,” on page 177
- Chapter 21, “Migrating DHCP from NetWare to OES 2 SP3 Linux,” on page 189
- Chapter 22, “Migrating DNS from NetWare to OES 2 SP3 Linux,” on page 201
- Chapter 23, “Migrating FTP from NetWare to OES 2 Linux,” on page 205
- Chapter 24, “Novell iFolder Upgrade, Migration, and Coexistence,” on page 209
- Chapter 25, “Migrating iPrint from NetWare or OES 2 Linux to OES 2 SP3 Linux,” on page 223
- Chapter 26, “Migrating Timesync/NTP from NetWare to NTP on OES 2 Linux,” on page 247

17 Migrating eDirectory to OES 2 SP3 Linux

eDirectory migration to Open Enterprise Server (OES) 2 SP3 Linux requires the migration of the eDirectory data and server identity to provide seamless accessibility after migration.The eDirectory migration utility performs all of the pre-migration tasks, health validations and server backups, server migration, and post-migration tasks for you.

The following sections give you more details on the migration procedure for eDirectory:

- Section 17.1, “Planning Your Migration,” on page 161
- Section 17.2, “Migration Tools,” on page 163
- Section 17.3, “Migration Procedure,” on page 163
- Section 17.4, “After the Migration,” on page 165

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 backup `sys:/system/backupcr.nlm` file.

On performing migration from Netware to OES 2 SP3 Linux, the `backupcr.nlm` on NetWare server is overwritten with the newer version. In case of failures, you need `backupcr.nlm` to restore the NetWare server.

- Section 17.1.1, “System Requirements,” on page 161
- Section 17.1.2, “Prerequisites,” on page 162
- Section 17.1.3, “Supported Platforms,” on page 162
- Section 17.1.4, “Considerations,” on page 162
- Section 17.1.5, “Troubleshooting,” on page 162

17.1.1 System Requirements

- ❒ The target server must run OES 2 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 2 server, it must be deconfigured. For more information on removing a server object, refer to “Using the ndsconfig Utility to Add or Remove the eDirectory Replica Server” (http://www.novell.com/documentation/edir88/edirin88/data/a79kg0w.html) in the *eDirectory 8.8 Installation Guide*.

- ❒ OES 2 does not support multiple instances of eDirectory on the same server, so any non-default instances should not be running during migration.
- ❒ The source server should be running and should not be part of any partition operation. For more information on supported source server versions, refer to the "eDirectory Coexistence and Migration" (http://www.novell.com/documentation/oes2/oes_implement_lx/?page=/documentation/oes2/oes_implement_lx/data/edir.html#edir-coexistnmig) in the *OES 2 SP2: Planning and Implementation Guide (http://www.novell.com/documentation/oes2/oes_implement_lx/?page=/documentation/oes2/oes_implement_lx/data/bookinfo.html)*.

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.
- ❒ 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 (http://www.novell.com/documentation/edir88/edir88/data/age0r55.html) in the *Novell eDirectory 8.8 Administration Guide.*

17.1.3 Supported Platforms

The eDirectory migration utility is designed to run on the Linux version of OES 2, which is the target platform for migration. For more information on the compatible eDirectory versions at the source and the corresponding target servers, refer to the Section 4.1, "Prerequisites," on page 39 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 the 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

- "eDirectory Health Check prompts a Warning Message before Migration" on page 163
- "Migration Issue" on page 163

eDirectory Health Check prompts a Warning Message before Migration

When migrating eDirectory 8.6.2 on NetWare 6.0 SP5 server, if you run `migedir -t -s <servername>` command on the target, OES2 SP3 server to check the eDirectory server health, it prompts a warning message.

You can ignore this warning because URL is populated differently in the network address attribute in eDirectory 8.6.2.

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.

Option	Description
-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 164
- "Migration" on page 164
- "Post-migration" on page 164
- "Handling Failures" on page 164

Pre-migration

The utility performs the following checks:

- The health and state of the replicas in the ring are verified.
- Time synchronization is verified between the source and target servers.

Migration

The utility performs the migration of the eDirectory instance from the collected configuration information. This involves backing up the source server data, locking the eDirectory instance in the source server, migrating data to the target server, and restoring the eDirectory instance on the target server. The dependent NICI files are also migrated.

Post-migration

After migration, the following tasks are performed by the utility:

- The `nds.conf` configuration file is modified with the source server eDirectory instance information, such as tree name and server name.
- The eDirectory instance in the target server is restarted so it can use the new data.
- Network address repair is performed to start the synchronization of the new IP address in the replica ring.

Handling Failures

During migration, the database in the source server is locked to avoid multiple copies of the instance running on the source and target servers. Multiple copies of the same instance can lead to data inconsistency. If the process fails and if you intend to bring up the source server again, you need to perform the following tasks:

1 Remove the partially migrated eDirectory instance on the target server.

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

2 Bring up the source server by reloading the directory services. Make sure that the source server is brought up on the network only when the migration fails. The database backup and log files are saved in the `SYS:\` folder.

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

---

18 Migrating AFP from NetWare to OES 2 SP3 Linux

Migration refers to the process of migrating AFP services from a NetWare system to a Linux system. For general information about the Open Enterprises Server (OES) 2 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, "Requirements," on page 167
- Section 18.2, "Migration Scenarios," on page 167
- Section 18.3, "Migration Procedure," on page 168
- Section 18.4, "Verifying the Migration Process," on page 169
- Section 18.5, "Cross-Platform Issues," on page 169

18.1 Requirements

Make sure your source server and target server meet the following requirements:

Source Server Requirements

- NetWare 6.0 SP5
- NetWare 6.5 SP7 or later

Target Server Requirements

- OES 2 SP3 Linux server
- The NSS data should be already migrated
- Install and configure the AFP server by following the instructions in "Installing and Setting Up AFP" in the *OES 2 SP3: Novell AFP For Linux Administration Guide*.

18.2 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 16.5.2, "Migrating Data to a Server in a Different Tree," on page 125 and "Installing and Setting Up AFP" in the *OES 2 SP3: Novell AFP For Linux Administration Guide*

18.3 Migration Procedure

Migrating the AFP configuration is done by using the Migration Tool or through the command line interface.

- Section 18.3.1, "Using the Migration Tool to Migrate," on page 168
- Section 18.3.2, "Using Command Line Utilities to Migrate," on page 168

18.3.1 Using the Migration Tool to Migrate

1. Access the Migration Tool by using the steps detailed in Section 5.2, "Launch the Migration Tool Utility," on page 43.
2. Authenticate to the source and target servers.
3. Select *Novell AFP*, then click *Configure*. The AFP configuration window is displayed.
4. Click *Start* to begin the migration process.

18.3.2 Using Command Line Utilities to Migrate

To run the AFP migration utility through the command line, run `migafp` with the following parameters:

Table 18-1 *migafp Command Line Parameters*

Parameter	Description
`-h`	Prints a summary of the migration process
`-s`	IP address of the source server
`-u`	DN of the source tree admin. For example : `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
```

18.4 Verifying the Migration Process

1 Ensure that all the context details from `sys:/etc/ctxs.cfg` (NetWare context file) are migrated to `/etc/opt/novell/afptcpd/afpdircxt.conf` (OES 2 SP3 Linux server context file).

18.5 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:

- The first-time login by the user should use the Diffie Hellman Exchange or clear-text authentication methods. The automatic password synchronization does not happen if the user authenticates by using the Random Exchange or Two-way Random Exchange method of authentication.
- When the Diffie Hellman Exchange or clear-text authentication methods are used, the eDirectory service (ndsd) should be started with the environment variable `NDSD_TRY_NDSLOGIN_FIRST` set to `TRUE`.

If the above conditions are not met, all the users with Simple Passwords are required to manually authenticate to the AFP server on NetWare after they are enabled for Universal Password, in order to trigger the password synchronization to Universal Password.

19 Migrating Novell Archive and Version Services to OES 2 SP3 Linux

This section provides information on how to migrate Novell Archive and Version Services running on NetWare 6.5 SP7 or later to Open Enterprises Server (OES) 2 SP3 Linux. In this section, the Netware server is referred to as the source server and the OES 2 SP3 Linux server is referred to as the target server.

For general information on the OES 2 Migration Tool, see Chapter 1, "Overview of the Migration Tools," on page 15

- Section 19.1, "Prerequisites," on page 171
- Section 19.2, "Migration Scenarios," on page 171
- Section 19.3, "Migration Procedure," on page 172
- Section 19.4, "Post-Migration Procedure," on page 175

19.1 Prerequisites

Before proceeding to migrate, meet the following prerequisites:

- The Archive server is installed on NetWare 6.5 SP7 or later. For more details, refer to the *NW 6.5 SP8: Novell Archive and Version Services 2.1 Administration Guide*.
- Install the NSS file system on the OES 2 SP3 Linux server.
- The Archive server and the Primary volume must reside in the same eDirectory tree.
- The Archive server, PostgreSQL database, and Archive volume must be installed on the same machine.

19.2 Migration Scenarios

The supported scenarios for Archive and Versions Services are as follows:

- Section 19.2.1, "Consolidate - Same Tree," on page 171
- Section 19.2.2, "Transfer ID - Same Tree," on page 172
- Section 19.2.3, "What Is Migrated," on page 172

19.2.1 Consolidate - Same Tree

In the Consolidate scenario, the data and configuration on the source server is overwritten.

19.2.2 Transfer ID - Same Tree

In this scenario, the target server is installed in the same tree as the source server. On successful completion of Transfer ID, the target server functions with the same credentials (such as IP address and hostname) as the source server and source server node is no longer available in the network.

19.2.3 What Is Migrated

The following data is migrated from the source server to the target server:

- The Archive volume that contains the versions of your files.
- The configuration details stored in `ArkConfig.xml` file.
- Database records from the MySQL database to the PostgreSQL database.

19.3 Migration Procedure

1. Install the OES 2 SP3 Linux server as the target server for the Archive and Version Services into the same edirectory tree as the source server.

   For more information on installing Novell Archive and Version Services, see "Setting Up Archive and Version Services " in the *OES 2 SP3: Novell Archive and Version Services 2.1 Administration Guide for Linux*.

2. To stop the Archive and Version Services on source server and continue to run the MySQL database, enter

   ```
   arkstop
   ```

3. To stop the Archive Service on the target server, enter

   ```
   rcnovell-ark stop
   ```

   This command stops the Archive server and the default instance of the PostgreSQL database.

4. If you have configured the Archive server with the default configuration, restart the PostgreSQL database with the following command:

   ```
   /opt/novell/arkmanager/bin/pg_restart.sh
   ```

5. Migrate data from Archive volume on the NetWare server to the OES 2 SP3 server.

   The migration is from the NetWare NSS source volume to the OES 2 SP3 Linux NSS target volume, where the source and target servers are in the same eDirectory tree. For more information, refer to the *OES 2 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 OES 2 SP3 Linux server.

   ---

6. (Optional) Migrate data from the Primary volume on the NetWare server to the OES 2 SP3 Linux server, using either command line utilities or the GUI interface. For more information, refer to the *OES 2 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 173
   - "Using the Command Line" on page 174

19.3.1 Using the Migration Tool GUI

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

For more information on using the Migration Tool GUI, refer to Chapter 5, "Using the Migration Tool GUI," on page 43.

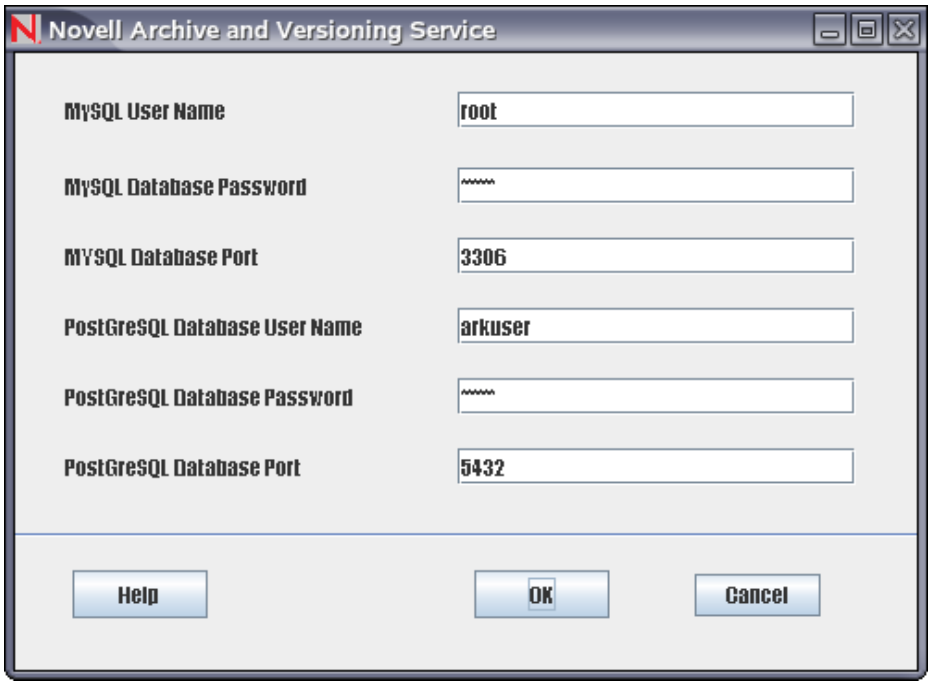
2 Authenticate to the source and target server. Archive and Version Services is listed in the *Service* panel.

Select the *Migration Type* as *Consolidate* for migrating Archive service, or to Transfer ID for Transfer ID scenario.

3 In the *Services to Migrate* panel, click *Add* and select *Novell Archive and Versioning Services*.

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

4 Select *Novell Archive and Versioning Service* and click *Configure.*



5 Fill in the fields, using the information in the following table:

Parameter	Description
MySQL User Name	Specify a username for the administrator of the MySQL database on the source server.
MySQL Database Password	Specify a password for the MySQL user.
MySQL Database Port	Specify a port number used for the archive database communications on the source server. Port 3306 is the default.
PostgreSQL Database User Name	Specify a username for the administrator of the archive database (the PostgreSQL database for the archived data) on the OES 2 SP3 Linux server. **IMPORTANT:** The Postgres user must be an unprivileged user, not the root user.

Parameter	Description
PostgreSQL Database Password	Specify a password for the PostgreSQL user.
PostgreSQL Database Port	Specify a port number to use for the archive database communications on the OES 2 SP3 server. Port 5432 is the default.

6 Click *OK*.

The *Status* of the service is *Ready*.

7 Click *Start* to proceed with migration. The *Status* is *Migrating*.

In the *Status* pane, *Service* tab, you can view the progress of migration. On completion of migration, the *Status* changes to *Migrated*.

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

19.3.2 Using the Command Line

1 To run the Archive and Version migration utility through command line, run `/opt/novell/migration/bin/migark.sh` with the following details:

Option	Description
--mysqldb-user=<opt>	Specify a username 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 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.
--pg_db-user=<opt>	Specify a username for the administrator of the archive database (the PostgreSQL database for the archived data) on the Novell OES 2 SP3 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 2 SP3 Linux server. Port 5432 is the default.

For example:

```
/opt/novell/migration/bin/migark.sh --mysqldb-user=root --mysqldb-
passwd=novell --mysqldb-port=3306 --hostname=192.168.1.255 --
username=cn=admin.o=novell --password=novell12 --pg_db-user=arkuser --pg_db-
passwd=novell12 --pg_db-port=5432
```

NOTE: If you encounter any errors during migration, check the `archive_migration.log` file in the `/var/opt/novell/log/migration/` folder. After resolving the errors, execute the migration procedure again.

19.4 Post-Migration Procedure

1. Before restarting the Archive server, ensure the following:
   - Migration of the Archive volume is successful.
   - (Optional) Migration of Primary volume is successful. In the `ArkConfig.xml` file under the `job` tag, ensure that the server name and context reflect the configuration details of the target machine.
   - The migrated data from the volumes and database is consistent.
   - Edit `ArkConfig.xml` to update the Archive volume path under `archivePath` tag on the OES 2 SP3 Linux server.
   - Ensure that the admin is a part of the novlxtier group. For more information, refer to "Caveats on Upgrading from OES 1 to OES 2 SP1" in the *OES 2 SP3: Novell Archive and Version Services 2.1 Administration Guide for Linux*.
   - Ensure that the admin is LUM-enabled on the target server running Archive and Version Services.
   - Ensure that the read only attribute is not set on the ARK volume.

     To check if the ARK volume has the read only attribute, enter `attrib /media/nss/ARK`. The output of the above command includes the read only (`ro`) attribute.

     To delete the read only attribute, enter `attrib -c ro /media/nss/ARK`
2. To restart the Archive Service on OES 2 SP3 Linux server, enter:

   ```
   rcnovell-ark start
   ```

19.4.1 Verifying Migration

To verify that migration completed successfully, check the availability of file versions by using the NSS File Version Utility.

20 Migrating CIFS from NetWare to OES 2 SP3 Linux

The NetWare to Open Enterprises Server (OES) 2 Linux CIFS migration process is either initiated from the Migration Tool or through a command line utility. For detailed information on migration through the Migration Tool, see Chapter 1, "Overview of the Migration Tools," on page 15 and for information on the command line utility, see Section 20.6, "Man Page for Migration," on page 184.

Migrating CIFS means migrating CIFS shares, contexts, and server configuration information. The following sections give you more detail on the CIFS migration procedure for OES 2 Linux:

- Section 20.1, "Migration Prerequisites," on page 177
- Section 20.2, "Migration Scenarios," on page 177
- Section 20.3, "Migration Procedure," on page 179
- Section 20.4, "Post-Migration Procedure," on page 183
- Section 20.5, "Verifying the Migration," on page 183
- Section 20.6, "Man Page for Migration," on page 184

20.1 Migration Prerequisites

For the migration to happen successfully:

- The CIFS server is installed and configured on the source server in one of the following platforms:
  - NetWare 6.0 SP5
  - NetWare 6.5 SP7
  - 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 2 SP3 Linux). For details, see "Installing Upgrading and Setting Up CIFS" in the *OES 2 SP3: Novell CIFS for Linux Administration Guide*.
- NSS file system migration from the source to the target server is completed.

20.2 Migration Scenarios

The CIFS migration scenarios are explained in this section:

- Section 20.2.1, "Consolidate - Same Tree," on page 178
- Section 20.2.2, "Consolidate - Different Tree," on page 178

- Section 20.2.3, “Transfer ID - Same Tree,” on page 178
- Section 20.2.4, “What Is Migrated,” on page 178

20.2.1 Consolidate - Same Tree

Only CIFS shares and contexts of the source servers are consolidated. The remaining server configuration information is not consolidated. The target server configuration is overwritten with the source server configuration. For details on consolidation migration, see Section 1.3, “Migration Scenarios,” on page 16.

20.2.2 Consolidate - Different Tree

CIFS consolidation for Different Tree is not supported. However, it can be achieved by using the following procedure:

1. Migrate the file system by using the Different Tree scenario. For details, see Section 16.5.2, “Migrating Data to a Server in a Different Tree,” on page 125.
2. Re-configure CIFS on the target server. For details on configuring CIFS, see “Setting the CIFS Server and Authentication Properties” in the *OES 2 SP3: Novell CIFS for Linux Administration Guide*.

20.2.3 Transfer ID - Same Tree

In this scenario, the target is installed into the same tree with a temporary name and IP address. At the end of the procedure, the source server name and IP address are swapped for the target server name and IP address. For details on Transfer ID migration, see Part IV, “Transfer ID Migration,” on page 57.

20.2.4 What Is Migrated

The following table gives you a quick overview of what is migrated from NetWare CIFS to OES 2 Linux CIFS for the different scenarios:

Table 20-1 *Migration Support for CIFS service*

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

20.3 Migration Procedure

Follow the instructions in either of these sections to perform the CIFS migration.:

- Section 20.3.1, "Using the Migration Tool," on page 179
- Section 20.3.2, "Using the Command Line," on page 181

20.3.1 Using the Migration Tool

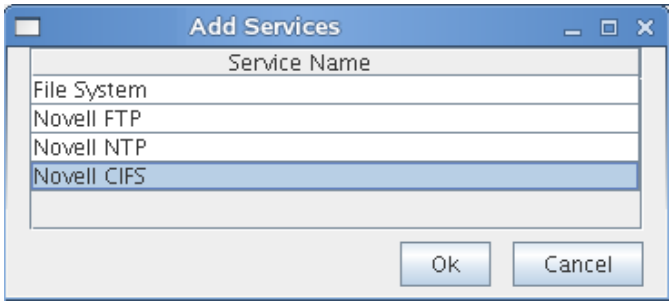
1 Launch the Migration Tool on the target server in one of the following ways:

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

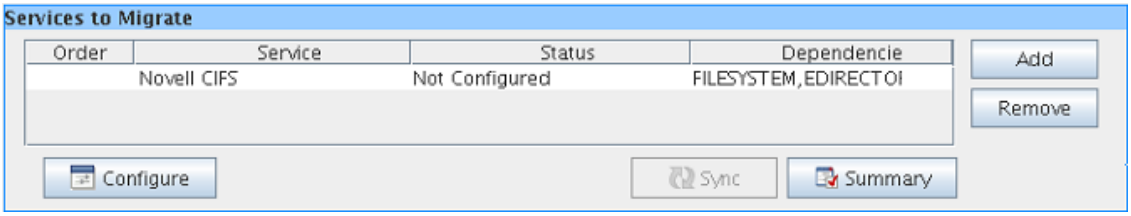
Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

For details on configuring source and target Server information, selecting a migration type, opening a project, and all the tool buttons, see Chapter 2, "Overview of the Migration GUI," on page 21.

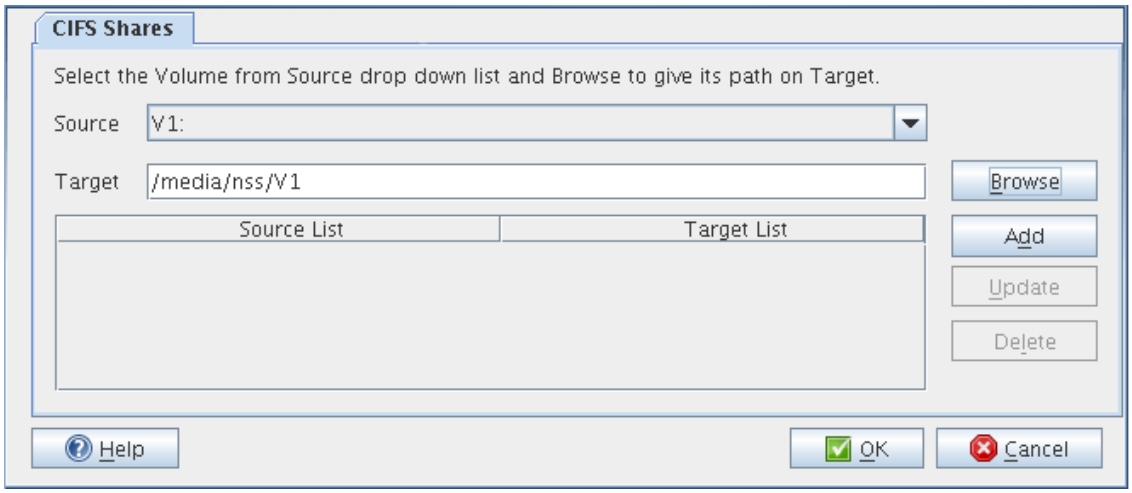
2 Click *Add*, select *Novell CIFS* to migrate, and click *OK*.



The *Status* is displayed as *Not Configured*.

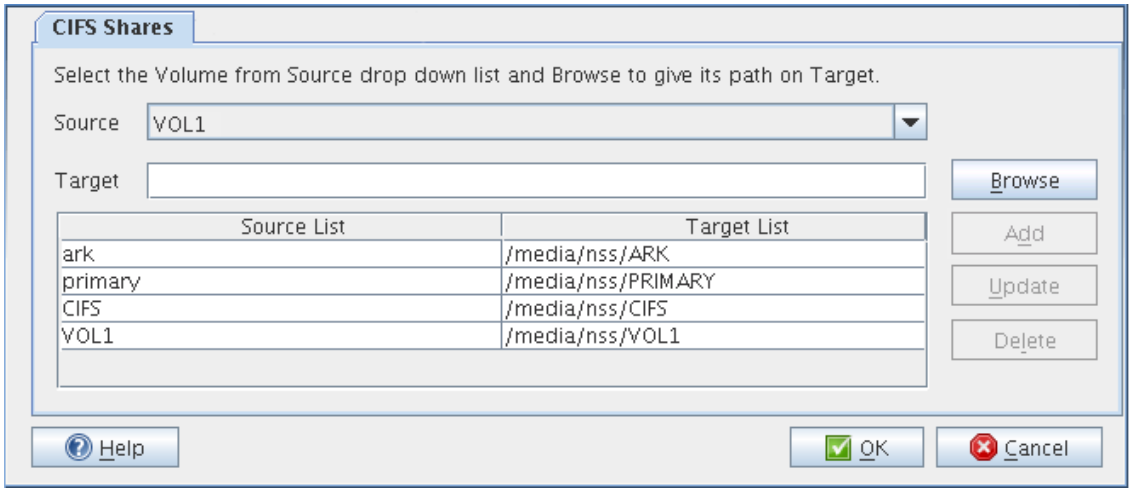


3 Select *Novell CIFS* and click *Configure* to configure the migration parameters.



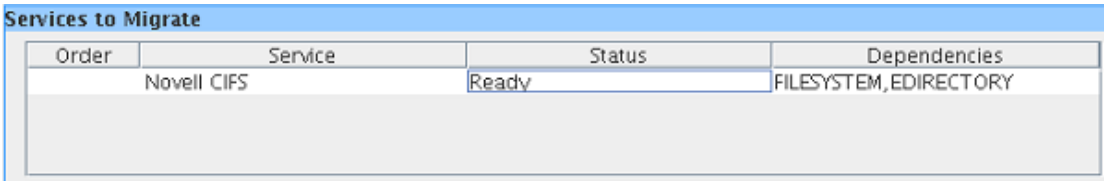
4 Under *CIFS Shares*, select the *Source* and *Target* shares for migration. Use *Browse* to browse for target shares. Use *Add* to add more source and target share mappings. Use *Update* to modify the configuration. Use *Delete* to remove the share mappings.

When you have filled in the information, the dialog will be similar to the following:

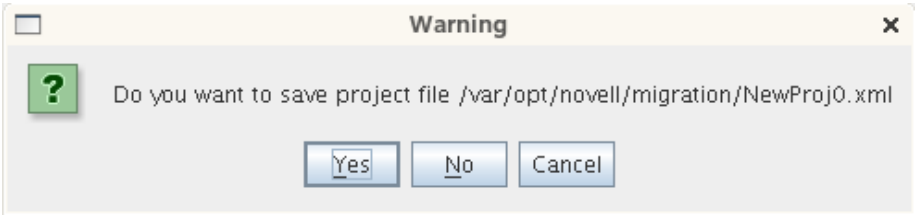


5 Click *OK* to complete the configuration.

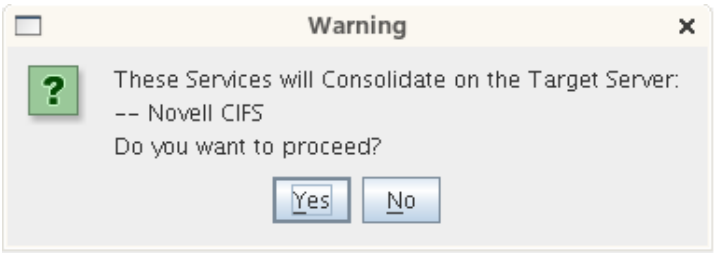
The *Status* is displayed as *Ready*.



6 Click *Start* to start the migration process. When you are prompted to save the project, click *Yes*.

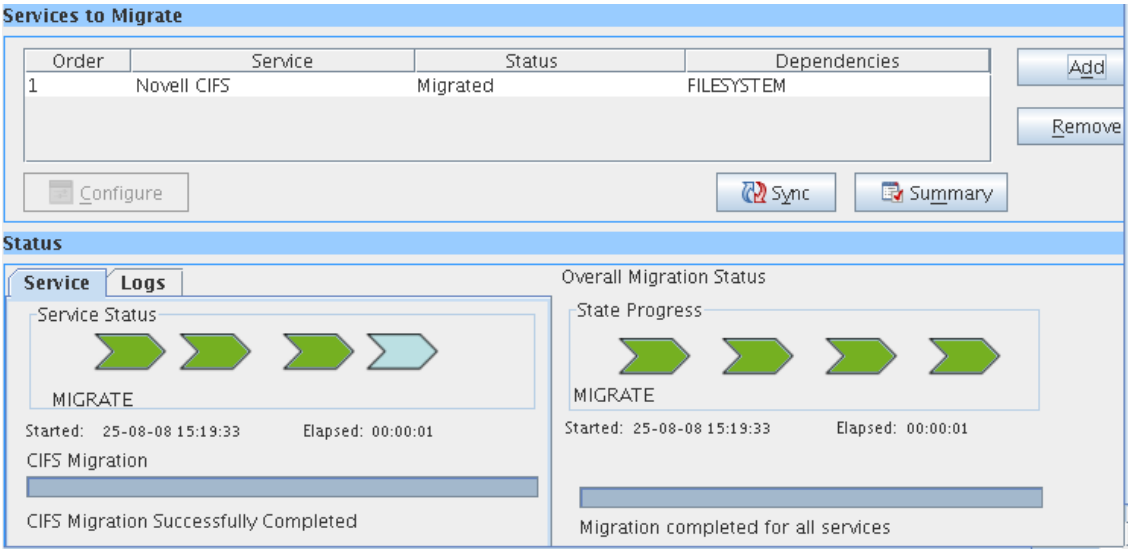


7 In the next dialog box, click *Yes* to proceed with the migration.



Wait for the migration to be completed. The *Status* changes to *Migrated*. The message *CIFS Migration Successfully Completed* is displayed.

NOTE: Use the *Status* > *Logs* tab to verify for errors during migration. If there are errors, fix them and restart the migration procedure.



20.3.2 Using the Command Line

CIFS migration requires the complete source and target server details. Run the migCifs utility on the target server for migrating. An example `migCifs` command is shown below. For details on the command, see Table 20-2 and see "migCifs" in Section 20.6, "Man Page for Migration," on page 184.

```
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 20-2 *migCifs Command Details*

Command Option	Description
-s <sourceIPaddr>	Source server IP address. For example, -s 192.168.0.1.
-p <sourceportnum>	Port number of the source server. For example, -p 636.
-a <sourceFDN>	Source server FDN. For example, -a cn=admin,o=novell.
-w <passwd>	Password for the source server FDN. For example, -w mysrc.
-f <sec/nonsecConn>	Secure (SSL) or non-secure (Non-SSL) connection type of the source server. 1 for SSL and 0 for Non-SSL. SSL is preferred. For example, -f 1 or -f 0.
-d <targetIPaddr>	Target server IP address. For example, -d 192.168.0.2.
-q <targetportnum>	Port number of the target server. For example, -q 636.
-b <targetFDN>	Target server FDN. For example, -b cn=admin,o=novell.
-x <passwd>	Password for the target server FDN. For example, -x mytgt.
-g <sec/nonsecConn>	Secure (SSL) or non-secure (Non-SSL) connection type of the target server. 1 for SSL and 0 for Non-SSL. SSL is preferred. For example, -g 1 or -g 0.
-S <MigrationType>	One of the migration types, such as Same Tree, Different Tree, Transfer ID, or Consolidation. 0 for Same Tree, 3 for Transfer ID, and 5 for Consolidation. For example, -S 0 or -S 3 or -S 5.
-m <cifsSharesmap>	CIFS source to the target share mapping file. This is an optional command. Create the file using any text editor. Separate individual sharemaps by a line. 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	Synchronizes the migration after consolidation. Only the CIFS context is synchronized. CIFS shares and server configuration information are not synchronized.

Command Option	Description
-r	Removes the shares related to the source (NetWare) server from the target server after a Transfer ID migration. Pass the source only CIFS share file. The source shares are listed and each share terminated with a #. For example, /media/nss/CIFSV1:#. Do not pass the CIFS Password Policies files with this option.

20.4 Post-Migration Procedure

Restart CIFS for the service to take effect on the target server. Use `rcnovell-cifs restart` from your command prompt to restart CIFS.

20.5 Verifying the Migration

After migration is complete, the CIFS server on the target server must be available and running as it used to be on your NetWare server. This verifies that the migration has been successfully completed.

If the CIFS server is not running after migration, see "CIFS Migration Issues" in the *OES 2 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.

- Section 20.5.1, "Using iManager to Verify the Migration," on page 183
- Section 20.5.2, "Using CLI to Verify the Migration," on page 183

20.5.1 Using iManager to Verify the Migration

1. Open iManager on the target server.
2. Go to *File Protocols* > *CIFS*.
3. Browse or specify the OES 2 Linux server.
4. Click *OK*.
5. Click *Start*. This displays the CIFS status as *Running*.
6. Click *Shares*. You must be able to list the sharepoints that were running on your NetWare and now migrated to OES 2 Linux server.

   For details on CIFS administration through iManager, see "Using iManager to Manage CIFS".

20.5.2 Using CLI to Verify the Migration

1. On the target server console, enter the command `rcnovell-cifs status`.
2. If the status is not `running`, enter the command `rcnovell-cifs start` to start the server.

3 If the status is `running`, enter the command `rcnovell-cifs restart` to restart the server.

4 Enter the command `novcifs [-sl | --share --list]` or `novcifs [-sln sharename | --share --list --name=sharename]`

This displays the list of sharepoints that were available on NetWare and are now migrated to the OES 2 Linux server.

For details on CIFS administration through command line utilities, see "Using the Command Line to Manage CIFS" in the *OES 2 SP3: Novell CIFS for Linux Administration Guide*.

20.6 Man Page for Migration

To access this man page with the command information, enter `man migCifs` at the command prompt.

- "migCifs(8)" on page 185

migCifs(8)

Name

migCifs - A command line utility that communicates with the source and target servers for migrating CIFS configuration information from NetWare to Novell OES 2 Linux. The command must be run on a target server.

Syntax

Migrating the CIFS Service from NetWare to OES 2 Linux

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> [-m <mapfilename>]
```

Synchronizing after Consolidation

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> -c
```

Repair after Transfer ID

```
migCifs -s <sourceIP> -p <portnumber> -a <sourceFDN> -w <password>
-f <sec/nonsecConnType> -d <targetIP> -q <portnumber> -b <targetFDN>
-x <password> -g <sec/nonsecConnType> -S <MigType> [-m <sourcesharefilename>] -r
```

Options

Usage Options:

-s <sourceIP>

Source server IP address.

-p <portnumber>

Port number of the source LDAP server.

-a <sourceFDN>

Fully distinguished name (FDN) of the source server tree admin.

-w <password>

Source server tree admin password.

-f <sec/nonsecConnType>

Enable or disable SSL connection for the source LDAP server. 1 for SSL and 0 for non-SSL connection.

-d <targetIP>

Target server IP address.

-q <portnumber>

Portnumber of target LDAP server.

-b <targetFDN>

Fully Distinguished Name (FDN) of the target server tree admin.

-x <password>

Target server tree admin password.

-g <sec/nonsecConnType>

Enable / disable SSL connection for the target LDAP server. 1 for SSL and 0 for non-SSL connection.

-S <MigType>

Set the migration type. 0 for Consolidation, 3 for Transfer ID.

-m mapfilename

File containing source and target server share mappings.

-c

Synchronizes only the CIFS context after consolidation. CIFS shares and server configuration information are not synchronized.

-r

Removes the shares related to the NetWare server from the target server after a Transfer ID migration.

Help Options

-h | --help

Displays the help information of the command and syntax.

-u | --usage

Displays the usage information of the command.

Files

`/etc/opt/novell/cifs/cifs.conf`

CIFS configuration file.

`/etc/opt/novell/cifs/cifsctxs.conf`

CIFS context file.

`/etc/opt/novell/cifs/.cifspwdfile`

Encrypted CIFS proxy user file.

`/var/opt/novell/log/cifs.log`

CIFS server log file.

`/var/opt/novell/migration/Newproj[n]/log/cifs.log`

CIFS migration log file.

Example

migCifs -s 192.168.0.1 -p 636 -a cn=admin,o=novell -w novell -f 1 -d 192.168.0.2 -q 636 -b cn=admin,o=novell -x novell -g 1 -S 0 -m cifsShares.tmp

Authors

See Also

novcifs(8)

Report Bugs

To report problems with this software or its documentation, visit http://bugzilla.novell.com.

21 Migrating DHCP from NetWare to OES 2 SP3 Linux

Migration refers to the process of migrating the Novell DHCP Services running on NetWare 5.1 or later to Open Enterprise Server (OES) 2 SP3 Linux.

For general information about the OES 2 Migration Tool, see the *OES 2 SP3: Migration Tool Administration Guide*.

- Section 21.1, “Migration Requirements,” on page 189
- Section 21.2, “Migrating DHCP,” on page 190
- Section 21.3, “Migration Scenarios,” on page 197
- Section 21.4, “Migrating a Cluster,” on page 198
- Section 21.5, “Post-Migration Procedures,” on page 198
- Section 21.6, “Verifying the Migration,” on page 199

In these sections, the NetWare server is referred to as the source server and the OES 2 SP3 Linux server as the target server.

21.1 Migration Requirements

Make sure your setup addresses the following requirements before you migrate DHCP to the new platform.

- ❒ An eDirectory integrated DHCP server installed and configured on the target machine. This takes care of the schema extension on the target server tree and creation of the dhcpLocator and DHCPGroup objects.
- ❒ The user running DHCP Migration requires read and write permissions on the target machine for the following folders:

  ```
  /opt/novell/migration/dhcpmigration/tmp
  /opt/novell/migration/dhcpmigration/dhcp
  ```

  Recommended: Run DHCP Migration as the `root` user.
- ❒ The target and source servers should have their time synchronized, or the leases might not function properly.
- ❒ Use the following source NetWare platforms for the migration process:
  - NetWare 5.1 SP8
  - NetWare 6 SP5
  - NetWare 6.5 SP7
  - NetWare 6.5 SP8

21.2 Migrating DHCP

To migrate the DHCP Services, you can use the Migration Tool or the command line interface.

- Section 21.2.1, "Understanding the Migration Process," on page 190
- Section 21.2.2, "Using the Migration Tool to Migrate Servers," on page 191
- Section 21.2.3, "Using the Command Line to Migrate Servers," on page 196

21.2.1 Understanding the Migration Process

Make sure that you install the OES 2 SP3 Linux server as the target server for the DHCP Services. For more information on installing Novell DHCP Services, refer to "Installing and Configuring DHCP " in the *OES 2 SP3: Novell DNS/DHCP 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 *Target Options* tab.

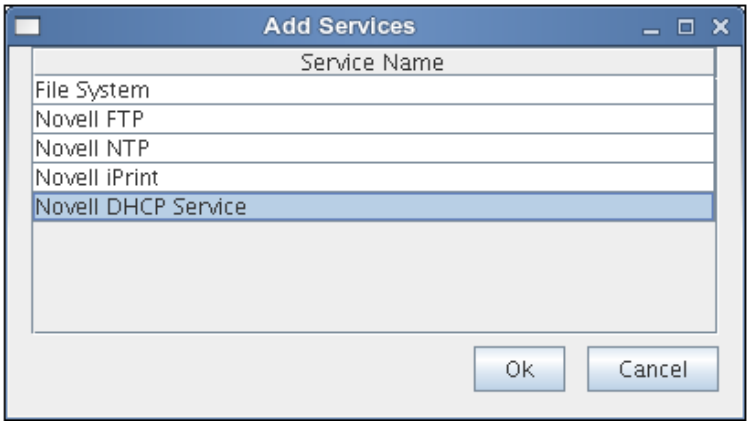
  For a subnet-level Migration, the subnets are created inside an existing dhcpService object on target server. Specify the existing dhcpService object in the *Service Context* field.
- **Address Range:** After the migration process, all the address range objects are mapped to pool objects on Linux.
- **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 replace by an underscore "_" during migration.

21.2.2 Using the Migration Tool to Migrate Servers

1. Open the Migration Tool GUI using the "Launch the Migration Tool Utility" on page 43.
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 three levels:
   - "Server Level" on page 193
   - "Subnet Level" on page 195
   - "Tree Level" on page 195

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 filename 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 one of the following three methods:

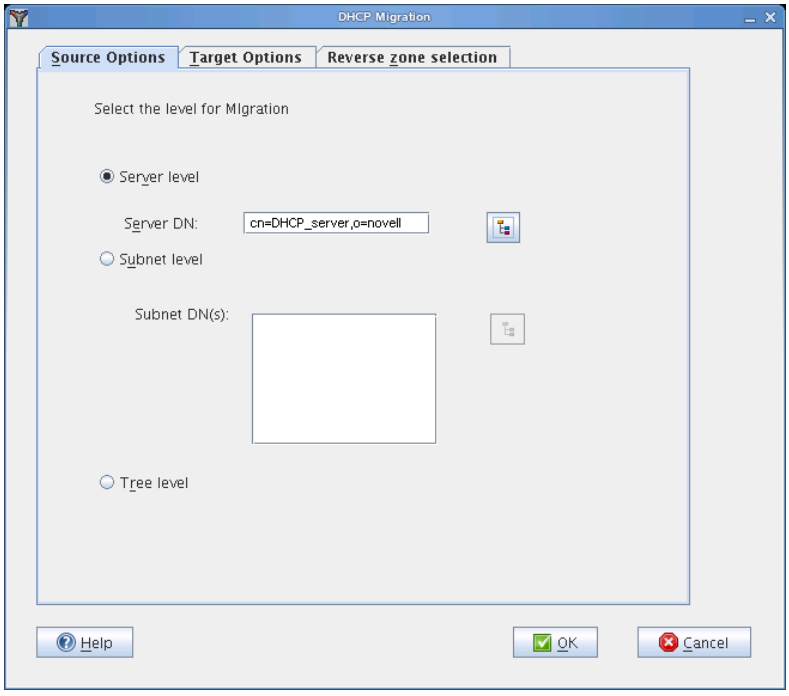
- Server Level
- Subnet Level
- Tree Level

Server Level

In the Server Level migration, the selected NetWare DHCP server is migrated to the OES 2 SP3 Linux server. You can choose to migrate only one server at a time.

NOTE: Refer to Table 21-2 on page 192 for DHCP configuration field descriptions.

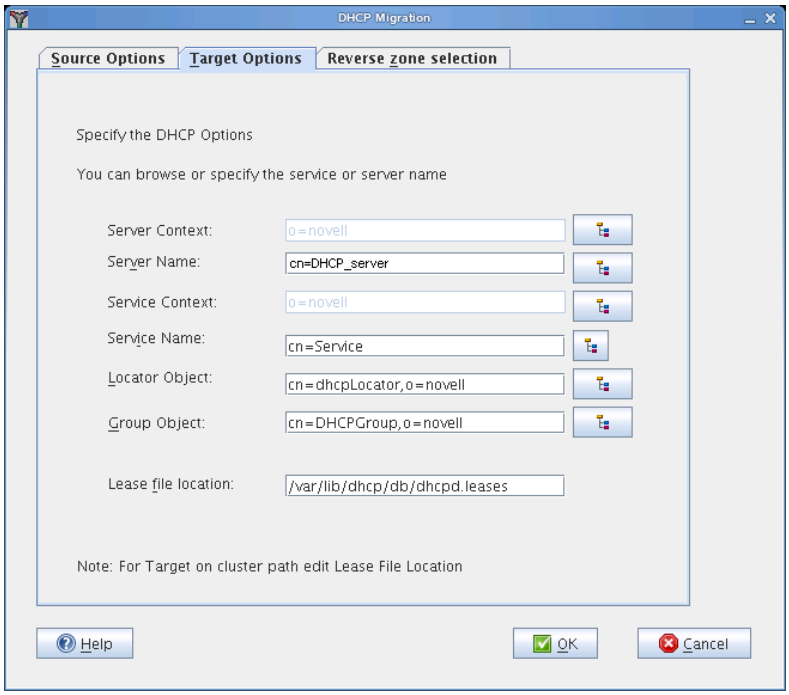
1 In the *Source Options* tab of DHCP migration window, select the *Server level* option.



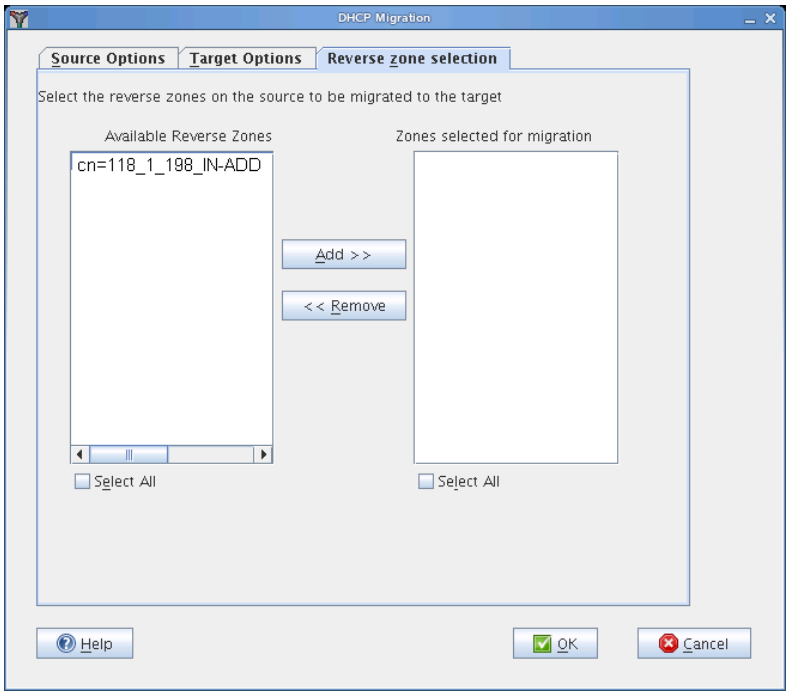
2 Click *Browse* to select the *Server DN*.

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..
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 2 SP3 Linux 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: Refer to Table 21-2 on page 192 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 2 SP3 Linux server.

NOTE: Refer to Table 21-2 on page 192 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.

21.2.3 Using the Command Line to Migrate Servers

1. To run the DHCP migration utility through the command line, run `/opt/novell/migration/bin/migdhcp` with the following parameters:

Option	Description
-h	Print this summary.
-k	Level of migration (subnet|tree|server).
-i	Verbose mode - on or off.
-d	Debug mode - on or off.
-s	IP address of the source LDAP server.
-p	Port number of the source LDAP server.
-a	DN of the admin user in the source tree.
-t	IP address of the target LDAP server.
-q	Port number for the target LDAP server.
-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 server on the destination tree.
-m	Base DN for 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 onject name on the Target server (Required only for server-level migration).
-S	DHCP service object name on 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`

21.3 Migration Scenarios

DHCP migration supports two scenarios:

- Section 21.3.1, “Transfer ID,” on page 197
- Section 21.3.2, “Consolidation,” on page 198

For more information about these scenarios, see “Support Matrix for NetWare and OES Services” on page 18.

21.3.1 Transfer ID

In this scenario, the identity of the target server is swapped with the source server. The IP address and the machine name of the target server change to the source IP address and machine name. The target should be installed in the same tree as th e 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.

21.3.2 Consolidation

In this scenario, the configuration data associated with the source server is associated to a single target server. DHCP Consolidation migration can be performed at the tree, server, or subnet-level.

21.4 Migrating a Cluster

There are two scenarios for migrating clusters:

- Section 21.4.1, “NetWare and Linux Clusters Attached to the Same Tree,” on page 198
- Section 21.4.2, “NetWare and Linux Clusters Attached to Different Trees,” on page 198

21.4.1 NetWare and Linux Clusters Attached to the Same Tree

Run the migration tool from one of the Linux nodes. Perform the tree-level migration with the source and target servers on the same tree.

This ensures that all NetWare DHCP configuration data is available for Linux DHCP.

In this scenario, both the NetWare server and the OES 2 SP3 Linux server are on the same eDirectory tree. The NetWare source server must be running NetWare 5.1 or later. The Linux target server must be running SUSE Linux Enterprise Server (SLES) 10 SP4 with OES 2 SP3on either 32-bit or 64-bit hardware.

21.4.2 NetWare and Linux Clusters Attached to Different Trees

Run the migration tool from one of the Linux nodes. Perform the tree-level migration with the source server (the tree to which NetWare clustered nodes are attached) on one tree and the target server (the tree to which the Linux clustered nodes are attached) on another tree.

This ensures that all NetWare DHCP configuration data is available for Linux DHCP.

In this scenario, the NetWare server and the OES 2 SP3 Linux server are on different eDirectory trees. The NetWare source server must be running NetWare 5.1 or later. The Linux target server must be running SUSE Linux Enterprise Server (SLES) 10 SP4 with OES 2 SP3 on either 32-bit or 64-bit hardware.

21.5 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 OES2 SP3 Linux DHCP server by using the `rcnovell-dhcpd start` command.

5 Continue with Section 21.5.1, "Cluster Migration from NetWare to Linux," on page 199 and Section 21.5.2, "Running a Preexisting DHCP Server," on page 199 as necessary.

21.5.1 Cluster Migration from NetWare to Linux

On the node where you ran the migration:

1 Open the `<mountpath>/etc/dhcpd.conf` file.

The <mountpath> parameter indicates the target directory in the shared volume where DHCP-specific directories are created.

Inside the `/etc/dhcpd.conf` file, which is located in the shared volume, change the *ldap-dhcp-server-cn* attribute to the migrated server cn.

2 Copy the `migrated_server.leases` file from the */var/lib.dhcp/bd* folder to the *<mountpath> var/lib/dhcp/db/* folder and rename it to `dhcpd.leases`.

21.5.2 Running a Preexisting DHCP Server

After migration, the DHCP server and service objects are created in the tree. You can run a preexisting DHCP server along with the migrated NetWare server's configuration.

1 Log in to the tree by using iManager.

2 Click to expand DHCP (OES Linux).

3 Select the service.

4 Select *View/Modify* service.

5 Select the service object that was created after migrating the NetWare server. The name of this service starts with the string *dhcpservice*.

6 Associate this service object with the existing DHCP server.

21.6 Verifying the Migration

To verify the migration, use iManager to go to the destination tree and locate the DHCP Server object and the corresponding DHCP Service object. All the DHCP server configuration is stored inside the corresponding DHCP Service object. For details, refer to "Viewing or Modifying a Server" in the *OES 2 SP3: Novell DNS/DHCP Administration Guide*.

Verify that leases are present:

- ❒ For a tree-level, server-level, or subnet-level migration, the lease filename and location are provided by the user. Make sure the expected files are present in the specified location.

22 Migrating DNS from NetWare to OES 2 SP3 Linux

Migration refers to the process of migrating DNS services from a NetWare system to a Linux system. The OES Migration tools follow a source/target model. For the migration process, the source servers are NetWare and the target is an Open Enterprise Server 2 SP3 Linux server.

The following sections give you more information on the prerequisites and the procedure to migrate source servers based on different scenarios:

- Section 22.1, "Planning Your Migration," on page 201
- Section 22.2, "Migration Scenarios," on page 202
- Section 22.3, "Migration Procedure," on page 202
- Section 22.4, "Post-Migration Procedure," on page 203

22.1 Planning Your Migration

Make sure your setup addresses the following requirements before you migrate DNS to the new platform.

22.1.1 System Requirements

- ❒ An eDirectory integrated DNS server installed on the target machine.

  NOTE: In a Server ID Swap scenario, do not select *Create DNS Server* option at the install time. 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.

22.1.2 Supported Platforms

The following platforms are accepted as valid source platforms for the migration process:

- ❒ NetWare 6.5 SP5
- ❒ NetWare 5.1 SP8
- ❒ NetWare 6.0 SP5 and later versions

22.1.3 Coexistence

OES 2 Linux can coexist with the following operating systems:

- NetWare 6.5 SP6
- SUSE Linux Enterprise Server (SLES) 10
- SLES 10 SP1
- SLES 10 SP4

22.2 Migration Scenarios

To migrate DNS to the new platform, you can use tools like iManager or the Java Management Console. During migration, the configuration details as well as the data are migrated to the destination platform.

- Section 22.2.1, "Migrating Servers within the Same eDirectory Tree," on page 202
- Section 22.2.2, "Migrating Servers across eDirectory Trees," on page 202

22.2.1 Migrating Servers within the Same eDirectory Tree

In this scenario, both the NetWare server and the OES 2 Linux server are on the same eDirectory tree.

22.2.2 Migrating Servers across eDirectory Trees

In this scenario, the Netware server and the OES 2 Linux server are on different eDirectory trees, so the migration is across the trees.

Depending on your setup, you can choose to migrate a single server at a time or migrate all the servers at the same time.

22.3 Migration Procedure

- Section 22.3.1, "Using iManager to Migrate Servers within the Same eDirectory Tree," on page 202
- Section 22.3.2, "Using iManager to Migrate Servers across eDirectory Trees," on page 203

22.3.1 Using iManager to Migrate Servers within the Same eDirectory Tree

1. Launch iManager.
2. Identify the source NCP server and the corresponding DNS server object that should be migrated to target server.

   The server and the server object will no longer exist on the NetWare server after migration. Make sure that the DNS Service is not running on this source NCP server.

   To stop the service, see "Stopping the DNS Server" in the *OES 2 SP3: Novell DNS/DHCP Administration Guide*.

3 Use iManager to move the source DNS server. This task also migrates the primary zones in the tree.

For information about moving the DNS server, see "Moving a DNS Server" in the *OES 2 SP3: Novell DNS/DHCP Administration Guide*.

22.3.2 Using iManager to Migrate Servers across eDirectory Trees

1 In iManager, use iManager to create the DNS server object. For details, see *OES 2 SP3: Novell DNS/DHCP Administration Guide*.

2 On the OES 2 Linux server, create a secondary zone and specify the zone master IP address as the IP address of the NetWare server where the primary zone exists. After the initial zone transfer, change the zone on the source NetWare server to secondary and make the zone on the target server to be the primary server.

Migrate primary zones on the OES 2 Linux server by creating a secondary zone and specifying the zone master IP address as the IP address of the NetWare/OES server where the primary zone exists.

3 Load the DNS servers on primary and secondary server to initiate zone transfer.

4 After the initial zone transfer, change the zone on the source NetWare server to secondary and make the zone on the target server to be the primary server zone.

5 To migrate secondary zones, create a secondary zone on the Linux server and specify it to be the secondary zone to the target primary zone that is on the OES 2 Linux server. Ensure that both the primary and the secondary zones use the same name. This is essential for a successful zone transfer.

NOTE: This method of migration is limited to migrating the zone data only.

22.4 Post-Migration Procedure

1 Use iManager or the Java Management Console to check for the existence of the following objects:

- DNS-DHCP
- DNSDHCP-GROUP
- RootServerInfo
- DNS Server object

2 Load `novell-named` and check to see if the `/etc/opt/novell/named.conf` file contains zone database files with valid information.

3 Start `named` with the `rcnovell-named start` command and use the Nslookup utility to query for records in zones.

23 Migrating FTP from NetWare to OES 2 Linux

Migration refers to the process of migrating FTP services from a NetWare system to a Linux system. The Open Enterprise Server (OES) migration tools follow a source/target model. For the migration process, the source servers are on NetWare and the target is the OES 2 Linux server. The following sections give you more details on the migration procedure for FTP.

- Section 23.1, “Planning the Migration,” on page 205
- Section 23.2, “Migration Scenarios,” on page 206
- Section 23.3, “Migrating FTP,” on page 206
- Section 23.4, “Post-Migration Procedure,” on page 207

23.1 Planning the Migration

Make sure your setup addresses the following requirements before you migrate FTP to the destination platform.

- Section 23.1.1, “System Requirements,” on page 205
- Section 23.1.2, “Source Servers,” on page 205
- Section 23.1.3, “Target Server,” on page 205

23.1.1 System Requirements

- Pure-FTPd

23.1.2 Source Servers

- NetWare 5.1 SP8
- NetWare 6.0 SP5
- NetWare 6.5 SP7 or later

23.1.3 Target Server

- OES 2 SP3 Linux

23.2 Migration Scenarios

The following three scenarios are supported for FTP migration:

- Consolidation on the Same Tree
- Consolidation on a Different Tree
- Transfer ID on the Same Tree

For details on these three scenarios, see Section 1.3, "Migration Scenarios," on page 16.

Prerequisites

For all three scenarios, eDirectory should be running so eDirectory users can log in.

What Is Migrated

When the migration is complete, the FTP parameters on NetWare are mapped to the corresponding parameters in Pure-FTPd on Linux. For details on mapped parameters, see Table 23-1 on page 207.

23.3 Migrating FTP

Migration of FTP configuration can be done from the Migration Tool or through the command line interface.

NOTE: Before you start the Pure-FTPd server, ensure that eDirectory is up and running on the target server. This is to ensure that all the eDirectory users can be used for Pure-FTPd access. For the Server ID Swap, all eDirectory objects are migrated as part of the DIB migration step. For complete details on eDirectory migration, read Appendix 17, "Migrating eDirectory to OES 2 SP3 Linux," on page 161.

- Section 23.3.1, "Using the Migration Tool," on page 206
- Section 23.3.2, "Using the Command Line," on page 207

23.3.1 Using the Migration Tool

1. Launch the Migration Tool in one of the following ways:

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

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

2. Configure the source and target parameters.

   For details on configuring source and target server information, selecting a migration type, and the Open, Save Project, and all other tool buttons, see Chapter 2, "Overview of the Migration GUI," on page 21.

3. Select *Novell FTP* from *Services* and click *Configure*. The status now changes from *Not Configured* to *Ready*.

4. When the status is *Ready*, click *Migrate* to start the migration process.

   The status changes from *Migrating* to *Migrated* on success.

   NOTE: Use the *Status* > *Logs* tab to check for errors during migration. Fix the errors and restart the migration procedure if necessary.

23.3.2 Using the Command Line

1 Run the FTP migration utility from the command line with the required parameters:

`migftp -s <source_server>`

For example:

`migftp -s 192.168.1.54`

If the migration is successful, a message indicating success is displayed.

2 Start the eDirectory server to allow eDirectory users to log in.

3 Start the FTP server by using the `rcpure-ftpd start` command.

23.4 Post-Migration Procedure

1 All the FTP services users must be LUM enabled.

2 Map these parameters during FTP migration from NetWare to Linux:

Table 23-1 *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

Important:

- If SECURE_CONNECTIONS_ONLY is set in NetWare and an FTP migration certificate does not exist on Linux, a default FTP certficate (`/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 server binding to invalid IP address resulting in loss of functionality. The migration script is updated to ignore IP 0.0.0.0, and created `.bak` file for preserving the original linux conf file for administrative reference.

24 Novell iFolder Upgrade, Migration, and Coexistence

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) 2.0 Linux or later can bridge the gap between the Novell iFolder 2.*x* services and the iFolder 3.2 services that are currently running on OES 1.0.

This section familiarizes you with the migration and upgrade capabilities of iFolder 3.8. It also discusses using the Novell Migration Tool to introduce the iFolder 3.8 services into an existing network environment without disrupting existing Novell iFolder 2.*x* and iFolder 3.*x* services.

Migration: In this section, migration means the process of moving Novell iFolder 3.2 data running on OES 1 Linux and iFolder 2.*x* on OES 1 Linux or on Netware to Novell iFolder 3.8.4 running on the OES 2 SP3 Linux platform.

Upgrade: Upgrade means the process of changing to a new version of iFolder on the same platform, such as from iFolder 3.2 and iFolder 3.4 on OES 1 Linux and iFolder 3.6 on OES 2 Linux to Novell iFolder 3.8.4 running on OES 2 Linux SP3.

- Section 24.1, “Migrating iFolder 2.x,” on page 209
- Section 24.2, “Migrating iFolder 3.2,” on page 216
- Section 24.3, “Upgrading iFolder 3.x,” on page 220
- Section 24.4, “Upgrading iFolder 3.6,” on page 222
- Section 24.5, “Coexistence of iFolder 3.8 and 2.x Servers,” on page 222
- Section 24.6, “Coexistence of the iFolder 3.8 Client with Novell iFolder 1.x and 2.x Clients,” on page 222

24.1 Migrating iFolder 2.x

You can move iFolders and user data from an iFolder 2.*x* domain to iFolder 3.8. In the following sections, the iFolder 2.*x* server is referred to as the source server and the iFolder 3.8 server as the target server.

IMPORTANT: You cannot migrate encrypted iFolders. Use the client-side migration wizard to migrate the encrypted iFolders. For more information on the client-side migration, see Novell iFolder Migration And Upgrade in the Novell iFolder 3.8 Cross-Platform User Guide (https://www.novell.com/documentation/ifolder3/).

- Section 24.1.1, “Server Migration,” on page 210
- Section 24.1.2, “Client Migration,” on page 215

24.1.1 Server Migration

This section helps you understand the server migration, its prerequisites, and the migration process.

- "Supported Platforms" on page 210
- "Prerequisites" on page 210
- "Planning" on page 210
- "Migration Scenarios" on page 211
- "iFolder Migration Procedure" on page 211
- "Multi-Server Migration" on page 214
- "What to Expect" on page 214
- "Verifying the Migration" on page 215
- "Post-Migration Procedures" on page 215

Supported Platforms

Table 24-1 *Supported Platforms*

Source Platform	Destination Platform
NetWare 6.5 SP7 and later	OES 2.0 SP3
OES 1.*x* Linux	OES 2.0 SP3

Prerequisites

Before proceeding to migrate, meet the following prerequisites:

- ❒ You must perform the File System Migration for the source data path.

  For more information, see Appendix 16.4, "Migrating File System Using GUI," on page 113.
- ❒ Ensure that the iFolder 3.8 servers, the iFolder 3.8 Web Access server, and the eDirectory services are up and running.

  The iFolder 3.8 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 3.8 has the capacity to manage 1000 connected users simultaneously on a single server. This can vary based on the server hardware and network capabilities. If there are more than 1000 users, you can use a multi-server setup. For details, see Deploying iFolder Server chapter in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
- **Web Access Server:** The Novell iFolder 3.8 Web Access console for end users must run on the target server.

- **Web Admin Server:** The Novell iFolder 3.8 Web Admin console for end users must run on the target server. You must ensure that the policies for disk quota, iFolder limit, and file filter are set at the system level, because these policies affect the storage availability on the server. For details on policies, see Configuring System Policies in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
- **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 3.8 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.8 server uses the round-robin provisioning method to provision the users . Novell iFolder 3.8 has its own LDAP attribute for provisioning users and it does not use the iFolder 2.*x* LDAP attribute for provisioning. You can use the iFolder 3.8 LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users/groups.

Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services:

For general explanation of the scenarios supported in OES 2 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 2.*x* data is copied to the target machine to perform the basic operations, while the original copy is operational in the source machine until the move completes. When the move completes, the source and target servers swap and all the iFolder 2.*x* data on the source server is available on the target server. The target server functions with the same credentials (such as IP address and hostname) as the source server and the source server node is no longer available in the eDirectory tree.

  IMPORTANT: In a Netware to OES2 SP3 Transfer ID scenario, ensure that the target server is installed in the same context as the source server.

- **Consolidate:** In this scenario, you can copy the iFolder data from any number of existing source servers to a target server. The source server must be running NetWare 6.5 SP7, NetWare 6.5 SP8 or OES 1 SP2 version. The target server must be running on OES 2 SP3 on either 32-bit or 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Consolidate scenario, both Same Tree and Different Tree migration are possible.

- **Same Tree:** In the Same Tree migration, the source and target server are on the same eDirectory tree. The source server must be running NetWare 6.5 SP7, NetWare 6.5 SP8 or OES 1 SP2 version. The target server must be running on OES 2 SP3 on either 32-bit or 64-bit hardware.
- **Different Tree:** In the Different Tree migration, the source server and the target server are on different eDirectory trees. The source server must be running NetWare 6.5 SP7, NetWare 6.5 SP8 or OES 1 SP2 version. The target server must be running SUSE Linux Enterprise Server 10 SP2 with OES 2 SP3 on either 32-bit or 64-bit hardware.

iFolder Migration Procedure

This section helps you understand the server migration processes.

- "Using the Migration Tool GUI" on page 212
- "Using Command Line Utilities" on page 213

Using the Migration Tool GUI

1 Install, configure, and run iFolder 3.8 on the target server.

2 Open the Migration Tool GUI.

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

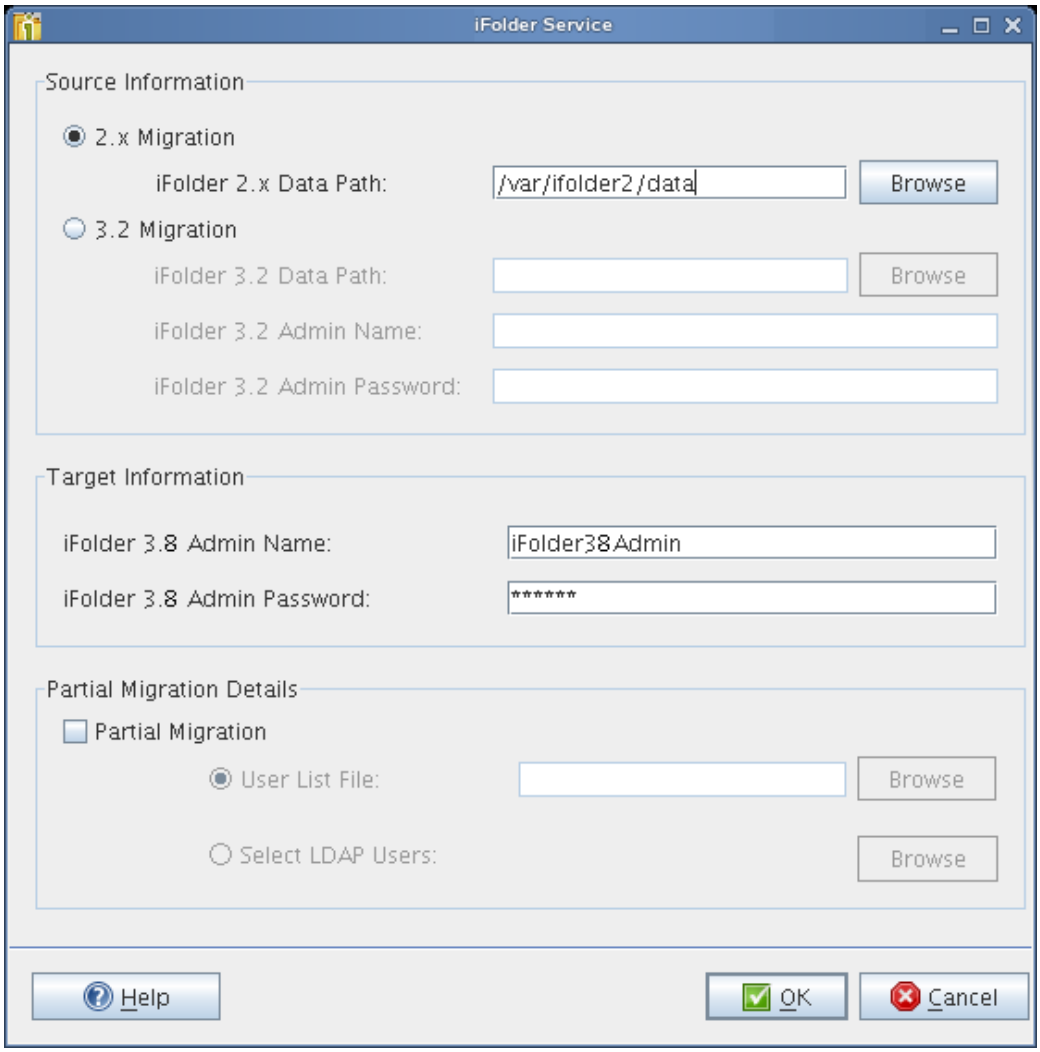
Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`

3 Authenticate to the source and target servers. All the associated services are listed in the Services panel.

4 Select *Novell iFolder*, then click *Configure*. The iFolder configuration window displays as follows.

IMPORTANT: Ensure that you migrate the iFolder 2.*x* file system data by using the file system migration tools. For more information, refer to Appendix 16.4, "Migrating File System Using GUI," on page 113.

The default data path for iFolder 2.*x* is `/var/opt/novell/<ifolderdata>` for 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 3.8 on OES 2 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 3.8 Admin Name	Specify the username of the iFolder 3.8 administrator.
iFolder 3.8 Admin Password	Specify the iFolder 3.8 admin password.
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 3.8 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 24-2 *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 3.8 server.
--adminname	Specifies the username of the iFolder 3.8 administrator.
--password	Specifies the password for the iFolder 3.8 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 3.8 servers must be up and running. The master server automatically provisions the home servers for each migrated user. Depending upon the user provisioning priority you have set, each user is provisioned in the appropriate iFolder 3.8 server. If you want to move each user from a single iFolder 2.*x* server to different iFolder 3.8 servers or from many iFolder 2.*x* servers to a single iFolder 3.8 server, you must set the provisioning with the iFolder 3.8 Web Admin console. By default, the round-robin provisioning method is used. For more information on using the Web Admin console, refer to the following sections in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).

- 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 3.8. The flat directory structure of the 2.*x* data is changed to the hierarchical structure of iFolder 3.8 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 llist are migrated.
- In the Transfer ID scenario, iFolder 3.8 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 3.8. You must set the policies again for each user by using the Web Admin console, because the iFolder 2.*x* policies are not compatible with iFolder 3.8.

For more information on using the Web Admin console, refer to the following chapters in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).

- 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 3.8 client to the iFolder 3.8 server, the migrated iFolders are also available for download. Instead of downloading them and having a different copy on the same machine, they can simply merge the iFolders on the local machine to the migrated iFolders on the server. This also reduces the data transfer traffic and effort. For details on the merge functionality provided in the client, see Merging iFolders in the Novell iFolder 3.8 Cross-Platform User Guide (https://www.novell.com/documentation/ifolder3/).

24.1.2 Client Migration

There is an automatic client-side migration from Novell iFolder 2.*x* to iFolder 3.8. The Migration Wizard provided for the user in the iFolder 3.8 client migrates the existing 2.*x* iFolder data to the iFolder 3.8 domain. The Migration Wizard appears soon after the installation of iFolder 3.8 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 3.8 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 3.8, 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 3.8 account.
- The user must use only the Migration Wizard available in the iFolder client to migrate an existing 2.*x* iFolder to a 3.8 iFolder. The user should not perform iFolder 2.*x* to 3.8 conversion by any other means, such as using iFolder shell integration (Windows Explorer or Nautilus) or the iFolder 3.8 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 3.8 domain, ensure that you allocate sufficient space (at least 10 MB larger than the size of the iFolder 2.*x* data) on the hard disk (user's Home directory for Linux and user's Application Data directory for Windows) before performing migration. The additional space is used to store the iFolder database.

In this case, the user must log out of the 2.*x* client before performing the migration to avoid synchronization issues and related possible data corruption.

- If the user selects to migrate the iFolder and disconnect it from 2.*x* domain, the folder is not accessible through the 2.*x* account after the migration, because it is completely moved to the 3.8 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 3.8 domain.

24.2 Migrating iFolder 3.2

You can move iFolders and the user data from an iFolder 3.2 domain to an iFolder 3.8 domain. In the following sections, the iFolder 3.2 server is referred to as the source server and the iFolder 3.8 server as the target server.

24.2.1 Supported Platforms

Table 24-3 *Supported Platforms*

Source Platform	Target Platform
OES 1.x Linux	OES 2 Linux SP3

24.2.2 Prerequisites

Before proceeding to migrate, see "Prerequisites" on page 210.

24.2.3 Planning

- **Novell iFolder Server:** Novell iFolder 3.8 has the capacity to manage 1000 connected users simultaneously in a single server. This can vary based on the server hardware and network capabilities. If there are more than 1000 users, you can use a multi-server setup. For details, see Deploying iFolder Server in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
- **Web Access Server:** The Novell iFolder 3.8 Web Access console for end users is running on the target server.
- **Web Admin Server:** The Novell iFolder 3.8 Web Admin console is running on the target server. You must ensure that the policies for disk quota, iFolder limit, and file filter are set at system level, because these policies affect the storage availability in the server. For details on policies, see Configuring System Policies in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
- **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 3.8 Web Admin console. If the users are not provisioned and no policies are set, the iFolder 3.8 server uses the round-robin provisioning method to provision the users. Novell iFolder 3.8 has its own LDAP attribute for provisioning users and it does not use the iFolder 3.*x* LDAP attribute for provisioning. You can use iFolder 3.*8* LDAP attribute for selective provisioning and use the Web Admin console for manual provisioning of users and groups.

24.2.4 Migration Scenarios

The following scenarios are supported for migrating Novell iFolder Services:

- **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 movecompletes and all of the iFolder 3.2 data on the source server is available on the target server. The target server functions with the same credentials (such as IP address and hostname) as the source server and the source server node is no longer available in the eDirectory tree.
- **Consolidate:** In this scenario, you can copy the iFolder data from any number of existing source servers to a target server. The source server must be running OES 1 SP2 Linux version. The target server must be running on OES 2 SP3 on either 32-bit or 64-bit hardware.

In the Transfer ID scenario, only the Same Tree migration is applicable. In the Consolidate scenario, both the Same Tree and Different Tree migration are possible.

- **Same Tree:** In this scenario, the source server and target server are on the same eDirectory tree. The source server must be running OES 1 SP2 Linux version. The target server must be running on OES 2 SP3 on either 32-bit or 64-bit hardware.
- **Different Tree:** In this scenario, the source server and the target server are on different eDirectory trees. The source server must be running OES 1 SP2 Linux version. The target server must be running on OES 2 SP3 either on 32-bit or on 64-bit hardware.

24.2.5 iFolder Migration Process

You can perform the migration through either the Migration Tool GUI or through the command line.

- "Using the Migration Tool GUI" on page 217
- "Using Command Line Utilities" on page 219

Using the Migration Tool GUI

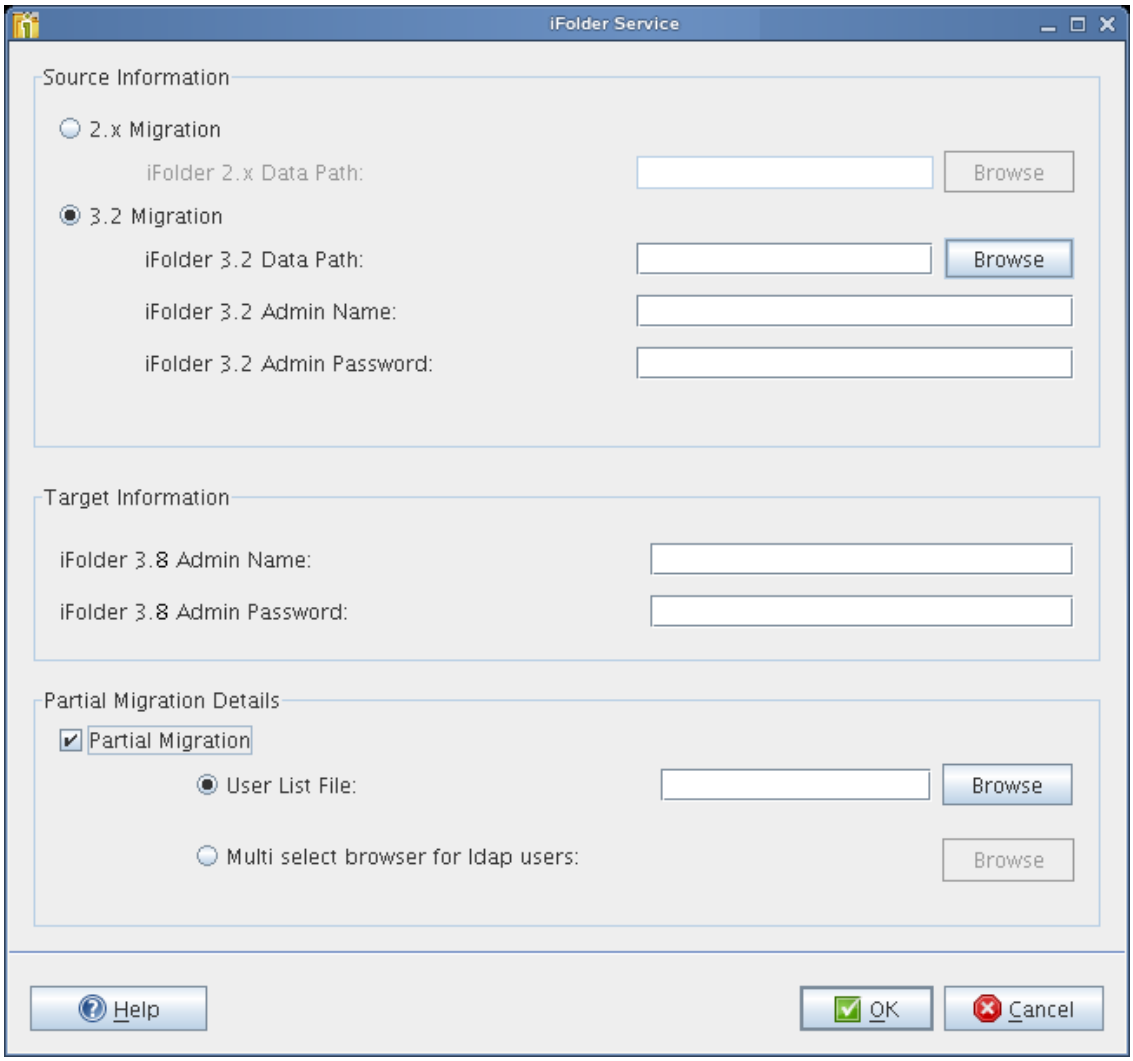
1. Install, configure, and run iFolder 3.8 on the target server.
2. Copy the `simias.config` file from the source server to the location `/var/lib/wwwrun/.local/share/simias` in the target server.
3. Open the Migration Tool GUI.

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

   Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`
4. Authenticate to the source and target servers. All the associated services are listed in the Services panel.
5. You must configure the file system before configuring the iFolder 3.2 service. To configure NSS or NCP volumes, select *File System*, then click Configure. For any other file system, perform migration using Command Line Utilities. For more information on configuring file system, refer to Section 16.5, "Migrating File System Using Command Line Utilities," on page 123
6. Select *Novell iFolder*, then click *Configure*. The iFolder configuration window displays as follows.

IMPORTANT: Ensure that you migrate the iFolder 3.2 file system data by using the file system migration tools. For more information, refer to Appendix 16.4, "Migrating File System Using GUI," on page 113.

The default data path for iFolder is `/var/lib/wwwrun/simias` for Linux.



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 3.8.4 on OES 2 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 username of the iFolder 3.2 administrator. This is the fully distinguished name of the iFolder admin user. For example: cn=admin,o=acme.
iFolder 3.2 Admin Password	Specify the iFolder 3.2 admin password.
iFolder 3.8 Admin Name	Specify the username of the iFolder 3.8 administrator. For example: admin.

Parameter	Description
iFolder 3.8 Admin Password	Specify the iFolder 3.8 admin password.
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 3.8 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 command line, run `/opt/novell/migration/sbin/migif3 --option=value` with the following details:

Option	Description
--precheck	(Optional) Checks whether migration is possible with the given parameters.
--oldadminname	Specifies the username of the iFolder 3.2 administrator.
--newadminname	Specifies the username of the iFolder 3.8 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 3.8 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.

24.2.6 What to Expect

- The user data (iFolders) is migrated.
- If the user list is provided, only those users specified in the user list are migrated.
- In the Transfer ID scenario, the iFolder 3.8 updates the configuration files with the new server IP address after the migration is completed.

24.3 Upgrading iFolder 3.x

You can upgrade iFolder 3.*x* on OES 1 to iFolder 3.8.4 on OES 2 SP3. This is a single-server scenario, where the source and target servers reside on the same machine.

- Section 24.3.1, "Server Upgrade," on page 220
- Section 24.3.2, "Client Upgrade," on page 221

24.3.1 Server Upgrade

Ensure that the server-side data is backed up before you perform the upgrade.

You must use the YaST-based Novell iFolder configuration for the in-place upgrade. A YaST upgrade of OES 1 to OES 2 SP3 upgrades the configuration values of the iFolder enterprise server from the 3.*x* iFolder server to the 3.8 iFolder server.

For details on YaST-based configuration, see Deploying iFolder Server in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).

1. Install OES 2 SP3 by using YaST. For more information, see Installing iFolder on an Existing OES 2 Linux SP2 Server in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
2. Select *Use Following Configuration* and click *Novell iFolder* to change the default configuration settings for iFolder.

   or

   If you decide to use default settings, click *Next* to start Novell iFolder 3 configuration.

   For security reasons, it is recommended that you always change the default iFolder configuration settings.
3. Follow the YaST on-screen instructions to proceed through the Novell iFolder 3.8 configuration.

   The table in the Configuring the iFolder Enterprise Server in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/) 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 OES2 SP3 in a cluster setup, move to common proxy using the `move_to_common_proxy.sh` script fails. This is because during upgrade, the cluster volumes are not mounted. After upgrade is successful, you must use the following command on the node where 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 common proxy framework. In non-cluster setups, this runs automatically as part of post install script.

24.3.2 Client Upgrade

- "Understanding the Upgrade Process" on page 221
- "Preparing for the Upgrade" on page 221
- "Upgrade Procedure for the User" on page 221

Understanding the Upgrade Process

With the client upgrade, binaries are upgraded with the new version of binaries and the client data is auto-upgraded.

Preparing for the Upgrade

Make sure that you perform the following server-side operations so that the user is notified of the new version of the iFolder client and prompted to accept the client upgrade.

IMPORTANT: You must ensure that the user backs up the Simias store before upgrading the client.

---

1. Enter `http:\\ IP address of iFolder server` in the browser to go to the OES 2.0 home page.
2. Download the client RPMs or executables from the OES 2.0 home page.
3. Place the RPMs under the respective platform directories in the path *`ifolder_installDirectory`*`/lib/simias/web/update/unix`

   The latest client RPMs are installed only if they are present in the given path. The automatic installation happens when the user attempts to connect the 3.*x* or 3.4.1 client to the iFolder 3.8 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 3.8 server. For details, refer to Upgrading iFolder 3.x Clients in the Novell iFolder 3.8 Cross-Platform User Guide (https://www.novell.com/documentation/ifolder3/).

For instructions on performing a manual upgrade, refer to Manually Upgrading to iFolder 3.8 client on Linux in the Novell iFolder 3.8 Cross-Platform User Guide (https://www.novell.com/documentation/ifolder3/).

24.4 Upgrading iFolder 3.6

1. On the OES 2 SP3 client Downloads page, click the *iFolder client for Linux* link to download the RPMs as desired.

   For details, see Deploying iFolder Server in the Novell iFolder 3.8 Administration Guide (https://www.novell.com/documentation/ifolder3/).
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 3.8.

24.5 Coexistence of iFolder 3.8 and 2.*x* Servers

If you use both iFolder 2.*x* and Novell iFolder 3.8 services, we recommend that you install each version on its own dedicated server. The OES 2.0 Linux services do not support iFolder 2.*x* services.

24.6 Coexistence of the iFolder 3.8 Client with Novell iFolder 1.*x* and 2.*x* Clients

Do not install the iFolder 3.8 client in the same application folder as a Novell iFolder 1.*x* or 2.*x* client.

The iFolder 3.8 client can coexist on the same workstation as the Novell iFolder 1.*x* client or 2.*x* client, with the following caveats:

- The iFolder 3.8 client and its iFolders work only with the Novell iFolder 3.8 enterprise server.
- The Novell iFolder 1.*x* or 2.*x* client and its iFolder on the workstation continue to work only with the assigned Novell iFolder server of the same release.
- The single iFolder created with the iFolder 1.*x* or 2.*x* client can coexist with the multiple iFolders created with the iFolder 3.8 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 3.8 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 3.8 while *xyz* still remains an iFolder of type 2.*x* or 1.*x*. In addition, you should not attempt to migrate *xyz* to iFolder 3.8 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.

25 Migrating iPrint from NetWare or OES 2 Linux to OES 2 SP3 Linux

Migration refers to the process of migrating iPrint from a NetWare system to a Linux system. For general information about the OES 2 Migration Tool, see Chapter 1, “Overview of the Migration Tools,” on page 15.

The following sections give more details on the migration procedure for iPrint.

- Section 25.1, “Prerequisites,” on page 223
- Section 25.2, “Supported Migration Scenarios,” on page 225
- Section 25.3, “What is Migrated,” on page 225
- Section 25.4, “Migration Procedure,” on page 225
- Section 25.5, “Migrating an iPrint Cluster Resource,” on page 233
- Section 25.6, “Migrating ZENworks iPrint Policies,” on page 234
- Section 25.7, “Verifying Migration,” on page 236
- Section 25.8, “Cleaning Up Stale Objects,” on page 237
- Section 25.9, “Troubleshooting iPrint Migration,” on page 237
- Section 25.10, “iPrintmig Man Page,” on page 241

25.1 Prerequisites

This section covers the migration prerequisites for all the migration scenarios supported by iPrint.

- Section 25.1.1, “Platform Specifications,” on page 223
- Section 25.1.2, “General Prerequisites,” on page 224

25.1.1 Platform Specifications

- “Source Server Requirements” on page 223
- “Target Server Requirements” on page 224

Source Server Requirements

- NetWare 5.1, 6.0, 6.5, Open Enterprise Server (OES) 1 Linux, OES 2 Linux

IMPORTANT: If your source server is OES 1 Linux, ensure you update the server with the `novell-iprint-server-5.1.20080415-1.i586.rpm` patch. If your source server is NetWare 6.5 SP 6, apply the `nw65sp7b` patch. After applying the patch, do the following:

1. Restart the active Print Manager.
2. Start the Web browser and open `https://OES1 IPADDRESS/PsmStatus/Misc?backupDB=true`.
   On the page, if the *Database XML File* field is not displaying `padbtxt.xml` file, click *Backup Database* to re-generate the `padbtxt.xml` file. For more information about patching your server, see "Updating (Patching) an OES 2 SP3 Server" in the *OES 2 SP3: Installation Guide*.

Target Server Requirements

- OES 2 SP3 Linux server with iPrint installed, 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 2 SP3: iPrint for Linux Administration Guide*.

IMPORTANT: If your target server is in a non-replica eDirectory tree, for migration to be successful, both the target Driver Store and Print Manager must be active. Configure SLP to make these active. For details on SLP configuration, see "Configuration Parameters" in the *Novell eDirectory 8.8 Administration Guide* (http://www.novell.com/documentation/edir88/edir88/data/akscitm.html).

25.1.2 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.
- On upgrading to OES, ensure to migrate NDPS to iPrint. NDPS is not supported on OES Linux. For more information, see how to automate theupgrade 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)
- 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 238.
- Ensure that the driver paths are correct and accessible. For troubleshooting a Bad Driver assignment, see "Invalid driver path assignments" on page 238.
- 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 2 SP3: iPrint for Linux Administration Guide*.

- Ensure that the user has the following rights and permissions assigned explicitly on the source server so that the user can access and execute the `psminfo.nlm`, even if there is a mismatch of source server and container admin credentials for the user:
  - Read permission to `sys:ndps` folder on the migration source server.
  - Add the user as a trustee with supervisor rights to the source server NCP server object.
- Back up the Print Manager database files on the source server prior to migration for any changes. For NetWare, see "Understanding the Print Manager Database" in the *NW 6.5 SP8: iPrint Administration Guide*. For Linux, see "Understanding the Print Manager Database".

25.2 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 Server ID swap (Transfer ID)

For more information about these scenarios, see Section 1.3, "Migration Scenarios," on page 16.

25.3 What is Migrated

During the migration process, the following objects are transferred seamlessly from the source server to the target server:

- Printers
- Drivers
- Banners
- Printer Pools
- Redirected Printers
- ACL
- Printer Profiles
- The `iPrint.ini` file (Only if the source server is NetWare 5.1, 6.0, or 6.5)
- iPrint Client Management (only if the source and target servers are in same tree and are sharing a common user)

25.4 Migration Procedure

Perform the following steps for iPrint migration.

1. Section 25.4.1, "Pre-Migration iPrint Configuration," on page 226
2. Section 25.4.2, "iPrint Consolidate Migration," on page 226
3. Section 25.4.3, "Verifying the Result of the iPrint Migration," on page 232
4. Section 25.4.4, "Transfer ID," on page 232
5. Section 25.4.5, "Post Transfer ID Migration Steps," on page 232

25.4.1 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 2 SP3: iPrint for Linux Administration Guide*.

   If eDirectory server1 value is not pointing to a server that holds a reliable replica, go to the `/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 2 SP3: iPrint for Linux Administration Guide*.

   If eDirectory server1 value is not pointing to a server that holds a reliable replica, go to the `/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.

   Check the authentication by using both the IP address and the DNS name.

   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 are not encountering any error.

On the completion of pre-migration steps, perform the Section 25.4.2, "iPrint Consolidate Migration," on page 226

NOTE: You can run the `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.

25.4.2 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 231

NOTE: When you migrate iPrint from NetWare to OES Linux, 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:

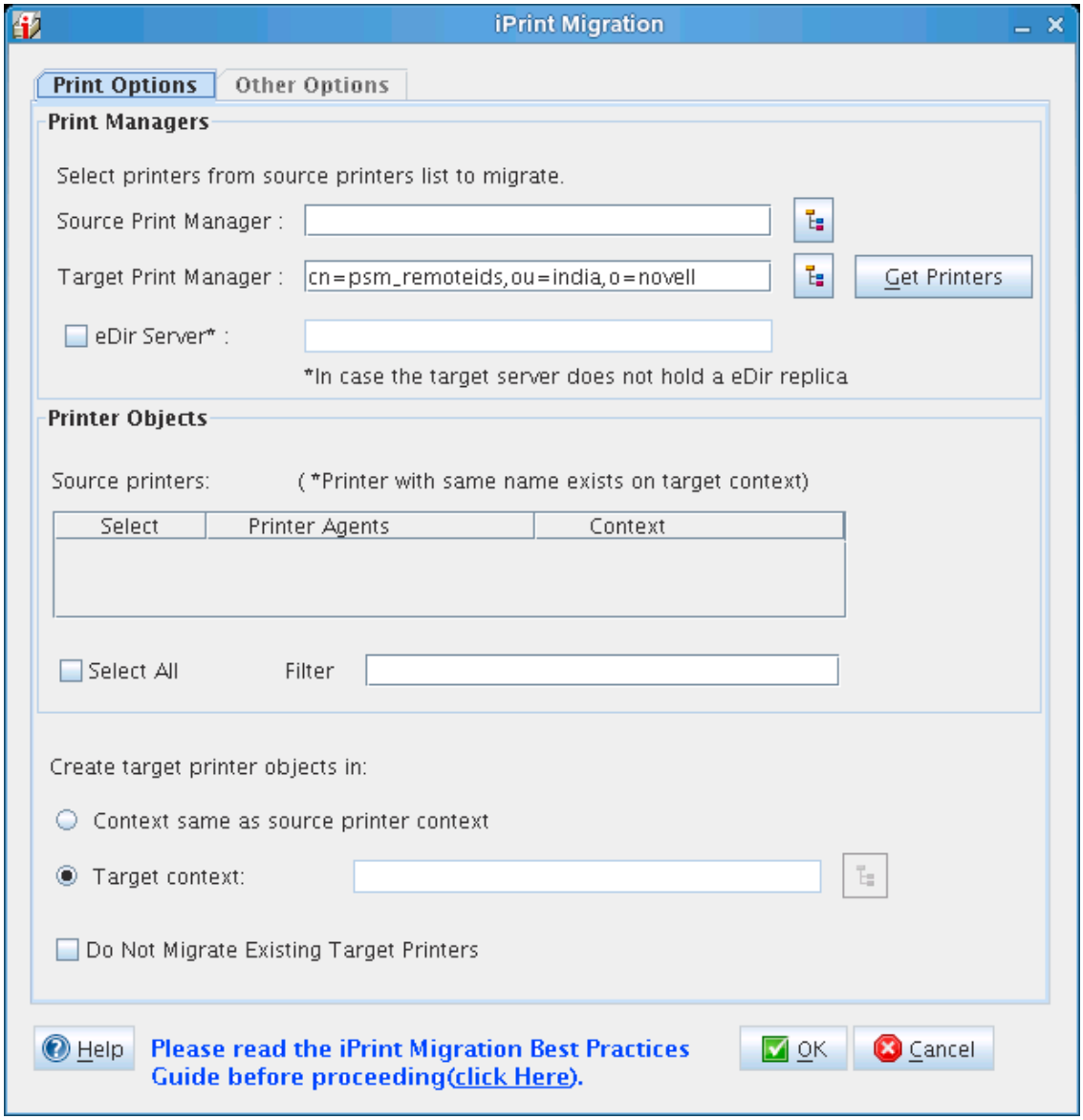
Desktop: Click *Computer* > *More Applications* > *System* > *Novell Migration Tools*.

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.

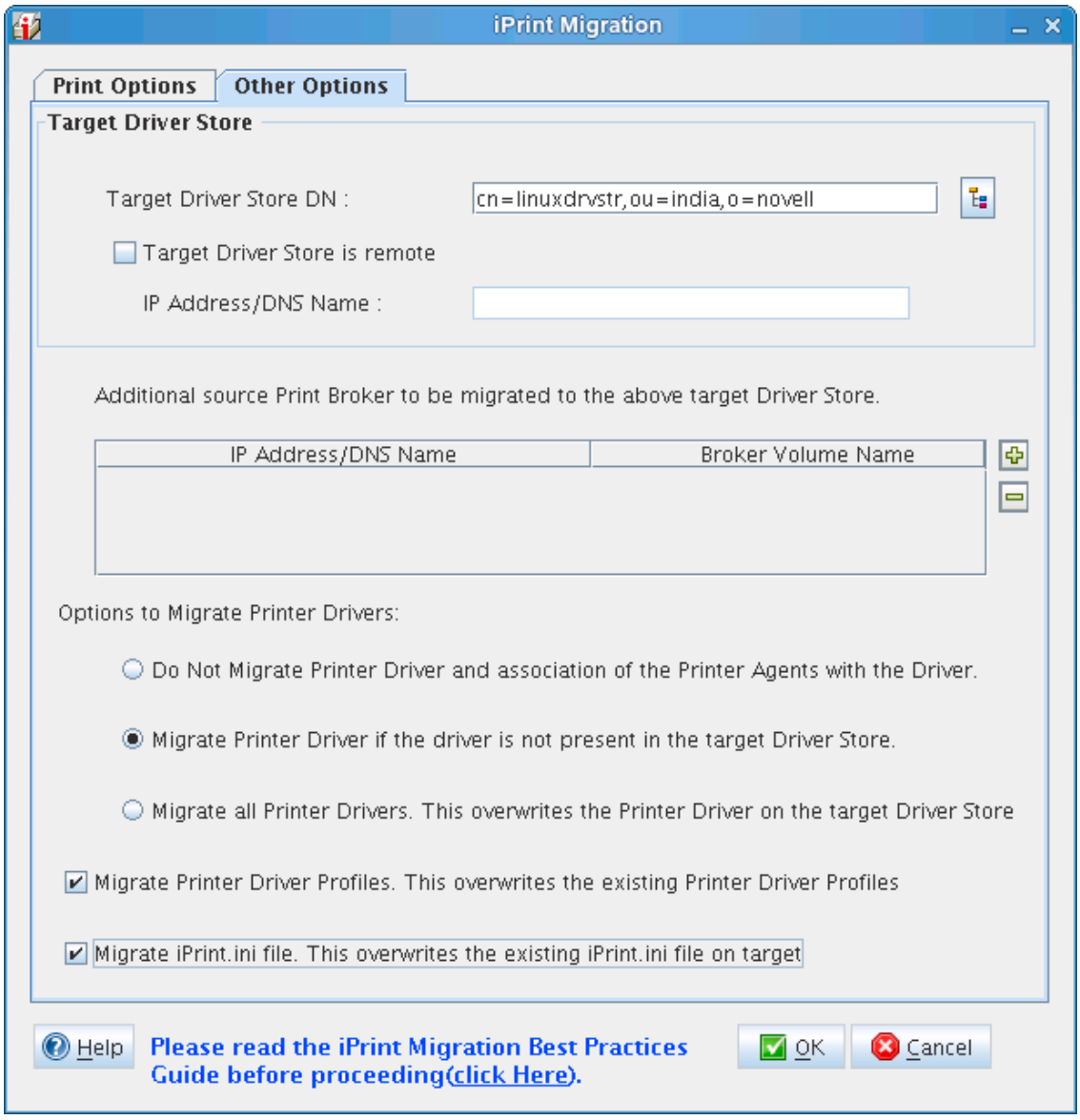
2 Authenticate to the source and target servers.

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



4 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 NetWare5.1 or 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 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, and 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 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.
	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.
	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.
	Target context	This option is selected by default. This option 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.
	Do Not Migrate Existing Target Printers	If the printer names on 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 (*).


iPrint Migration
Print Options
Other Options
Target Driver Store
Target Driver Store DN :
cn=linuxdrvstr,ou=india,o=novell
Target Driver Store is remote
IP Address/DNS Name :
Additional source Print Broker to be migrated to the above target Driver Store.
IP Address/DNS Name
Broker Volume Name
Options to Migrate Printer Drivers:
Do Not Migrate Printer Driver and association of the Printer Agents with the Driver.
Migrate Printer Driver if the driver is not present in the target Driver Store.
Migrate all Printer Drivers. This overwrites the Printer Driver on the target Driver Store
Migrate Printer Driver Profiles. This overwrites the existing Printer Driver Profiles
Migrate iPrint.ini file. This overwrites the existing iPrint.ini file on target
Help
Please read the iPrint Migration Best Practices Guide before proceeding(click Here).
OK
Cancel

Other Options	Parameter	Description
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, and you can also specify the name of the Driver Store. To directly go to a context of your choice, specify the context in the Search Base and click *Search*. The objects in the specified context are displayed. To directly go 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 can not select the Driver Store's eDirectory Server. To resolve this, go to Driver Store's `/etc/opt/novell/iprint/conf/idsd.conf` 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 and is populated with the IP address or the DNS name of the remote server.
	Additional source Print Broker to be migrated to the above 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.
Printer Drivers	Do not Migrate Printer Drivers and the association of the Printer Agents with the Driver	Selecting this option does not migrate Printer Drivers and the association of Printer Agents with the Driver.
	Migrate Printer Driver if the driver is not present in the target Driver Store	Selecting this option migrates the Printer Drivers that are not present in the target Driver Store. This also migrates all the associations of the Printer Agents with the Driver.
	Migrate all Printer Drivers. This overwrites the Printer Driver on the target Driver Store	Selecting this option overwrites the target drivers if the driver names in the target Driver Store are the same as the source Driver Store. This also migrates all the association of the Printer Agents with the Driver.
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.

5 Click *OK* to finish the configuration and go back to the migration screen.

Using the Command Line Utility

You can use `iprintmig` to migrate iPrint. For more information, see iPrintmig Man Page (page 241).

1 Use one of the following methods to migrate to an OES 2 SP3 Linux server:

- From a terminal prompt on the target server, run `iprintmig` to migrate the printers on the source server to the target server. Before running the utility, set the environment variable for safely transferring the password.

  For safe transmission of passwords to the script via an environment variable or via the -P/-T options, see "Using Passwords" on page 244.

  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 iPrint migration after completing the consolidate migration, as described in the section Section 25.4.3, "Verifying the Result of the iPrint Migration," on page 232.

25.4.3 Verifying the Result of the iPrint Migration

1. Manage your iPrint objects by using iManager.
2. Install few 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 known to exist on the NetWare Printer Agents.
   - **3c** Click *Generate Report*.
   - **3d** Verify that all the printer agents have expected values.

25.4.4 Transfer ID

IMPORTANT: Ensure that you verify the result of iPrint migration prior to start of the Transfer ID, as described in the section Section 25.4.3, "Verifying the Result of the iPrint Migration," on page 232. Do not start the Transfer ID process until the migrated iPrint service on the target server successfully completes the outlined tests.

Before performing transfer ID, ensure that you have met all the prerequisites and the migration is completed successfully.

We recommend to complete the consolidate migration before starting the Transfer ID without selecting the Novell iPrint service. For more information, see Chapter 9, "Preparing for Transfer ID," on page 59.

25.4.5 Post Transfer ID Migration Steps

On completion of the Transfer ID, 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.

   Change the eDirectory server1 value to a reliable eDirectory server address.
2. 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).

   Change the eDirectory server1 value to a reliable eDirectory server address.
3. Go to `/etc/hosts` and ensure that entries are correct for the new identity.

4. Go to `/etc/opt/novell/iprint/httpd/conf/iprint_ssl.conf` and update the AuthLDAPDNURL "ldaps://[address..]" to any reliable LDAP server.
5. 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.
6. Restart the Print Manager (`rcnovell-ipsmd restart`), Driver Store (`rcnovell-idsd restart`), and Apache (`rcapache2 restart`).
7. Use iManager, manage the Print Manager, Driver Store, and printers to test iPrint.

NOTE: If you encounter an error while managing the Print Manager, the possible reason for that could be that one of the certificates is not updated. To troubleshoot, refer to the Cool Solutions article Certificate Re-creation Script for OES1 and OES2 (http://www.novell.com/communities/node/5704/certificate-recreation-script-oes1-and-oes2).

25.5 Migrating an iPrint Cluster Resource

Perform the following steps to migrate the iPrint cluster resource from NetWare to OES 2 SP3 without reinstalling the printers on the workstations.

NOTE: When you upgrade to OES, ensure that you migrate NDPS to iPrint. NDPS is not supported on OES Linux. For more information, see how to automate theupgrade 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 2 SP3: iPrint for Linux Administration Guide*.

2 Migrate the target cluster resource hosting iPrint from node to node.

   On each node, check status of the Print Manager and Driver Store.

   ```
   rcnovell-ipsmd status
   ```

   ```
   rcnovell-idsd status
   ```

   Test the ability of iprntman to authenticate the admin user (or ther user given with miggui).

   ```
   iprntman psm -l -u admin
   ```

3 Perform the pre-migration for iPrint configuration.

   For more information, see Section 25.4.1, "Pre-Migration iPrint Configuration," on page 226.

4 Perform a consolidated migration of the iPrint service. For more information, see Section 25.4.2, "iPrint Consolidate Migration," on page 226.

   NOTE: 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 25.4.3, "Verifying the Result of the iPrint Migration," on page 232.

6 Transition end-user printing from NetWare to Linux.

   - Offline the NetWare iPrint cluster resource.
   - View the NetWare iPrint cluster load script's /DNSNAME value.

- Configure DNS to resolve the /DNSNAME value to the IP address of the target Linux cluster resource hosting the Print Manager.

  NOTE: 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.
- Update each of the Linux node `/etc/hosts` files to resolve to the Linux iPrint cluster IP address.
- Update the `/etc/opt/novell/iprint/conf/ipsmd.conf` PSMHostAddress value to the /DNSNAME.
- Restart the Print Manager.

7 Perform the post-migration steps. For more information, see Section 25.4.5, "Post Transfer ID Migration Steps," on page 232.

25.6 Migrating ZENworks iPrint Policies

The ZENworks 10 Configuration Management and ZENworks 7 iPrint policy 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 1, OES 2 SP1, or OES 2 SP2 server to an OES 2 SP3 server, iPrint policies containing migrated printers must also be updated. For example, if the ZENworks7 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 policies of ZENworks 10 Configuration Management and ZENworks 7. 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.

- Section 25.6.1, "Policy Migration in ZENworks 10 Configuration Management," on page 234
- Section 25.6.2, "Policy Migration in ZENworks 7," on page 235

25.6.1 Policy Migration in ZENworks 10 Configuration Management

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, refer to the log file available at `zcm10-migration.log`.

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*> .

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 or the DNS name.

`-d, --dest`

Target server IP or the DNS name.

`-r, --rem`

(Optional) Deletes old policies.

`-c, --change`

(Optional) Changes the default printer.

`-f, --file`

The filename that has the list of printers to be migrated.

`-x, --xml`

(Optional) The directory containing the policies in XML form.

25.6.2 Policy Migration in ZENworks 7

The location of the script `zen7-migration-print-policy.pl` is `/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 in the target server. If you encounter any error, refer to the log file available 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 (e.g. 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 filename that has a list of printers to be migrated.

For more information on ZENworks, refer to ZENworks 10 Configuration Management (http://www.novell.com/documentation/zcm10/index.html).

25.7 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 25.7.1, "Using iManager," on page 236
- Section 25.7.2, "Using the Command Line," on page 237

IMPORTANT: If the print manager is in the down state after migration, see Section 25.9, "Troubleshooting iPrint Migration," on page 237.

25.7.1 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*. The Print Manager status must be *Active*.

5 Click *Printer Agents*.

Depending on your setup it may take some time to display the printers on the target server.

25.7.2 Using the Command Line

1 At the console, enter the command `iprintman psm -l -u admin`.

2 Enter the admin password when prompted.

This displays all of the Print Managers with their status. Ensure that the desired Print Manager is *Active*.

3 At the console, enter the command `iprintman printer -l -u admin`.

4 Enter the admin password when prompted.

This displays the printers on the target server.

25.8 Cleaning Up Stale Objects

Clean up stale iPrint objects by using the `/opt/novell/iprint/bin/iprintcleanup.pl -s <source_server> -u <source_user(FDN format)> --ssl --port <LDAP_Port> -f <filename>` command.

Table 25-1 *Script Usage Options*

Option	Description
-h | --help	Print the summary.
-s | --src <source_server>	Source server IP address.
-u | --src-user <user>	Admin user FDN for 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>	Filename to clean up. For example, `/etc/opt/novell/iprint/conf/renamed_printer_objects`.
--ssl	Use this option if SSL is enabled on the server.
--port	LDAP enabled port.

25.9 Troubleshooting iPrint Migration

- "Printers are not migrating to the OES 2 Linux Server" on page 238
- "Target server authentication fails in a cluster environment" on page 238
- "Printers are not migrating with the -f option" on page 238
- "Invalid driver path assignments" on page 238
- "Printers are not migrating in the same eDirectory tree under the same context" on page 239
- "Migration fails even after a pre-check is passed" on page 239

- "Migration fails when a printer is assigned to a Print Manager" on page 240
- "Migration fails when the SYS volume folder is not available on the source server" on page 240
- "Migration fails for container admin credentials on the source server" on page 240
- "Migration fails with an error message" on page 240
- "Driver Store and Print Manager not initialized after migration on the target server" on page 240
- "Printers not coming up after Transfer ID migration" on page 241
- "Printer fails to install with the error wrong printer URL" on page 241
- "Migration is completed with the status displaying as "Successful with warnings. Please refer the migration log." on page 241

Printers are not migrating to the OES 2 Linux Server

Explanation: Occasionally the status of iPrint migration is successful but the specified Print Manager is not active (Down), so printers are not migrated to the OES 2 Linux server.

Possible Cause: Some other Print Manager is active or is already loaded on the OES 2 Linux server.

Action: On the OES 2 Linux 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 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: The user should 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. From iManager, select *Manage Print Manager*.
2. Select an *NDPS Manager*.
3. Click *OK*.

NOTE: If the Print Manager is down, click *Startup* to make it *Active*.

1. Click *Printer Agents Configuration Report*.
2. Select one or more *Configuration Options* for the operating system name displayed in the error message.
3. Click *Generate Report*.

   The driver assignment path is displayed for individual Printer Agents in the report.
4. Verify that the complete driver path is a valid assignment.
5. (Conditional) If the path is invalid, select *Manage Printer*.
   a. Choose a required printer under *NDPS Printer Name*.
   b. Click *OK*.
   c. Select the specific operating system for which the assignment is invalid under the *Drivers* tab. A message window appears with the message `The current driver does not exist`.
   d. Click *OK*.
   e. Select either *NONE* or a suitable driver.

Printers are not migrating in the same eDirectory tree under 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: On restarting the source server, the migration fails if the Print Manager unload is not successful.

Possible Cause: The eDirectory attributes for the unloaded PSM are not cleaned up.

Action: Restart the Print Manager.

Migration fails when a printer is assigned to a Print Manager

Explanation: The migration fails with an error message: CIMException encountered (general error): `Creation of printer <Printer FDN> ( Eg: cn=Printer1,o=novell) object failed. Object exists, iPrintPrinterManager value indicates that the printer is associated with another ipsmd.`

Possible Cause: Trying to reassign a printer to 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 folder `sys:ndps` is renamed or deleted from the source server.

Action: Ensure that the `sys:ndps` folder is present 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 explicity 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: Terminate called after throwing an instance of `'OpenWBEM4::HTTPException' what(): Unable to process request: 401: Authentication failure Aborted`.

Possible Cause: The admin user is not correctly LUM-enabled.

Action: LUM-enable the admin user:

1. run `yast2 novell-lum` from the command prompt.
2. Click *Continue*.
3. Enter the admin password.
4. Click *Next* and follow the on-screen prompts.

Driver Store and Print Manager not initialized after migration on the target server

Explanation: The Driver Store and Print Manager are not initialized on the target server when 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 SLP configuration. For details, see Section 4.1, “Prerequisites,” on page 39.

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 asociated with the Drivers after an ID swap (Transfer ID).

Action: Use the following procedure:

1. Run the `/opt/novell/bin/iprintman psm --xml-import /tmp/psmimport_idswap.xml -s <Server IP Address> -u admin -f --accept-cert` command on the OES 2 Linux console.
2. Enter the admin password.

Printer fails to install with the error wrong printer URL

Explanation: On successful migration, the redirected printers fail to install on the target server.

Action: You can succesfully install the redirected printers by doing any of the following:

IP Address: If iPrint service is configured using the IP address and if the source server is down, installation fails.

Ensure that the source server is up and running and then install the redirected printer.

DNS: If iPrint service is configured using DNS and the DNS is not resolved with the target server IP address.

Ensure that the DNS is resolved to the target server IP address and then install the redirected printer.

Migration is completed with the status displaying as "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 will not be able to install the printers for which driver download or upload has failed.

Action: Check the migration log for the drivers that failed to migrate. Do not perform migration, instead upload or download those drivers manually to the target server.

25.10 iPrintmig Man Page

- “iprintmig(1)” on page 242

iprintmig(1)

Name

iprintmig - Migration utility for Novell iPrint

Syntax

This section contains iPrint commands and utilities used on the Linux platform.

`iprintmig -s` *<server>* `-u` *<user>* *<options>* `-n` *<printer1>...<printerN>*

`iprintmig -s` *<options>*

Description

iprintmig is a management tool used to migrate printers to OES Linux.

Options

-h, --help

Print this summary.

-v, -vv, -vvv, -vvvv, -verbose

Specify the level of detail to display about the execution of operations with -v displaying minimum information and -vvvv displaying maximum information.

-V, --version

Print version information.

-s <*server*>, --src <*server*>

Specify the source server hostname or address to migrate from.

-d <*server*>, --dst <*server*>

Specify the target server hostname or address to migrate to.

-D <*PSM DN*>, --dst-dn <*PSM DN*>

Specify the destination print manager DN to migrate to.

-u <user>, --src-user <user>

Specify the FDN format admin for the source server, such as cn=admin, 0=example.

-U <*user*>, --dst-user <*user*>

Specify 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 IDS server hostname or address. Defaults to dst.

-I<*IDS_DN*>, --ids-dn <*IDS_DN*>

Distinguished name of the target IDS.

-e<*server*>, --edir <*server*>

Server hostname or address of the eDirectory server for the target server to use.

-n<*printer*>, --printer-name <*printer*>

Name of the printer to migrate. Can be specified multiple times.

-f <*file*>, -printers-file <*file*>

File containing names of printers (1 per line) to migrate.

-F <*fd*>, -printers-fd <*fd*>

File descriptor number listing names of printers to migrate.

-a, --all

Migrate all printers from the source.

-c<*DN*>, --dst-container <*DN*>

DN of the container to create print objects in (conflicts with -S).

-S, --same-dn

Create objects on the target server with the same DN as the source server. Only valid when migrating to a new tree.

-H, --same-hostname

Create a manager on the target server with the same hostname as the source manager. Useful when migrating the entire print server.

-x<*file*>, --xml-outfile <*file*>

Save the XML migration processing file to <file>.

--srcversion

Indicates the version of the operating system on the source server.

--nodrivers

Do not migrate drivers. If drivers are not present in destination IDS, clients cannot install printers.

--overwrite-drivers

If the destination IDS has a driver with the same name as a corresponding driver on the source server, overwrite it.

--noacls

Do not migrate access control lists (ACLs).

--noprofiles

Do not migrate profiles. If profiles are not present on the target server, clients won't be able to install printers.

--overwrite-profiles

If the target server has a profile for a driver with the same name as a profile on the source server, overwrite it.

--nogo

Prepare but do not perform 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

This option 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

Use this option to aggregate services on a single target server from multiple source servers.

--ssl

Use this option to enable secure authentication.

--port

Indicates the LDAP port.

--treeflattening

Use this option if you want the contexts of the source printers to be created under a different context on the target server. The context of the target printer is specified by using the `-c<DN>, --dst-container <DN>` option.

--idswap

Use this option to migrate the printers from the source server to the target server without changing the identity.

Using Passwords

For security reasons, it 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 few printers at a time while explicitly specifying the hostname of the new print manager:

```
iprintmig -s server1.example.com -d newserver.example.com -u admin.example.us -U
admin -x psminfo.xml \ -I cn=ids,o=example,c=us -i ids.example.com -c
ou=iPrint,o=example,c=us -n printer1 -n printer2 \-n printer3 -n printer4
```

If a calling program specifies a large number of printers, there are three ways to do it:

- The -n (or --printer-name) option can be specified with a printer name one or more times, as in the example above. This can create a very long command line if many printers are being migrated, so this usage is discouraged.
- A file containing printer names, one per line, can be specified by using the -f (or --printers-file) option. For a calling program to use this file, the program must first write the list of printers to a temporary file.
- The calling program can avoid the use of a temporary file by using the -F (or --printers-fd) option, which allows the calling program to send the list of printer names over a pipe created, for example, with socketpair(). On using the -f (or --printers-file) option, printer names are read from the file descriptor, one per line.

  A simple example of this usage follows in C. Similar methods are available with the Mono Mono.Posix.Syscall members:

```
char *printers[] = { "p1", "p2", "p3" };
  int fds[2], pid, rc;
  rc = socketpair(AF_UNIX, SOCK_STREAM, 0, fds);
  if (rc < 1)
  {
     perror("Error creating socket pair");
     exit(1);
  }
  pid = fork();
  switch (pid)
  {
     case -1: //Error
        perror("Fork failed");
        exit(1);
     case 0: //Parent
        close(fds[1]);
        for (int i; i < (sizeof(printers)/sizeof(char**)); ++i)
  {
     write(fds[0], printers[i], strlen(printers[i]));
     write(fds[0], "\n", 1);
  }
 close(fds[0]);
        break;
      default: //Child
      close(fds[0]);
       //Set an environment that contains the password env vars
     //Make sure that close on exec isn't set for fds[1]
    //exec the iprintmig script with "-F" and fds[1] converted from an int to
a string as arguments
  }
```

Notes

Most of the information that this program requires can be obtained from the eDirectory objects that the user selects. For example, to migrate all printers from a NetWare server to the new Linux server, the user needs to select the old PSM object, which contains the address of the server it is running on. Then the user needs to select the destination PSM, which has attributes for its network address, which eDirectory server it is using, which IDS it is using (and the corresponding IDS object has its own address).

There are some details that cannot be selected or discovered but must be provided by the user, such as details about credentials and whether or not to migrate profiles or drivers.

The user can select a destination container to hold the objects created during migration, or the user can choose to keep the same path for objects (which only works for a move from one tree to another, because NetWare-style objects already exist in the source tree and might conflict with the new Linux versions of the objects).

Authors

Novell, Inc.

Copyright

See Also

iprintman

26 Migrating Timesync/NTP from NetWare to NTP on OES 2 Linux

Migration refers to the process of migrating Timesync services from a NetWare system to NTP on a Linux system. The OES Migration tool follows a source/target model.

The following sections give more details on the migration procedure for Timesync.

- Section 26.1, “Planning the Migration,” on page 247
- Section 26.2, “Migration Scenarios,” on page 247
- Section 26.3, “Migration Procedure,” on page 248
- Section 26.4, “Post-Migration Procedure,” on page 248

26.1 Planning the Migration

You can migrate the NTP services running on one of the following source platforms to the listed target platform:

Source Servers

- NetWare 5.1 SP8
- NetWare 6.0 SP5
- NetWare 6.5 SP7 or later

Target Server

- OES 2 SP3 Linux

26.2 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.

26.3 Migration Procedure

Migration of NTP configuration can be done from the Migration Tool or through the command line.

The migration procedure reads the NetWare NTP/Timesync configuration file and maps its parameters to the equivalents in NTP Linux. During the migration process, the existing `ntp.conf` file is backed up and saved as `ntp.conf.old` in the `/etc` directory and the new parameters are saved in `/etc/ntp.conf`. If NTP is already configured on the target server while configuring eDirectory, this configuration is overwritten.

- Section 26.3.1, "Using the Migration Tool to Migrate Servers," on page 248
- Section 26.3.2, "Using the Command Line to Migrate Servers," on page 248

26.3.1 Using the Migration Tool to Migrate Servers

1. Launch the Migration Tool in one of the following ways:

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

   Terminal: Log in as the `root` user and at a terminal prompt, enter `miggui`
2. Configure the source and target parameters.

   For details on configuring source and target server information, selecting a migration type, loading and saving a project, and all buttons, see Chapter 2, "Overview of the Migration GUI," on page 21.
3. Select *Novell NTP* from *Services* and click *Configure*. The status changes from *Not Configured* to *Ready*.
4. Click *Migrate* to start the migration process. The status changes from *Migrating* to *Migrated*.

   NOTE: Use the *Status* > *Logs* tab to check for errors during migration. Fix the errors and restart the migration procedure if necessary.

26.3.2 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
```

26.4 Post-Migration Procedure

Load the XNTPD daemon by entering the following command at the prompt:

```
rcntp restart
```

A Documentation Updates

This section contains information about documentation content changes made to the *OES 2 SP3: Migration Tool Administration Guide* since the initial release of Novell Open Enterprise Server 2. If you are an existing user, review the change entries to readily identify modified content. If you are a new user, simply read the guide in its current state.

Refer to the publication date, which appears on the front cover and the Legal Notices page, to determine the release date of this guide. For the most recent version of the *OES 2 SP3: Migration Tool Administration Guide*, see the Novell documentation Web site (http://www.novell.com/documentation/oes2/allguides.html#allg-a)

In this section, content changes appear in reverse chronological order, according to the publication date. Within a dated entry, changes are grouped and sequenced, according to where they appear in the document itself. Each change entry provides a link to the related topic and a brief description of the change.

This document was updated as follows:

- Section A.1, "April 2013," on page 249
- Section A.2, "January 2013," on page 250
- Section A.3, "December 2010," on page 250
- Section A.4, "November 2010," on page 250
- Section A.5, "August 2010," on page 251
- Section A.6, "June 2010," on page 252
- Section A.7, "March 2010," on page 253
- Section A.8, "November 2009 (OES 2 SP2)," on page 253

A.1 April 2013

Updates were made to the following sections.

A.1.1 What's New

Location	Changes
Section 3.1, "What's New (OES 2 SP3 April 2013 Patches)," on page 33	This section is new

A.2 January 2013

Updates were made to the following sections.

A.2.1 What's New

Location	Changes
Section 3.2, "What's New (OES 2 SP3 January 2013 Patches)," on page 33	This section is new

A.3 December 2010

- Section A.3.1, "File System Migration," on page 250

A.3.1 File System Migration

Location	Change
Section 16.3, "Moving Devices for Migrating the Data from NetWare to OES 2 SP3," on page 113	This section is new.

A.4 November 2010

- Section A.4.1, "Overview of the Migration Tools," on page 250
- Section A.4.2, "Transfer ID Migration," on page 251
- Section A.4.3, "File System Migration," on page 251
- Section A.4.4, "Troubleshooting Issues," on page 251

A.4.1 Overview of the Migration Tools

Location	Change
Section 2.1.3, "Mail Notification," on page 24	Added Step 4 on page 25 under "Configure" on page 25 to configure mail interval and e-mail settings.
Section 2.1.3, "Mail Notification," on page 24	Added the Step 2 on page 24 under "Email" on page 24 to include the *From* field information.

A.4.2 Transfer ID Migration

Location	Change
Section 9.1, “Prerequisites,” on page 59	Updated with the information that the source and target servers should be in the same gateway and subnet.

A.4.3 File System Migration

Location	Change
Section 16.4, “Migrating File System Using GUI,” on page 113	Added an Important note in Step 7 on page 115 with the information that links for the DFS junctions cannot be migrated.
Section 16.4, “Migrating File System Using GUI,” on page 113	Added a new option “Disable Quota Checks on Target:” on page 119 to disable quota checks on the target server.
Section 16.2.4, “Data Migration for DST Volumes,” on page 111	This section is new.
Section 16.5.4, “File System Migration Commands,” on page 133	Added the following options for “migfiles” on page 140: ◆ --delete-file-on-restore-error ◆ --ignore-quota-checking
Section 16.5.4, “File System Migration Commands,” on page 133	Added the following options for “migtrustees” on page 138: ◆ --specific-password ◆ --random-password ◆ --newusers-password-file

A.4.4 Troubleshooting Issues

Location	Change
Section 6.2, “The Authentication Dialog Box is Blank,” on page 47	This is a new troubleshooting section.
Section 16.6.3, “General Issues,” on page 154	Added new issue, “When You Start Migration, an Error is Displayed and Migration Fails” on page 156.

A.5 August 2010

- Section A.5.1, “Overview of the Migration Tools,” on page 252
- Section A.5.2, “Troubleshooting Issues,” on page 252

- Section A.5.3, “File System Migration,” on page 252
- Section A.5.4, “What’s New,” on page 252

A.5.1 Overview of the Migration Tools

Location	Change
Section 2.1.4, “Log Files,” on page 26	Updated the section with the information to customize the size and number of log files.

A.5.2 Troubleshooting Issues

Location	Change
Section 16.6.3, “General Issues,” on page 154	Updated the section with new issues.

A.5.3 File System Migration

Location	Change
Section 16.4, “Migrating File System Using GUI,” on page 113	Added a para after Step 12 on page 123 with the information about file system logs.

A.5.4 What’s New

Location	Change
Section 12.3, “DFS Junctions are Not Restored,” on page 81	This section is new.

A.6 June 2010

- Section A.6.1, “Overview of the Migration Tools,” on page 252
- Section A.6.2, “Planning for Migration,” on page 253

A.6.1 Overview of the Migration Tools

Location	Change
Table 1-1, “Migration Tools Matrix,” on page 16	The column source platform is updated with the OES 2 SP3 version.

Location	Change
Table 1-3, “Source Platform Support for OES 2 SP3 Services,” on page 19	Added a column for OES 2.0 SP3.

A.6.2 Planning for Migration

Location	Change
“Platform Support for the Source Server:” on page 39	Updated the platform support for the source server as OES 2 SP3 Linux on 32-bit or 64-bit

A.7 March 2010

- Section A.7.1, “Getting Started,” on page 253

A.7.1 Getting Started

Location	Change
Section 4.1.3, “Unsupported Target Platforms,” on page 40	This section is new.

A.8 November 2009 (OES 2 SP2)

- Section A.8.1, “Overview of the Migration Tools,” on page 254
- Section A.8.2, “Troubleshooting Issues,” on page 254
- Section A.8.3, “What’s New,” on page 254
- Section A.8.4, “Preparing for Transfer ID,” on page 254
- Section A.8.5, “Using the Migration GUI Tool for Transfer ID,” on page 254
- Section A.8.6, “Using Migration Commands for Transfer ID,” on page 255
- Section A.8.7, “Post Transfer ID Migration,” on page 255
- Section A.8.8, “Troubleshooting Issues,” on page 255
- Section A.8.9, “Data Migration,” on page 256
- Section A.8.10, “Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP2 Linux,” on page 256

A.8.1 Overview of the Migration Tools

Location	Change
Table 1-1, “Migration Tools Matrix,” on page 16	The columns Source Platforms is updated with OES 2 SP1 and Target Platforms with OES 2 SP2.
Table 1-3, “Source Platform Support for OES 2 SP3 Services,” on page 19	Updated the table with NetWare 6.5 SP8 and OES 2 SP1 Matrix.
Section 2.2.1, “Authenticate Source Server and Target Server,” on page 27	◆ Updated Source Server Authentication Screen. ◆ Added new option *Is Cluster Resource*.

A.8.2 Troubleshooting Issues

Location	Change
Section 6.1, “Unable to Browse the eDirectory Tree in the Services Migration GUI,” on page 47	New Issue

A.8.3 What’s New

Location	Change
Section 3.4, “OES 2 SP2,” on page 35	This section is new.

A.8.4 Preparing for Transfer ID

Location	Change
Section 9.1, “Prerequisites,” on page 59	Added the following: ◆ Ensure that the names and properties of an NSS volume on both the source server and target server are the same. ◆ The `/etc/hosts` file on the source server must contain correct entries for resolving source server's DNS hostname to IP address.

A.8.5 Using the Migration GUI Tool for Transfer ID

Location	Change
CLI steps	Formatted steps

Location	Change
Section 10.6, “Run Transfer ID,” on page 66	Added the following: ◆ 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. ◆ If you are executing the Migration GUI through a remote session, the Transfer ID wizard hangs and fails to proceed.

A.8.6 Using Migration Commands for Transfer ID

Location	Change
CLI steps	Formatted steps.
Section 11.1, “Backup eDirectory Database and NICI Keys,” on page 77	New section.

A.8.7 Post Transfer ID Migration

Location	Change
Section 12.2, “Cleanup Objects,” on page 79	New section.

A.8.8 Troubleshooting Issues

Location	Change
Section 13.4, “On Failure of Migration and Restoring eDirectory to the Source Server, LDAP Does Not Bind,” on page 84	New issue.
Section 13.5, “eDirectory Error 626 on Performing Transfer ID Migration,” on page 85	New issue.

A.8.9 Data Migration

Location	Change
Part VI, “Data Migration,” on page 93	Created new part and moved Migrating Data from Windows to OES 2 SP3 Linux and Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP3 Linux to this part.

A.8.10 Migrating File System from NetWare, OES 1 or OES 2 to OES 2 SP2 Linux

Location	Change
“For NSS Target Volumes” on page 109	You must reconfigure file system options, if NSS volumes are remounted to a different mount point.
Section 16.2.3, “Data Migration for Clustered Volumes,” on page 110	New section
Section 16.4, “Migrating File System Using GUI,” on page 113	Added the following new options: ◆ Code Page ◆ Follow Cluster Resource ◆ Is Cluster Resource. ◆ Delete Trustees Not On Source ◆ Disable Login On Source Screenshots are updated.
Section 16.5.4, “File System Migration Commands,” on page 133	Updated the man pages with new options.
Section 16.5.5, “Additional Migration Options,” on page 150	New section
Section 16.6, “Troubleshooting,” on page 152	Formatted section
Section 16.6.3, “General Issues,” on page 154	New section
Section 16.6.1, “Same Tree Scenario,” on page 152	Added new issue, “The Migration Tool File System GUI, Volume Information Tab Displays Empty Boxes for Non-English Directory Names.”