

## Administration Guide

# Novell<sup>®</sup> Client<sup>™</sup> for Linux

**2.0 SP3**

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# Contents

<b>About This Guide</b>	<b>7</b>
<b>1 Understanding the Novell Client for Linux</b>	<b>9</b>
1.1 Understanding How the Novell Client for Linux Differs from the Novell Client for Windows 2000/XP	9
1.1.1 Installation and Upgrades	9
1.1.2 Logging In	10
1.1.3 User Interface	10
1.1.4 Login Scripts	10
1.1.5 Mapping Volumes	10
1.2 Understanding the Novell Client for Linux Virtual File System	11
<b>2 Configuring the Novell Client for Linux</b>	<b>13</b>
2.1 Using the Novell Client Configuration Wizard	13
2.1.1 Configuring Login Settings	14
2.1.2 Configuring Map Settings	15
2.1.3 Configuring Protocol Settings	16
2.1.4 Configuring Tray Application Settings	18
2.1.5 Configuring File Browser Settings	18
2.1.6 Configuring OpenSLP Settings	20
2.2 Configuration Files for Preconfiguring the Novell Client	21
2.3 Server Side Configuration for Sending Messages from Client to Users and Groups	21
<b>3 Managing Login</b>	<b>23</b>
3.1 Setting Up Integrated Login	23
3.1.1 Installing and Enabling CASA	24
3.1.2 Configuring Integrated Login	24
3.1.3 Enabling and Disabling Integrated Login	25
3.2 Setting Up Login Scripts	26
3.3 Setting Up Login Restrictions	26
3.4 Using OpenSLP to Simplify Login	27
3.4.1 Setting Up SLP	28
3.4.2 Troubleshooting SLP Configuration	29
3.4.3 Configuring SLP and the SUSE Firewall to Work with the Novell Client for Linux	29
<b>4 Managing File Security</b>	<b>33</b>
4.1 Checking File or Folder Rights	33
4.2 Changing Trustee Rights	35
4.3 Adding a Trustee	35
4.4 Removing a Trustee	36
4.5 Combining Multiple Trustees	36
<b>5 Security Considerations</b>	<b>39</b>
5.1 Security Features	39
5.2 Known Security Threats	40

5.3	Security Characteristics . . . . .	40
5.3.1	Identification and Authentication . . . . .	41
5.3.2	Authorization and Access Control . . . . .	41
5.3.3	Roles . . . . .	41
5.3.4	Security Auditing . . . . .	41
5.4	New and Modified Files . . . . .	41
5.4.1	Configuration Files . . . . .	42
5.4.2	PAM Login Files . . . . .	42
5.4.3	User Profile Startup Files . . . . .	43
5.4.4	KDE and GNOME Desktop Startup Files . . . . .	43
5.4.5	Installation Files . . . . .	43
5.5	Other Security Considerations . . . . .	44
<b>6</b>	<b>Troubleshooting Tips</b>	<b>45</b>
6.1	Novell Client tray sometimes displays an error message on logging in to a desktop on which LUM is configured. . . . .	45
<b>A</b>	<b>The Novell Client for Linux Command Line Utilities</b>	<b>47</b>
A.1	Shell Commands . . . . .	47
A.2	GUI Utilities . . . . .	48
A.3	Using the Novell Client for Linux Man Pages . . . . .	48
<b>B</b>	<b>Novell Client for Linux Man Pages</b>	<b>51</b>
	gnwlogin . . . . .	52
	login.conf . . . . .	55
	mapdrives.conf . . . . .	57
	ncl_install . . . . .	59
	ncl_man . . . . .	61
	ncl_tray . . . . .	62
	nwconnections . . . . .	63
	nwcopy . . . . .	64
	nwflag . . . . .	66
	nwlogin . . . . .	69
	nwlogout . . . . .	72
	nwmap . . . . .	74
	nwpurge . . . . .	76
	nwrights . . . . .	78
	nwsalvage . . . . .	80
	nwsend . . . . .	82
	StartupLogin.conf . . . . .	83
	StartupMaps.conf . . . . .	86
<b>C</b>	<b>Documentation Updates</b>	<b>89</b>
C.1	September, 2009 . . . . .	89
C.2	August, 2008 . . . . .	89

# About This Guide

This guide describes how to configure the Novell® Client™ for Linux software.

- ♦ Chapter 1, “Understanding the Novell Client for Linux,” on page 9
- ♦ Chapter 2, “Configuring the Novell Client for Linux,” on page 13
- ♦ Chapter 3, “Managing Login,” on page 23
- ♦ Chapter 4, “Managing File Security,” on page 33
- ♦ Chapter 5, “Security Considerations,” on page 39
- ♦ Chapter 6, “Troubleshooting Tips,” on page 45
- ♦ Appendix A, “The Novell Client for Linux Command Line Utilities,” on page 47
- ♦ Appendix B, “Novell Client for Linux Man Pages,” on page 51
- ♦ Appendix C, “Documentation Updates,” on page 89

## Audience

This guide is intended for network administrators.

## Feedback

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## Documentation Updates

For the latest version of this documentation, see the [Novell Client online documentation \(http://www.novell.com/documentation/linux\\_client/index.html\)](http://www.novell.com/documentation/linux_client/index.html).

## Additional Documentation

For information on installing the Novell Client for Linux, see the [Novell Client 2.0 SP3 for Linux Installation Quick Start \(http://www.novell.com/documentation/linux\\_client/ncl20sp3\\_installqs/data/ncl20sp3\\_installqs.html\)](http://www.novell.com/documentation/linux_client/ncl20sp3_installqs/data/ncl20sp3_installqs.html).

For information on the Novell Client tray application, see the [Novell Client 2.0 SP3 for Linux User Guide](#).

For information on login scripts, see the [Novell Login Scripts Guide](#).

## Documentation Conventions

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

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

# Understanding the Novell Client for Linux

# 1

The Novell® Client™ for Linux software allows users of Linux workstations or Linux servers to access and use all of the services available on servers running Novell eDirectory™. The Novell Client brings the full power, ease of use, manageability, and security of eDirectory to Linux workstations and Linux servers. The Novell Client for Linux fully supports NetWare®, OES, and eDirectory services and utilities on a Linux workstation or a Linux server, including security, file, and print services through Novell iPrint.

This section contains the following information:

- ♦ [Section 1.1, “Understanding How the Novell Client for Linux Differs from the Novell Client for Windows 2000/XP,” on page 9](#)
- ♦ [Section 1.2, “Understanding the Novell Client for Linux Virtual File System,” on page 11](#)

## 1.1 Understanding How the Novell Client for Linux Differs from the Novell Client for Windows 2000/XP

Using the Novell Client for Linux differs in a few ways from using the Novell Client for Windows. For users and network administrators who are familiar with the Novell Client for Windows, knowing these differences can help the transition to Linux run more smoothly.

- ♦ [Section 1.1.1, “Installation and Upgrades,” on page 9](#)
- ♦ [Section 1.1.2, “Logging In,” on page 10](#)
- ♦ [Section 1.1.3, “User Interface,” on page 10](#)
- ♦ [Section 1.1.4, “Login Scripts,” on page 10](#)
- ♦ [Section 1.1.5, “Mapping Volumes,” on page 10](#)

### 1.1.1 Installation and Upgrades

- ♦ The Novell Client for Linux can be installed and upgraded by using either YaST or an installation script. For more information, see the [Novell Client 2.0 SP3 for Linux Installation Quick Start \(http://www.novell.com/documentation/linux\\_client/ncl20sp3\\_installqs/data/ncl20sp3\\_installqs.html\)](http://www.novell.com/documentation/linux_client/ncl20sp3_installqs/data/ncl20sp3_installqs.html).
- ♦ There is no Automatic Client Upgrade available on Linux.
- ♦ The Client Configuration Wizard lets you set up a configuration file that can be used to preconfigure workstations during installation. For more information, see [Section 2.2, “Configuration Files for Preconfiguring the Novell Client,” on page 21](#).

## 1.1.2 Logging In

- ♦ When a user logs in to a local workstation and then opens a remote SSH session and logs in as the same user, the network resources that user has rights to are available to the user.
- ♦ The Novell Client for Linux can use the NMAS™ login method to authenticate. However, the NMAS login is not integrated in to the Novell Client for Linux login screen, so the default login sequence cannot be set in the Novell Client Login screen.
- ♦ The Novell Client for Linux uses OpenSLP, whereas the Novell Client for Windows uses Novell's implementation of SLP. The network administrator *must* set up OpenSLP before users can look up trees, contexts, and servers using the Browse buttons in the Novell Client Login window. If OpenSLP is not set up, the user must enter a username, tree, and context to connect to the network. See [Chapter 3, “Managing Login,” on page 23](#) for more information.

Because Linux uses OpenSLP, the implementation is different and the user's experience is different. For more information, see [Section 3.4, “Using OpenSLP to Simplify Login,” on page 27](#).

- ♦ The Novell Client for Linux does not use the Dynamic Local User or Location Profiles that are available in Windows.

## 1.1.3 User Interface

Both a graphical user interface and command line utilities are available to complete client actions such as mapping drives, setting trustee rights, and copying files.

For information on using the graphical user interface, see the [Novell Client 2.0 SP3 for Linux User Guide](#). For information on using the command line utilities, see [Appendix A, “The Novell Client for Linux Command Line Utilities,” on page 47](#) and [Appendix B, “Novell Client for Linux Man Pages,” on page 51](#).

## 1.1.4 Login Scripts

Novell has ported the vast majority of login script functionality to the Linux platform. This means that the login scripts you create in your network can be used for both Windows users and Linux users with very little difference in functionality.

Some differences do exist, however. For example, mapped drives are implemented by creating symbolic links and search drives are not available on Linux. Other small differences are created by the inherent difference between Windows and Linux. All the differences and issues are listed in the [Novell Login Scripts Guide](#).

## 1.1.5 Mapping Volumes

On Windows, mapping volumes enables users to browse through the entire eDir tree. However, on Linux, only the servers in the eDir tree and their respective volumes are listed under them.

## 1.2 Understanding the Novell Client for Linux Virtual File System

The Novell Client for Linux differs from previous Novell Clients to enable it to work on the Linux platform. In Windows, the Novell Client loads a single binary that works on multiple operating system platforms without modifications. The Novell Client on Linux uses a Virtual File System provided by the base operating system itself which is a kernel module (`novfs.ko`) that runs as part of the Linux kernel and a daemon (`novfsd`) that runs in the user space. Both components must be running on the workstation for the client to connect to the network.



# Configuring the Novell Client for Linux

# 2

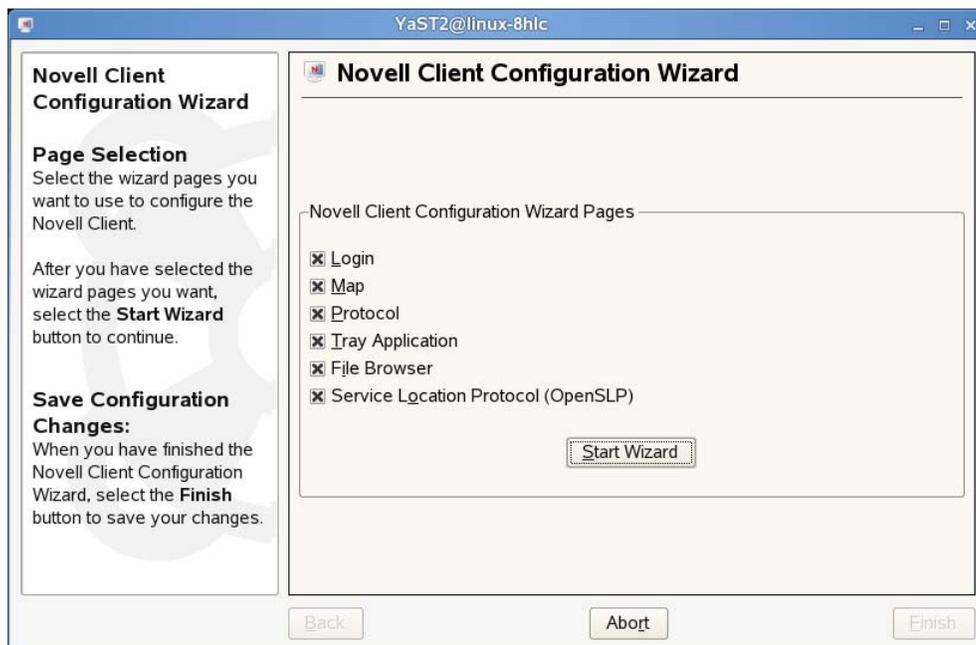
This section explains two ways that you can configure the Novell® Client™ for Linux settings on a workstation. Both methods let you configure the file browser, protocol, login, tray application, and SLP configuration settings available to Novell Client users.

- ♦ [Section 2.1, “Using the Novell Client Configuration Wizard,” on page 13](#)
- ♦ [Section 2.2, “Configuration Files for Preconfiguring the Novell Client,” on page 21](#)
- ♦ [Section 2.3, “Server Side Configuration for Sending Messages from Client to Users and Groups,” on page 21](#)

## 2.1 Using the Novell Client Configuration Wizard

The Novell Client for Linux includes a Novell Client Configuration Wizard to simplify the process of configuring your Novell Client.

- 1 Launch the Novell Client Configuration Wizard by using either of the following methods:
  - ♦ Click  > *System Settings*.
  - ♦ In YaST, click *Network Services* > *Novell Client*.
- 2 If you are not logged in as `root`, type the `root` password, then click *OK*.
- 3 Select the Client Configuration Wizard pages that contain the settings you want to configure.



You can configure the following settings:

- ♦ [Login](#)

- ◆ **Map**
- ◆ **Protocol**
- ◆ **Tray Application**
- ◆ **File Browser**
- ◆ **Service Location Protocol (OpenSLP)**

4 Click *Start Wizard*.

5 Follow the instructions in the left panel to configure Novell Client settings.

6 Click *Finish*.

7 Restart the workstation to ensure that the settings take effect.

If you made changes to the Protocol Settings page or the Service Location Protocol (OpenSLP) Settings page, you must reboot the machine for those changes to take effect.

Any changes you make to the Novell Client settings are written to a set of configuration (.conf) files in the /etc/opt/novell/ncl directory.

---

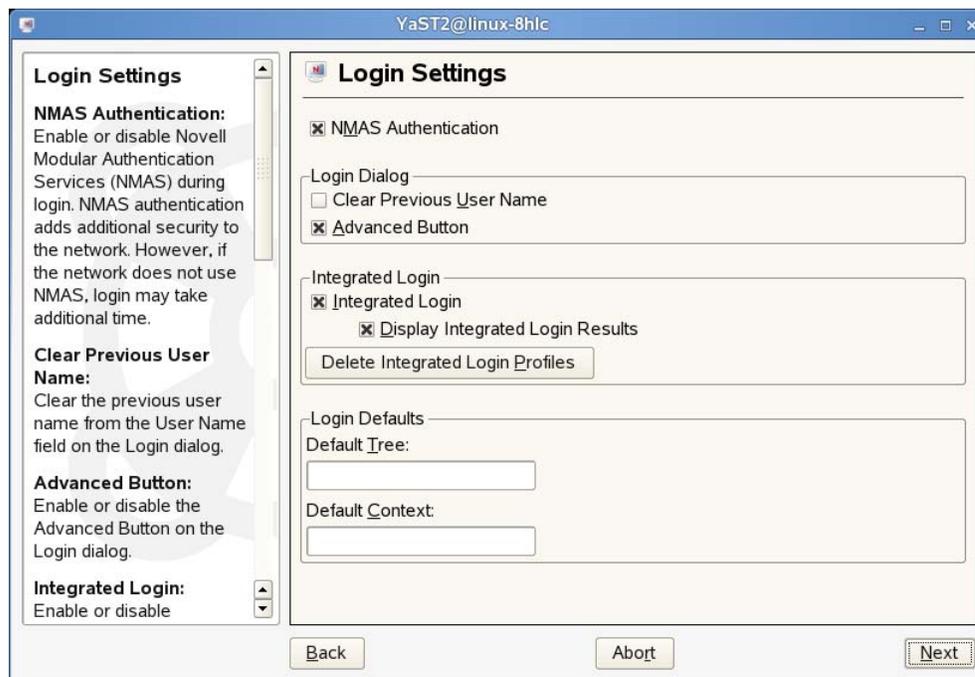
**IMPORTANT:** When Novell Client software is uninstalled, these configuration files are also removed.

---

## 2.1.1 Configuring Login Settings

Use the Login Settings page in the Novell Client Configuration Wizard to configure the settings available to users in the Novell Login dialog box.

**Figure 2-1** Login Settings Page



This page contains the following options:

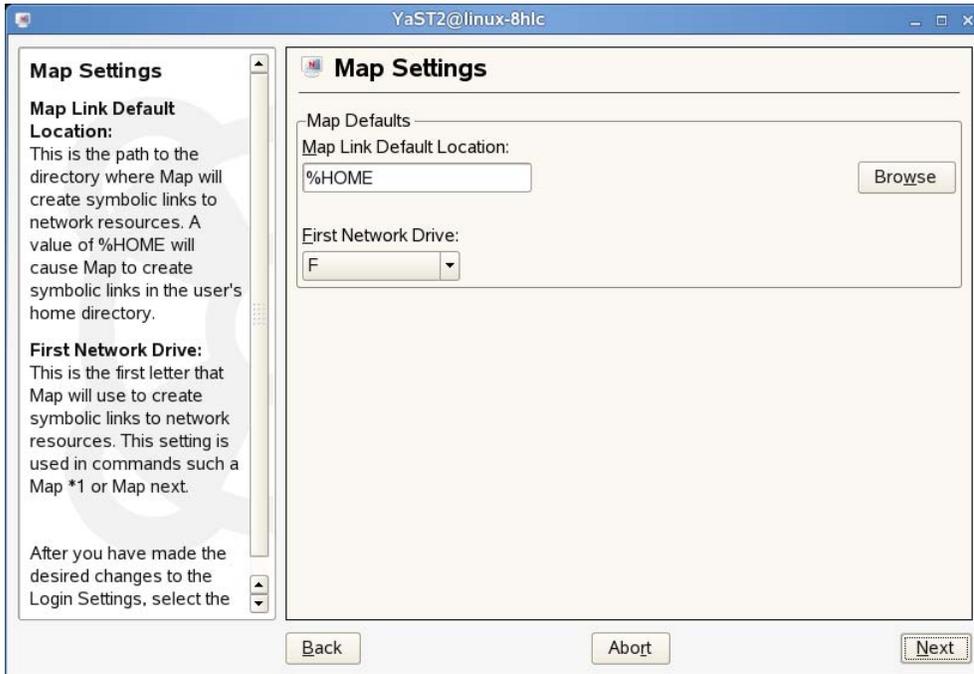
- ♦ **NMAS Authentication:** Enables or disables Novell Modular Authentication Services (NMAS™) during login. NMAS authentication can add additional security to the network, but if the network does not use NMAS, login might take additional time, so you can disable NMAS authentication by disabling this setting. This option is selected by default.
- ♦ **Clear Previous User Name:** Clears the previous username from the *User Name* field on the Novell Login dialog box every time you open the dialog box.
- ♦ **Advanced Button:** Enables or disables the *Advanced* button in the Login dialog box. This option is selected by default.
- ♦ **Integrated Login:** Enables the integrated login feature for the entire system. This is set by the administrator and cannot be overridden by the user.
- ♦ **Display Integrated Login Results:** When this option is disabled, all login scripts are run silently and the script results window is not displayed, but login scripts are still processed.
- ♦ **Delete Integrated Login Profiles:** Removes the existing login profiles for all users on this workstation.
- ♦ **Default Tree:** Specify the default tree that Login attempts to log in to. This setting is overridden by the Login Dialog Tree history.
- ♦ **Default Context:** Specify the default context that Login attempts to log in to. This setting is overridden by the Login Dialog Context history.

For more information on using the Novell Login dialog box, see “[Logging In to the Network](#)” in the *Novell Client 2.0 SP3 for Linux User Guide*.

## 2.1.2 Configuring Map Settings

Use the Map Settings page in the Novell Client Configuration Wizard to specify the directory on the local workstation where symbolic links to network resources are created and to select the first letter to use when creating these links.

Figure 2-2 Map Settings Page



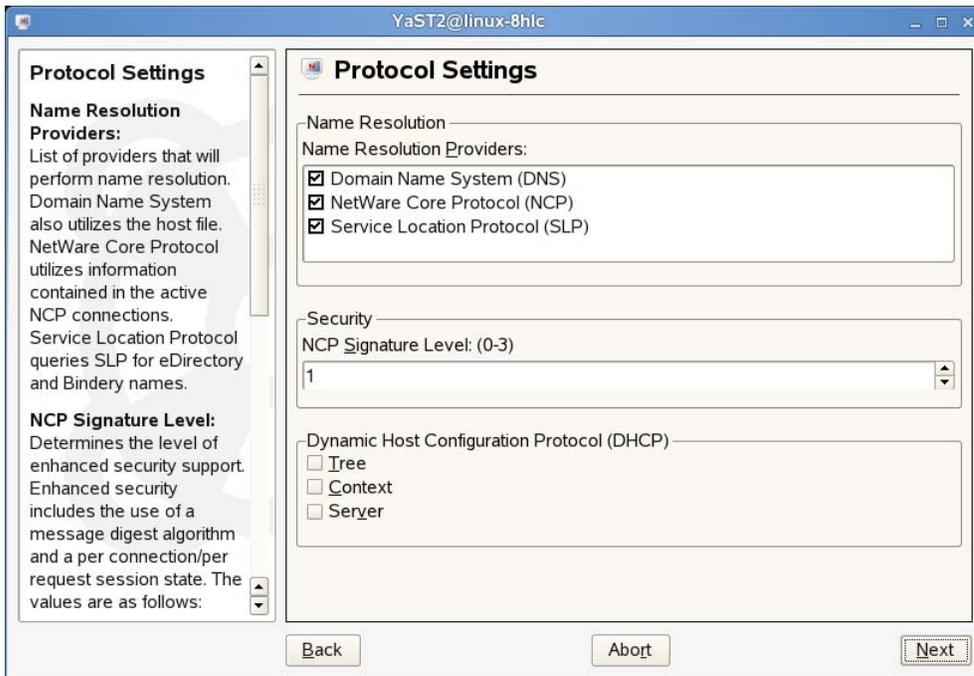
This page contains the following options:

- ♦ **Map Link Default Location:** Specify the path to the directory where Map creates symbolic links to network resources. A value of %HOME (the default) causes Map to create symbolic links in the user's home directory.
- ♦ **First Network Drive:** Select the first letter for Map to use when creating symbolic links to network resources. This setting is used in commands such as `Map *1` or `Map next`.

## 2.1.3 Configuring Protocol Settings

Use the Protocol Settings page in the Novell Client Configuration Wizard to determine the level of enhanced security support, select the providers to perform name resolution, and enable the Client to obtain configuration information from your DHCP server.

Figure 2-3 Protocol Settings Page



This page contains the following options:

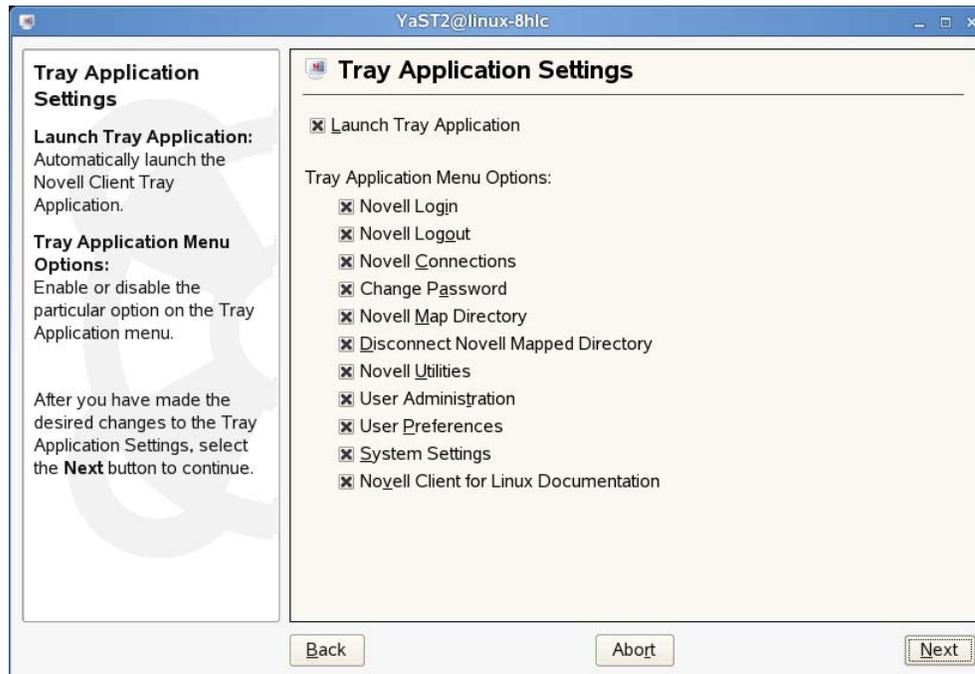
- ♦ **Name Resolution Providers:** Select the providers to perform name resolution. Domain Name System also uses the `/etc/hosts` file. NetWare<sup>®</sup> Core Protocol<sup>™</sup> uses information contained in the active NCP<sup>™</sup> connections. Service Location Protocol queries SLP for eDirectory<sup>™</sup> and Bindery names.
- ♦ **NCP Signature Level:** Specify the level of enhanced security support. Enhanced security includes the use of a message digest algorithm and a per connection/per request session state. The values are as follows:
  - 0=Disabled
  - 1=Enabled but not preferred
  - 2=Preferred
  - 3=RequiredChanging the value of this setting to 2 or 3 increases security but decreases performance.
- ♦ **Dynamic Host Configuration Protocol (DHCP):** If a DHCP server is set up on your network, the DHCP server can inform the Novell Client of network-specific configuration information. This information is made available when a user clicks the *Tree*, *Context*, or *Server* buttons on the *eDirectory* tab of the Novell Login dialog box.

If you make changes to the Protocol Settings page, you must reboot the workstation for those changes to take effect.

## 2.1.4 Configuring Tray Application Settings

Use the Tray Application Settings page in the Novell Client Configuration Wizard to automatically launch the Novell Client Tray Application when the desktop starts and to determine which options are available to users on the Tray Application menu.

**Figure 2-4** Tray Application Settings Page



This page contains the following options:

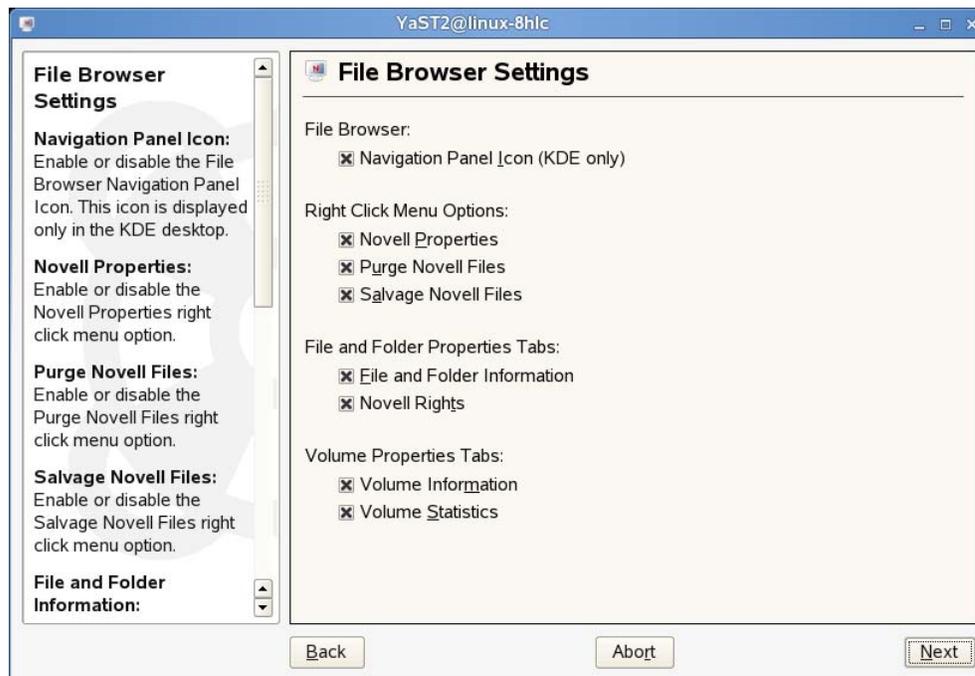
- ♦ **Launch Tray Application:** Select this option to automatically launch the Novell Client Tray Application.
- ♦ **Tray Application Menu Options:** Enables or disables the options available to users on the Tray Application menu.

For more information, see “[Using the Novell Client Tray Application](#)” in the *Novell Client 2.0 SP3 for Linux User Guide*.

## 2.1.5 Configuring File Browser Settings

Use the File Browser Settings page in the Novell Client Configuration Wizard to specify which Novell Client options are available to users when they right-click Novell file system directories or files in a file manager, and which tabs are available on the Novell File, Folder, and Volume Properties pages.

Figure 2-5 File Browser Settings Page



This page contains the following options:

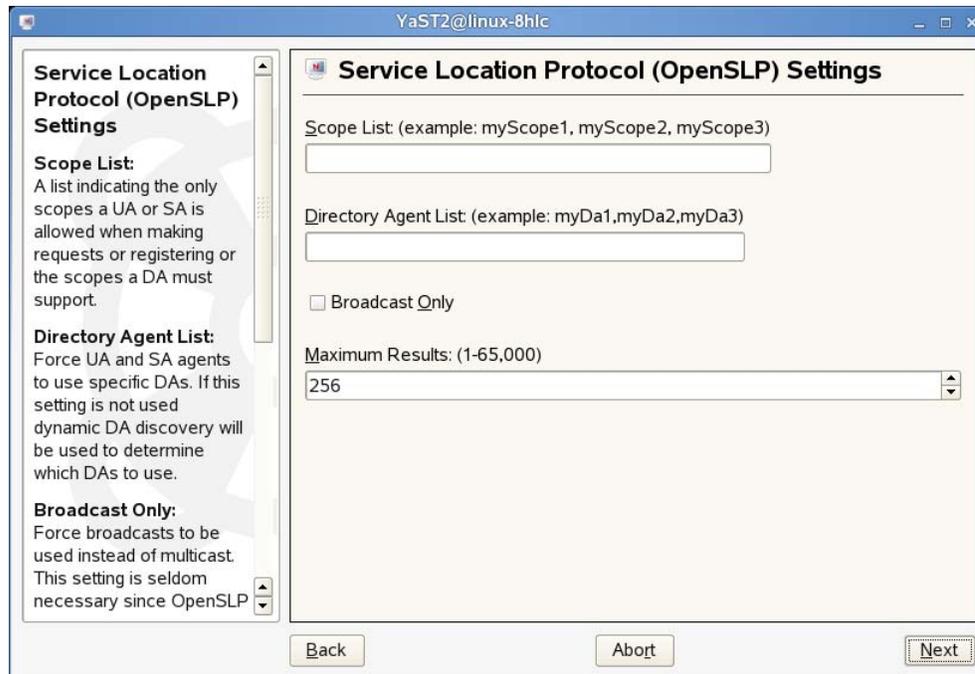
- ◆ **Navigation Panel Icon (KDE only):** Enables or disables the *File Browser Navigation Panel* icon. This icon is displayed only in KDE.
- ◆ **Novell Properties:** Enables or disables the *Novell Properties* menu option when users right-click a Novell file system directory or file in a file manager.
- ◆ **Purge Novell Files:** Enables or disables the *Purge Novell Files* menu option when users right-click a Novell file system directory or file in a file manager.
- ◆ **Salvage Novell Files:** Enables or disables the *Salvage Novell Files* menu option when users right-click a Novell file system directory or file in a file manager.
- ◆ **File and Folder Information:** Enables or disables the *File Information* and *Folder Information* tabs on the File and Folder Properties pages (available when users right-click a Novell file system directory or file in a file manager and then click *Novell Properties*).
- ◆ **Novell Rights:** Enables or disables the *Novell Rights* tab on the File and Folder Properties pages (available when users right-click a Novell file system directory or file in a file manager and then click *Novell Properties*).
- ◆ **Volume Information:** Enables or disables the *Volume Information* tab on the Volume Properties page (available when users right-click a Novell file system volume in a file manager and then click *Novell Properties*).
- ◆ **Volume Statistics:** Enables or disables the *Volume Statistics* tab on the Volume Properties page (available when users right-click a Novell file system volume in a file manager and then click *Novell Properties*).

## 2.1.6 Configuring OpenSLP Settings

Use the Service Location Protocol (OpenSLP) Settings page in the Novell Client Configuration Wizard to specify where and how the Client requests network services.

In an IP-only network, the Novell Client needs a way to resolve the eDirectory tree, context and server names to an actual IP address of an eDirectory server that can provide authentication. On a simple LAN, the client can send an IP broadcast to discover this information, but on a multisite WAN, the SLP scope and Directory Agents must be listed.

**Figure 2-6** Service Location Protocol (OpenSLP) Settings Page



This page contains the following options:

- ◆ **Scope List:** Specify the scopes that a user agent (UA) or service agent (SA) is allowed when making requests or registering, or the scopes that a directory agent (DA) must support.
- ◆ **Directory Agent List:** Specify the specific DAs that UA and SA agents must use. If this setting is not used, dynamic DA discovery is used to determine which DAs to use.
- ◆ **Broadcast Only:** Select this option to use broadcasting instead of multicasting. This setting is not usually necessary because OpenSLP automatically uses broadcasting if multicasting is unavailable.

SLP is designed to use IP multicasting; however, if any SLP Agent does not implement IP multicasting, then all Agents must use broadcasting to reach that Agent. If a DA does not support multicasting, we recommend using the Directory Agent List to configure that Directory Agent rather than using this option.

If the network does not contain a DA, IP servers must use their own SAs to specify the services that are available. If the SA does not support multicasting and if there are any services advertised by that SA that are needed by the UA on this machine, then use the Broadcast Only option.

Broadcasting has the disadvantage of being limited to the local LAN segment.

- ♦ **Maximum Results:** Specify a 32-bit integer giving the maximum number of results to accumulate and return for a synchronous request before the time-out, or the maximum number of results to return through a callback if the request results are reported asynchronously.

If you make changes to the Service Location Protocol (OpenSLP) Settings page, you must reboot the workstation for those changes to take effect.

For more information, see [Section 3.4, “Using OpenSLP to Simplify Login,” on page 27](#), [SLP Fundamentals \(http://www.novell.com/documentation/edir873/qsedir873/data/aksciti.html\)](#), and the [OpenSLP \(http://www.openslp.org\)](#) Web site.

## 2.2 Configuration Files for Preconfiguring the Novell Client

These configuration settings can be done using `yast2`. It is handled by the rpm `yast2-novell-client`.

Conf File Path and Name	Configuration Settings
<code>/etc/opt/novell/ncl/file_browser.conf</code>	File browser settings
<code>/etc/opt/novell/ncl/login.conf</code>	Login settings
<code>/etc/novell/ncl/map.conf</code>	Map settings
<code>/etc/opt/novell/ncl/protocol.conf</code>	Protocol settings
<code>/etc/opt/novell/ncl/tray_app.conf</code>	Novell Client Tray Application settings
<code>/etc/slp.conf</code>	SLP configuration settings

## 2.3 Server Side Configuration for Sending Messages from Client to Users and Groups

For server side configuration, you must ensure the following:

- ♦ If user groups are created in a context other than the default context, then the context must be mentioned in the NDS configuration file `/etc/opt/novell/eDirectory/conf/nds.conf`. For instance, if a user group is created in the context `xyz` (organization for example) but the

default context for the tree is `abc`, then to search for the groups from Novell client, the eDir administrator must add the following line in the `nds.conf` file: `n4u.nds.bindery-context=o=xyz`

You must ensure that the `nds` daemon is restarted after the changes to the config file is completed. To do this, issue the following command:

```
rcnstd restart
```

---

**NOTE:** You may specify upto 16 different contexts with `n4u.nds.bindery-context`. Each context must be separated by `;`. For example, `n4u.nds.bindery-context=o=xyz;ou=eng,o=acme`.

---

- ◆ When you send a message to a group using the `nwsend` command, you must specify only the groupname and not the FQDN of the groupname. For example, if a group named *mygroup* is created in context *mycontext*, then the *mygroup* groupname must be specified with the `nwsend` command instead of *mygroup.mycontext*.

# Managing Login

You can customize the client login environment with the following tasks to suit your network and have greater control over what users can access during login:

- ♦ [Section 3.1, “Setting Up Integrated Login,” on page 23](#)
- ♦ [Section 3.2, “Setting Up Login Scripts,” on page 26](#)
- ♦ [Section 3.3, “Setting Up Login Restrictions,” on page 26](#)
- ♦ [Section 3.4, “Using OpenSLP to Simplify Login,” on page 27](#)

For more information, see “[Logging In to the Network](#)” and “[Logging Out of a Network Location \(Server or Tree\)](#)” in the *Novell Client 2.0 SP3 for Linux User Guide*.

## 3.1 Setting Up Integrated Login

The Novell® Client™ 2.0 for Linux provides a single, synchronized login to the SUSE® Linux desktop or server and your Novell network. Users enter a name and password only once to access all the resources they are authorized to use.

---

**IMPORTANT:** The integrated login feature is not available if you log in as the `root` user, and the integrated login feature does not work if a workstation is set up to *not* ask for a password in the display manager `greeter`.

---

For integrated login to work, the Novell Common Authentication Services Adapter (CASA) must be installed and enabled. CASA is a common authentication and security package that provides a set of libraries for application and service developers to enable single sign-on to an enterprise network.

Consider the following scenarios before setting up integrated login:

- ♦ If Integrated Login is selected in Novell Client Configuration Wizard in YaST (System-Wide Integrated Login) but the login profile is not saved by a user locally, then integrated login fails as there is no profile to load at the time of login.
- ♦ If System-Wide Integrated Login is selected and login profile is saved locally by the user, then integrated login works.
- ♦ If System-Wide Integrated Login is not explicitly enabled in YaST but login profile is saved locally by the user, then integrated login works because the default behavior is to start integrated login.
- ♦ If System-Wide Integrated Login is disabled explicitly in YaST, then integrated login fails in all scenarios.

If Integrated Login is enabled as mentioned in the above scenarios, then it will work after a system reboot as well as after a logout and a login.

- ♦ [Section 3.1.1, “Installing and Enabling CASA,” on page 24](#)
- ♦ [Section 3.1.2, “Configuring Integrated Login,” on page 24](#)
- ♦ [Section 3.1.3, “Enabling and Disabling Integrated Login,” on page 25](#)

### 3.1.1 Installing and Enabling CASA

CASA is installed by default with SUSE Linux Enterprise Desktop 10 SP3, but it is not enabled.

#### Installing CASA

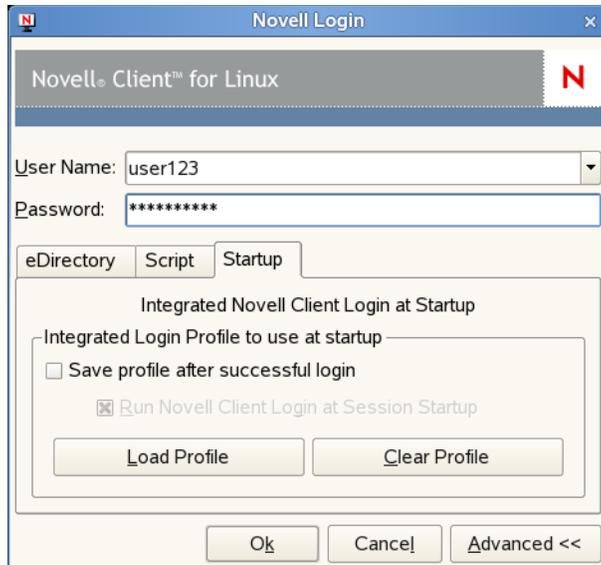
- 1 Launch the YaST Control Center.  
**GNOME:** Click *Computer > More Applications > System > YaST*.  
**KDE:** Click the menu button > *System > YaST*.
- 2 If you are not logged in as `root`, type the `root` password, then click *Continue*.
- 3 Click *Software* in the left column, then click *Software Management* in the right column.
- 4 Click *Search* in the *Filter* drop-down list.
- 5 Type `casa` in the *Search* field, then click *Search*.
- 6 Select the `casa` packages for installation.
- 7 Click *Accept* to install all of the selected packages.  
YaST displays the progress of the package installation.
- 8 (Conditional) If a message informs you that other package selections have been made to resolve dependencies, click *Continue*.
- 9 (Conditional) If a message prompts you to insert a CD, put the CD in the CD drive, then click *OK*.
- 10 After all the packages have been installed, click *Close* to close the YaST Control Center.

#### Enabling CASA

- 1 Launch the YaST Control Center.  
**GNOME:** Click *Computer > More Applications > System > YaST*.  
**KDE:** Click the menu button > *System > YaST*.
- 2 Click *Security and Users* in the left column, then click *CASA* in the right column.
- 3 Click *Configure CASA*, then click *OK*.
- 4 Click *Finish* to close the CASA Configuration Wizard.

### 3.1.2 Configuring Integrated Login

- 1 Use one of the following methods to open the Novell Login dialog box:
  - ♦ Click  > *Novell Login*.
  - ♦ **GNOME:** Click *Computer > More Applications > Novell Login*.
  - ♦ **KDE:** Click the menu button > *Novell Login*.
- 2 Enter your username and password, then click *Advanced*.
- 3 Specify the tree, context, and server information for the server you want to connect to.
- 4 Click the *Startup* tab, then make sure *Run Novell Client Login at Session Startup* is selected (it is selected by default).



- 5 Select *Save profile after the successful login* to save the Novell Login dialog settings to be used for all subsequent session logins.

You must have the *User Name* and *Password* fields and the *Tree* and *Context* fields on the *eDirectory* tab filled out for this to be saved.

---

**IMPORTANT:** An integrated login does not happen at the next session startup without a saved profile.

---

- 6 (Optional) Click *Load Profile* to populate all fields in the dialog based on the saved settings.
- 7 (Optional) Click *Clear Profile* to remove the profile settings.
- 8 Click *OK* to log in to the server specified in [Step 3](#).

The next time you log in to your SUSE Linux workstation, you also automatically log into the Novell server specified in [Step 3](#).

### 3.1.3 Enabling and Disabling Integrated Login

- 1 Launch the Novell Client Configuration Wizard by using either of the following methods:

- ♦ Click  > *System Settings*.
- ♦ In YaST, click *Network Services* > *Novell Client*.

- 2 Select *Login*, then click *Start Wizard*.

- 3 On the Login Settings page, select or deselect *Integrated Login*.

This enables or disables the integrated login feature for the entire system. This is set by the administrator and cannot be overridden by the user.

- 4 Select *Display Integrated Login Results* to display the Integrated Login Script Results window when the user desktop is launched.

If this option is disabled, all login scripts are run silently and the Integrated Login Script Results window is not displayed, but login scripts are still processed.

- 5 Select *Delete Integrated Login Profiles* if you want remove the existing login profiles for all users on this workstation.
- 6 Click *Finish*.

## 3.2 Setting Up Login Scripts

When a user successfully logs in to the network, one or more login scripts are executed that automatically set up the workstation environment. Login scripts are similar to batch files and are executed by Novell Login. You can use login scripts to map drives to Novell file system volumes and directories, display messages, set environment variables, and execute programs or menus.

Login scripts were originally created for use with the Novell Client for Windows. However, the Novell Client for Linux can take advantage of the majority of the functionality available in Windows. This means that the login scripts you created for Windows workstations can also be used with Linux workstations without modification, so you need to administer only one set of login scripts.

Because login scripts are very flexible and dynamic, offer a high degree of customization, and are cross-platform, you should customize the scripts to optimize workstation login to your network. For more information on setting up login scripts, see the *Novell Login Scripts Guide*.

## 3.3 Setting Up Login Restrictions

Login restrictions are limitations on user accounts that control access to the network. These restrictions can be set by an administrator in Novell iManager for each user's eDirectory™ User object and include the following:

- ◆ Requiring a password
  - You can specify its minimum length, whether it must be changed and how often, whether it must be unique, and whether the user can change it.
- ◆ Setting the number of logins with an expired password and the number of incorrect login attempts allowed
  - When a user violates login restrictions by entering an incorrect password or exceeding the number of logins with an expired password, the account is disabled and no one can log in using that username. This prevents unauthorized users from logging in.
- ◆ Setting account limits such as an account balance or expiration date
- ◆ Limiting disk space for each user by specifying the maximum blocks available for each user on a volume
- ◆ Specifying the number of simultaneous connections a user can have
- ◆ Specifying (by node address) which workstations users can log in on
- ◆ Restricting the times when users can log in (you can assign all users the same hours or you can restrict users individually)

To manage user login restrictions:

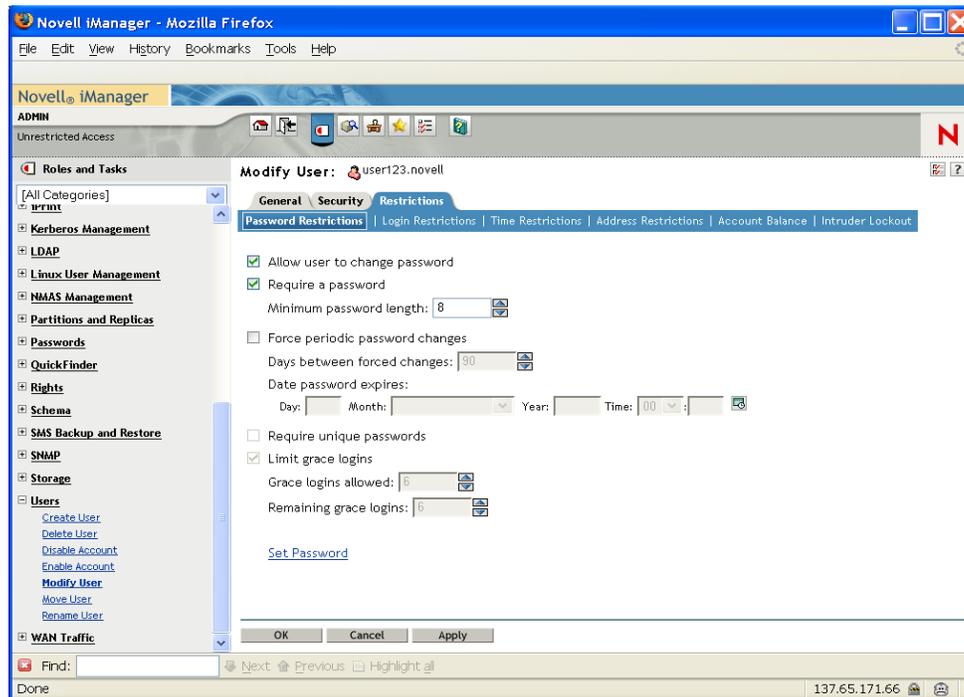
- 1 Launch iManager by entering the following in the Address field of a network browser:

```
http://server_IP_address/iManager.html
```

- 2 Log in using your username and password.

You have access only to those features you have rights to. To have full access to all Novell iManager features, you must log in as Supervisor/Administrator of the tree.

- 3 Make sure you are in the Roles and Tasks view by clicking  on the top button bar, then select *Users > Modify User* in the navigation panel on the left.
- 4 Type the name and context of the User object you want to modify, or use the search feature to find it, then click *OK*.
- 5 Click the *Restrictions* tab (or drop-down list, depending on the browser you are using).



The following options appear. They open pages that display various properties:

- ◆ Password Restrictions
- ◆ Login Restrictions
- ◆ Time Restrictions
- ◆ Address Restrictions
- ◆ Account Balance
- ◆ Intruder Lockout

- 6 Make your changes, then click *Apply* to preview or *OK* to save.

## 3.4 Using OpenSLP to Simplify Login

The service location protocol (SLP) was developed so that networking applications such as the Novell Client for Linux could discover the existence, location, and configuration of networked services in enterprise networks. Without SLP, users must supply the hostname or network address of the service that they want to access.

Because SLP makes the existence, location, and configuration of certain services known to all clients in the local network, the Novell Client for Linux can use the information distributed to simplify login. For the Novell Client, having SLP set up allows users to see the trees, contexts, and servers available to them when they use the Novell Client for Linux Login screen. When they click the *Browse* button, a list of available trees, contexts, or servers appears and they can select the appropriate ones. For example, instead of remembering an IP address or DNS name for a server, users can select the server's name from a list of available servers.

SLP must be activated and set up on your Novell servers in order for the Novell Client to take advantage of it. For more information, see “[SLP Services in the Network](http://www.novell.com/documentation/sles10/sles_admin/data/cha_slp.html)” in the *SUSE LINUX Enterprise Server Installation and Administration Guide* ([http://www.novell.com/documentation/sles10/sles\\_admin/data/cha\\_slp.html](http://www.novell.com/documentation/sles10/sles_admin/data/cha_slp.html)).

SLP is not set up by default on Linux workstations. The Novell Client for Linux includes a Novell Client Configuration Wizard to simplify the process of configuring your SLP and other Novell Client configuration options. The Novell Client Configuration Wizard provides only basic SLP configuration because this is all that is required by the client. However, if other applications on your workstation require more advanced settings, you can modify the `/etc/slp.conf` file to set advanced settings.

For more information on advanced SLP configuration, see the [OpenSLP Web site](http://www.openslp.org) (<http://www.openslp.org>). In addition, the `/usr/share/doc/packages/openslp` directory contains documentation on SLP, including a `README.SUSE` file containing the SUSE® Linux details, several RFCs, and two introductory HTML documents (*An Introduction to SLP* and *OpenSLP User's Guide*). RFC 2609 details the syntax of the service URLs used and RFC 2610 details DHCP via SLP.

- ♦ [Section 3.4.1, “Setting Up SLP,” on page 28](#)
- ♦ [Section 3.4.2, “Troubleshooting SLP Configuration,” on page 29](#)
- ♦ [Section 3.4.3, “Configuring SLP and the SUSE Firewall to Work with the Novell Client for Linux,” on page 29](#)

### 3.4.1 Setting Up SLP

- 1 Launch the Novell Client Configuration Wizard by using either of the following methods:
  - ♦ Click  > *System Settings*.
  - ♦ In YaST, click *Network Services* > *Novell Client*.
- 2 Select *Service Location Protocol (OpenSLP)*, then click *Start Wizard*.
- 3 Specify the following SLP information for your network:
  - ♦ **Scope List:** Specify the scopes that a user agent (UA) or service agent (SA) is allowed when making requests or registering, or the scopes that a directory agent (DA) must support.
  - ♦ **Directory Agent List:** Specify the specific DAs that UA and SA agents must use. If this setting is not used, dynamic DA discovery is used to determine which DAs to use.
  - ♦ **Broadcast Only:** Select this option to use broadcasting instead of multicasting. This setting is not usually necessary because OpenSLP automatically uses broadcasting if multicasting is unavailable.

SLP is designed to use IP multicasting; however, if any SLP Agent does not implement IP multicasting, then all Agents must use broadcasting to reach that Agent. If a DA does not support multicasting, we recommend using the Directory Agent List to configure that Directory Agent rather than using this option.

If the network does not contain a DA, IP servers must use their own SAs to specify the services that are available. If the SA does not support multicasting and if there are any services advertised by that SA that are needed by the UA on this machine, then use the *Broadcast Only* option.

Broadcasting has the disadvantage of being limited to the local LAN segment.

- ♦ **Maximum Results:** Specify a 32-bit integer giving the maximum number of results to accumulate and return for a synchronous request before the time-out, or the maximum number of results to return through a callback if the request results are reported asynchronously.

4 Complete the Novell Client Configuration Wizard.

5 Restart the workstation.

### 3.4.2 Troubleshooting SLP Configuration

If users cannot see a list of available trees, contexts, and servers when they use the Novell Client for Linux Login screen, use `slptool`, located in `/usr/bin`, to troubleshoot your SLP configuration.

After you start `slpd` (located in `/usr/sbin`), you should be able to issue a query for SLP service agents using the following command:

```
slptool findsrvs service:service-agent
```

This should display a list of the hosts that are running `slpd`, which indicates that OpenSLP is successfully installed and working. If you do not get a list, OpenSLP is not installed correctly or is not working. See [Section 3.4.1, “Setting Up SLP,” on page 28](#) for more information.

### 3.4.3 Configuring SLP and the SUSE Firewall to Work with the Novell Client for Linux

In order for the *Novell Services* button in your file browser to work correctly, both SLP and the SUSE firewall must be configured properly. If OpenSLP is not installed, the SLP protocol is disabled, or your firewall settings are turned on (as they are by default in SUSE Linux Desktop 10 SP3), a warning message is displayed when you try to scan for or access Novell services.

**Figure 3-1** SLP/Firewall Message



Click *Configure SLP* to open the Novell Client Configuration Wizard. Follow the instructions in [Section 3.4.1, “Setting Up SLP,” on page 28](#) to configure SLP.

Click *Configure Firewall* to open the Firewall Configuration Wizard in YaST. You can turn the firewall off, or manually configure the firewall to let SLP packets in and out. If your LAN interface is defined as External in the SUSE firewall configuration, you can try adding SLP Daemon Rules as an allowed service, or you can try changing your LAN interface definition to Internal.

- ♦ [“Turning Off the SUSE Firewall” on page 30](#)
- ♦ [“Manually Configuring the SUSE Firewall” on page 30](#)
- ♦ [“Adding SLP Daemon Rules for External or DMZ Firewall Zones” on page 31](#)
- ♦ [“Changing Your LAN Interface Definition to Internal” on page 31](#)

### Turning Off the SUSE Firewall

- 1 Launch the YaST Control Center.  
**GNOME:** Click *Computer > More Applications > System > YaST*.  
**KDE:** Click the menu button > *System > YaST*.
- 2 Click *Security and Users* in the left column, then click *Firewall* in the right column.
- 3 Click *Stop Firewall Now*, then click *Next*.
- 4 Click *Accept* to close the Firewall Configuration Wizard.

The next time you click the *Novell Services* button in your file browser, you should be able to scan for or access Novell services.

### Manually Configuring the SUSE Firewall

To allow iptables to accept incoming unicasts from the DAs in your network, the following needs to be added to the firewall as the first rule (or before anything is denied).

- 1 Modify the `/etc/sysconfig/SuSEfirewall12` file.  
Change the following lines from

```
#FW_CUSTOMRULES="/etc/sysconfig/scripts/SuSEfirewall2-custom"  
FW_CUSTOMRULES=""
```

to

```
FW_CUSTOMRULES="/etc/sysconfig/scripts/SuSEfirewall2-custom"  
#FW_CUSTOMRULES=""
```

**2** Modify the `/etc/sysconfig/scripts/SuSEfirewall2-custom` file.

In `fw_custom_before_denial()` add the following:

```
iptables -I INPUT 1 -j ACCEPT -p udp --sport 427
```

That will make SLP lookups work properly.

## Adding SLP Daemon Rules for External or DMZ Firewall Zones

**1** Launch the YaST Control Center.

**GNOME:** Click *Computer > More Applications > System > YaST*.

**KDE:** Click the menu button *> System > YaST*.

**2** Click *Security and Users* in the left column, then click *Firewall* in the right column.

**3** Click *Allowed Services* in the left column to open the Firewall Configuration: Allowed Services screen.

**4** Select *SLP Daemon* from the *Service to Allow* drop-down menu, then click *Add*.

**5** Click *Next*, then click *Accept*.

## Changing Your LAN Interface Definition to Internal

**1** Launch the YaST Control Center.

**GNOME:** Click *Computer > More Applications > System > YaST*.

**KDE:** Click the menu button *> System > YaST*.

**2** Click *Security and Users* in the left column, then click *Firewall* in the right column.

**3** Click *Interfaces* in the left column, double-click your LAN interface, then select *Internal Zone* from the drop-down menu.

**4** Click *OK*, then select *Start-Up* in the left panel.

**5** Click *Save Settings and Restart Firewall Now*.

**6** Click *Next*, then click *Accept*.



# Managing File Security

# 4

Novell® Open Enterprise Server (OES) and NetWare® networks restrict access to network files and folders based on user accounts. For example, a user connected to the network through the Administrator account can delete or rename a file that other users can only open and edit.

The Novell file system keeps track of the rights that users have to files and directories on the network. When users try to access any file on the network, Novell File Service (NFS) either grants access or prohibits certain things that users can do with the file.

It is important to note that Linux file rights do not correlate with NFS file rights. When you copy a file from a Linux workstation to a Novell server, the only right that is preserved is the Read-Only attribute. This also occurs if you copy files from one server to another by using any method other than `NCOPY` at the command terminal.

For more information on the specific rights on NetWare and OES servers, see “File Services” (<http://www.novell.com/documentation/oes/implgde/data/filesvcs.html>) in the *Novell OES Planning and Implementation Guide*.

For additional information on file system attributes, see the *File Systems Management Guide for OES* ([http://www.novell.com/documentation/oes/stor\\_filesys/data/hn0r5fzo.html](http://www.novell.com/documentation/oes/stor_filesys/data/hn0r5fzo.html)).

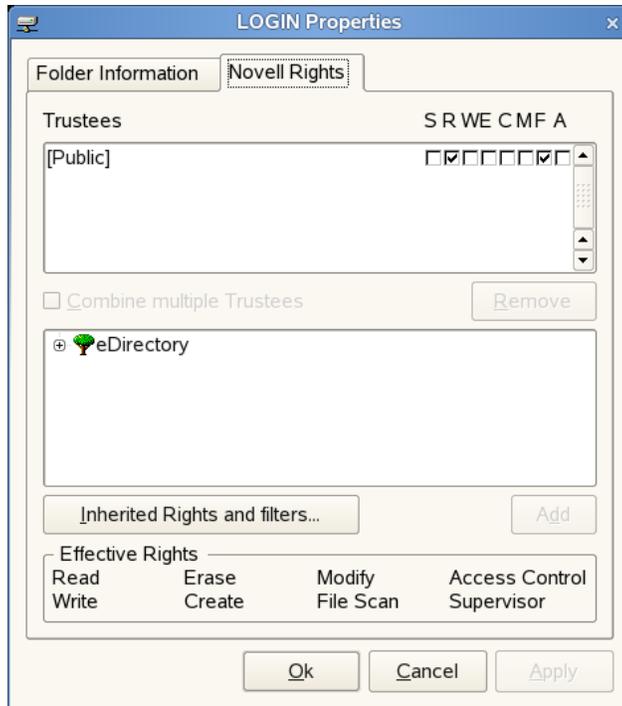
Rights are granted and revoked by creating trustee assignments. For more information, see [Section 4.2, “Changing Trustee Rights,” on page 35](#).

This section explains the following:

- ♦ [Section 4.1, “Checking File or Folder Rights,” on page 33](#)
- ♦ [Section 4.2, “Changing Trustee Rights,” on page 35](#)
- ♦ [Section 4.3, “Adding a Trustee,” on page 35](#)
- ♦ [Section 4.4, “Removing a Trustee,” on page 36](#)
- ♦ [Section 4.5, “Combining Multiple Trustees,” on page 36](#)

## 4.1 Checking File or Folder Rights

- 1 In a file manager, right-click a Novell file system directory or file.
- 2 Do one of the following:
  - ♦ **GNOME:** Click *Novell Properties*.
  - ♦ **KDE:** Click *Actions > Novell Properties*.
- 3 Click the *Novell Rights* tab.



**4** View the information.

The *Trustees* list shows the users or groups that have been granted rights to work with this file or folder. The trustees rights to the folder also apply to all the files and subfolders it contains unless the rights are explicitly redefined at the file or subfolder level.

The rights that each trustee has are shown by check marks under the letters. If you are viewing the properties of multiple files, the trustees and rights shown are the combined trustees and rights for all the files.

*Effective Rights* displays your rights for this file or folder. Users can receive rights in a number of ways, such as explicit trustee assignments, inheritance, and security equivalence (see [eDirectory Rights Concepts \(http://www.novell.com/documentation/edir88/edir88/data/fbachifb.html\)](http://www.novell.com/documentation/edir88/edir88/data/fbachifb.html) in the *Novell eDirectory 8.8 Administration Guide* for more information). Rights can also be limited by Inherited Rights Filters and changed or revoked by lower trustee assignments. The net result of all these actions—the rights a user can employ—are called *effective rights*.

**5** To view a list of rights and filters inherited by this file or directory, click *Inherited Rights and filters*.

All rights assignments on directories are inheritable. You can block such inheritance on individual subordinate items so that the rights aren't effective on those items, no matter who the trustee is. One exception is that the Supervisor right can't be blocked.

**6** Click *OK*.

## 4.2 Changing Trustee Rights

The assignment of rights involves a trustee and a target object. The trustee represents the user or set of users that are receiving the authority. The target represents those network resources the users have authority over. You must have the Access Control right to change trustee assignments.

- 1 In a file manager, right-click a Novell file system directory or file.
- 2 Do one of the following:
  - ♦ **GNOME:** Click *Novell Properties*.
  - ♦ **KDE:** Click *Actions > Novell Properties*.
- 3 Click the *Novell Rights* tabbed page.
- 4 In the *Trustees* list, select the trustee whose rights you want to change.
- 5 Select or deselect the rights you want to assign for this trustee.

For each trustee in the list, there is a set of eight check boxes, one for each right that can be assigned. If a check box is selected, the trustee has that right. The following rights can be set for each trustee:

- ♦ **Read:** For a directory, grants the right to open files in the directory and read the contents or run the programs. For a file, grants the right to open and read the file.
  - ♦ **Write:** For a directory, grants the right to open and change the contents of files in the directory. For a file, grants the right to open and write to the file.
  - ♦ **Erase:** Grants the right to delete the directory or file.
  - ♦ **Create:** For a directory, grants the right to create new files and directories in the directory. For a file, grants the right to create a file and to salvage a file after it has been deleted.
  - ♦ **Modify:** Grants the right to change the attributes or name of the directory or file, but does not grant the right to change its contents (changing the contents requires the Write right).
  - ♦ **File Scan:** Grants the right to view directory and file names in the file system structure, including the directory structure from that file to the root directory.
  - ♦ **Access Control:** Grants the right to add and remove trustees for directories and files and modify their trustee assignments and Inherited Rights Filters.
  - ♦ **Supervisor:** Grants all rights to the directory or file and any subordinate items. The Supervisor right can't be blocked by an Inherited Rights Filter. Users with this right can grant or deny other users rights to the directory or file.
- 6 Click *OK*.

Trustee assignments override inherited rights. To change an Inherited Rights Filter, click *Inherited Rights and filters*.

## 4.3 Adding a Trustee

When you add a trustee to a Novell file system directory or file, you grant a user (the trustee) rights to that directory or file. You must have the Access Control right to add a trustee.

- 1 In a file manager, right-click the Novell file or directory that you want to add a trustee to.
- 2 Do one of the following:
  - ♦ **GNOME:** Click *Novell Properties*.

- ♦ **KDE:** Click *Actions > Novell Properties*.
- 3 Click the *Novell Rights* tab.
  - 4 In the tree diagram, locate the eDirectory™ user object that you want to add as a trustee, then click *Add*.
  - 5 Set the rights for this user by selecting the boxes under the letters on the right of the *Trustees* list.

The following rights can be set for each trustee:

- ♦ **Read:** For a directory, grants the right to open files in the directory and read the contents or run the programs. For a file, grants the right to open and read the file.
  - ♦ **Write:** For a directory, grants the right to open and change the contents of files in the directory. For a file, grants the right to open and write to the file.
  - ♦ **Erase:** Grants the right to delete the directory or file.
  - ♦ **Create:** For a directory, grants the right to create new files and directories in the directory. For a file, grants the right to create a file and to salvage a file after it has been deleted.
  - ♦ **Modify:** Grants the right to change the attributes or name of the directory or file, but does not grant the right to change its contents (changing the contents requires the Write right).
  - ♦ **File Scan:** Grants the right to view directory and file names in the file system structure, including the directory structure from that file to the root directory.
  - ♦ **Access Control:** Grants the right to add and remove trustees for directories and files and modify their trustee assignments and Inherited Rights Filters.
  - ♦ **Supervisor:** Grants all rights to the directory or file and any subordinate items. The Supervisor right can't be blocked by an Inherited Rights Filter. Users with this right can grant or deny other users rights to the directory or file.
- 6 Click *OK*.

## 4.4 Removing a Trustee

When you remove a trustee of a Novell file system directory or file, you delete a user's rights to that directory or file. You must have the Access Control right to remove a trustee.

- 1 In a file manager, right-click the Novell file or directory whose trustee you want to remove.
- 2 Do one of the following:
  - ♦ **GNOME:** Click *Novell Properties*.
  - ♦ **KDE:** Click *Actions > Novell Properties*.
- 3 Click the *Novell Rights* tab.
- 4 In the *Trustees* list, select the trustee you want to remove.
- 5 Click *Remove*, then click *OK*.

## 4.5 Combining Multiple Trustees

As an administrator, you might need to apply the same trustee assignments to a group of selected files. You can combine trustee assignments by selecting the *Combine multiple Trustees* option on the Novell Rights page.

For example, Kim is a trustee of FILEA and FILEB. Kim has Read, File Scan, and Access Control rights for FILEA and Read and File Scan rights for FILEB. Nancy has Read and File Scan rights for FILEA.

If you give a new user named Michael the Read, Write, and File Scan rights for both FILEA and FILEB and, at the same time, you want to give similar trustee rights to Kim and Nancy, you would select *Combine Multiple Trustees*. The following would then be true:

- ♦ Kim has Read and File Scan rights to both FILEA and FILEB. Her Access Control right is lost because the combined rights are based on the rights given to Michael.
- ♦ Nancy has Read and File Scan rights to both FILEA and FILEB. She has gained Read and File Scan rights to FILEB because the combined rights are based on the rights given to Michael.
- ♦ Michael has Read, Write, and File Scan rights to both FILEA and FILEB.

To combine multiple trustees:

- 1** In a file manager, select all the Novell files or directories that you want to combine rights for.
- 2** Right-click the files or directories, then select one of the following:
  - ♦ **GNOME:** Click *Novell Properties*.
  - ♦ **KDE:** Click *Actions > Novell Properties*.
- 3** Click the *Novell Rights* tab.
- 4** Click *Combine multiple Trustees*, then click *OK*.



# Security Considerations

# 5

This section contains the following topics:

- ♦ [Section 5.1, “Security Features,” on page 39](#)
- ♦ [Section 5.2, “Known Security Threats,” on page 40](#)
- ♦ [Section 5.3, “Security Characteristics,” on page 40](#)
- ♦ [Section 5.4, “New and Modified Files,” on page 41](#)
- ♦ [Section 5.5, “Other Security Considerations,” on page 44](#)

## 5.1 Security Features

The following table contains a summary of the Novell<sup>®</sup> Client<sup>™</sup> for Linux security features:

**Table 5-1** *Novell Client for Linux Security Features*

Feature	Yes/No	Details
Users are authenticated	Yes	GUI and command line login utilities support authentication of NCP <sup>™</sup> and LDAP connections via user authentication into eDirectory <sup>™</sup> . NCP protocol authentication is supported via RSA and LDAP authentication is supported via SSL and Simple Bind protocol.
Servers, devices, and/or services are authenticated	Yes	Connections to servers are authenticated via user-supplied credentials. No device authentication is supported directly by the Client.
Access to information is controlled	Yes	The product's Virtual File System (VFS) component (located in Linux Kernel space) is the gatekeeper for enforcement of access controls to Novell file systems.
Roles are used to control access	No	No explicit use of roles is included in this product. eDirectory alias objects can be created, but this is not considered true role-based access and is not specifically supported or administered through this product.
Logging and/or security auditing is done	No	Security logging and auditing features are not supplied by nor supported by this product.
Data on the wire is encrypted by default	No	No wire encryption is supplied by this product.
Data stored is encrypted	No	This product does not provide long-term storage of data.

Feature	Yes/No	Details
Passwords, keys, and any other authentication materials are stored encrypted	Yes	Passwords and other authentication materials in temporary storage are encrypted to prevent in-memory scanners.
Security is on by default	Yes	There are no configuration options to enable or disable with the exception of packet signing. Packet signing is enabled by default.
FIPS 140-2 compliant	No	This product currently uses the ATB (authentication toolbox) instead of the Novell NCI product. Therefore, this product is not FIPS 140-2 compliant because ATB itself is not FIPS-compliant.

## 5.2 Known Security Threats

The following section provides a list of known security threats for the Novell Client for Linux, an indication of how difficult it would be to exploit the threat, and what the consequences would be for a customer.

**Table 5-2** *Known Security Threats*

Description	Consequence	Likelihood	Difficulty
Repetitive password cracking attempts	Intruder detection lockout	Low	Hard
“Stale” passwords	Password expiration, grace login enforcement	High	Hard
Attempted access out-of-hours or from unauthorized locations	Date/Time and Location restrictions at login	Medium	Easy
Port scanners	Unsuccessful pass of Nessus* scans; possible port hijacking	Medium	Possible
Man-in-the-middle attacks	NCP request sequencing, packet signing	Low	Hard
Wire frame examination and manipulation	Same protections as with other Novell products utilizing NCP and RSA-based authentication	Low	Hard
Memory scanning for sensitive data	All buffers containing sensitive data (passwords) are short-term in nature and are zeroed and/or freed immediately after use.	Low	Hard

## 5.3 Security Characteristics

- ◆ [Section 5.3.1, “Identification and Authentication,” on page 41](#)
- ◆ [Section 5.3.2, “Authorization and Access Control,” on page 41](#)
- ◆ [Section 5.3.3, “Roles,” on page 41](#)
- ◆ [Section 5.3.4, “Security Auditing,” on page 41](#)

### 5.3.1 Identification and Authentication

This product uses XTier to authenticate users via user identity information stored in eDirectory and resource authorization and access control provided by eDirectory. The product takes a user name and password supplied directly by the user and transfers that information to XTier for use within its supported authentication mechanisms (via XTier's plug-in authentication module architecture). If configured to do so, this product authenticates (using PAM NAM (Linux User Management)) to eDirectory through SSL and LDAP Simple Bind Protocol.

This product does not itself authenticate to another product, system or service. No portion of this product authenticates to another.

### 5.3.2 Authorization and Access Control

This product allows the protections supplied by eDirectory for access control to be fully realized for those resources that are contained within eDirectory. Access to resources is protected based on user identity (as stored within eDirectory). The VFS, daemon, and XTier work together to compare ACLs for a given file system path or object retrieved from eDirectory to the identity and session scope established for the identity that owns a given connection.

The VFS acts as a proxy to the local file system (via redirection of its local mount point) to make such decisions for network-based file system paths or objects.

### 5.3.3 Roles

This product does not define or manage roles. It simply makes use of roles that have already been defined elsewhere and treats role access privileges in the same way as any user identity.

Because the product has a VFS module running in the kernel, it does not require `root` access for users to create mount points (as do NCPFS and other similar open source offerings to date). The product does not require use of SETUID for any of its operations.

### 5.3.4 Security Auditing

No security auditing is performed by this product.

## 5.4 New and Modified Files

The following sections describe the files that are added or modified during the installation of the Novell Client for Linux.

- ◆ [Section 5.4.1, “Configuration Files,” on page 42](#)
- ◆ [Section 5.4.2, “PAM Login Files,” on page 42](#)
- ◆ [Section 5.4.3, “User Profile Startup Files,” on page 43](#)
- ◆ [Section 5.4.4, “KDE and GNOME Desktop Startup Files,” on page 43](#)
- ◆ [Section 5.4.5, “Installation Files,” on page 43](#)

## 5.4.1 Configuration Files

**Table 5-3** *New and Modified Configuration Files*

File	New	Modified	Description
<code>\$HOME/.novell/ncl/StartupLogin.conf</code>	X		Local user autologin configuration file. All fields in the Novell Login dialog box (except the password) are stored in this file.
<code>\$HOME/.novell/ncl/MapDrives.conf</code>			This user configuration file specifies the drive mapping to run at startup. Integrated login is not required, but credentials must be saved or the login dialog box is displayed to get the password at desktop startup.
<code>/etc/opt/novell/ncl/login.conf</code>			Optional global configuration file that overrides defaults. This file is modified only by the <code>root</code> user, normally with YaST through the Novell Client Configuration Wizard for the login page (click the Novell Tray icon, select <i>System Settings</i> , and start the Login wizard).

## 5.4.2 PAM Login Files

**Table 5-4** *New and Modified PAM Login Files*

File	New	Modified	Description
<code>/lib/security/pam_ncl_autologin.so</code>	X		This file queries CASA credentials, verifies if autologin is allowed, verifies the user with credentials, then authenticates. This file is used in the context of integrated login.
<code>/etc/pam.d/xdm</code>		X	PAM configuration file for the X Display Manager login.
<code>/etc/pam.d/gdm</code>		X	PAM configuration file for the GNOME* Display Manager login.
<code>/etc/pam.d/kdm</code>		X	PAM configuration file for the KDE Display Manager login.
<code>/etc/pam.d/sshd</code>		X	PAM configuration file for SSH login.

A “required” authentication module is added for each of the above GUI logins. The added text is `auth required pam_ncl_autologin.so`, which is added after the `pam_micasa.so` module (if it exists).

Authentication is not added for the two console login authentication files, `/etc/pam.d/login` and `/etc/pam.d/sshd`. This modification is done at install time and is removed at uninstall time.

**IMPORTANT:** For the `root` user, no tree authentication is performed, no automatic login scripts are run, and no drives are mapped. Therefore, the `pam_ncl_autologin.so` module always returns `SUCCESSFUL`, having done nothing for the `root` user.

## 5.4.3 User Profile Startup Files

**Table 5-5** *New and Modified User Profile Startup Files*

File	New	Modified	Description
/etc/profile.d/novell-ncl-autologin.sh	X		If integrated login is enabled, then this shell script copies the <code>ncl_autologin.desktop</code> file to <code>\$HOME/.config/autostart</code> directory.
/opt/novell/ncl/bin/ncl_autologin.desktop			This desktop file is copied to <code>\$HOME/.config/autostart</code> directory to enable integrated login.

## 5.4.4 KDE and GNOME Desktop Startup Files

**Table 5-6** *New or Modified Desktop Startup Files*

File	New	Modified	Description
<code>\$HOME/.config/autostart/ncl_autologin.desktop</code>	X		Common Startup file for <code>ncl_autologin</code> .
/opt/novell/ncl/bin/ncl_autologin	X		Validates and runs <code>nwlogin</code> or <code>gnwlogin</code> .
/opt/novell/ncl/bin/nwlogin			This existing file silently authenticates and processes scripts.
/opt/novell/ncl/bin/gnwlogin		X	GUI for authentication, processing scripts, and saving settings. This file adds a new tab (called <i>Startup</i> ) to the Novell Login dialog box, which allows users to save their current login settings for use during the next system startup to automatically log in the user.  When the user clicks <i>Clear Profile</i> on the Startup tab, the <code>\$HOME/.novell/ncl/StartupLogin.conf</code> file is deleted.  When the user clicks <i>Save Current Profile</i> , the settings are used to authenticate the user (but not run login scripts). If authentication is successful (CASA stores those credentials), the current settings are written to <code>StartupLogin.conf</code> .

## 5.4.5 Installation Files

**Table 5-7** *New Installation Files*

File	New	Modified	Description
/opt/novell/ncl/bin/delete_login_profiles	X		Run from YaST to purge all profiles.

---

File	New	Modified	Description
/opt/novell/ncl/bin/ login_cfg_pam	X		Inserts pam_ncl_autologin into PAM file.
/opt/novell/ncl/bin/ login_ucfg_pam	X		Removes pam_ncl_autologin from PAM file.

---

## 5.5 Other Security Considerations

If `root` is compromised, all network access could also be compromised. For example, if a malicious entity gets `root` access, it might be able to steal user credentials and authenticate to the network with those credentials.

This section describes some issues you might experience with Novell Client and provides suggestions for resolving or avoiding them.

## 6.1 Novell Client tray sometimes displays an error message on logging in to a desktop on which LUM is configured.

After the user logs in to the desktop on which Linux User Management (LUM) is configured, Novell Client tray might sometimes display the following error message:

```
The novfs kernel loadable module is not installed correctly
```

This occurs because `named` fails to start in the machine. Novell Client requires services such as `novell-xregd` and `namcd` when they are configured. `namcd` fails to start because of one or more of the following reasons:

- ♦ **Cause:** The remote LDAP server to which LUM is configured against is not responding.

**Symptom:** The following error is displayed in `/var/log/messages`:

```
ldap_initconn: LDAP bind failed (error = [81]), trying to connect to  
alternative LDAP server
```

**Solution:** Ensure that the LDAP Server LUM is configured against is available and restart `namcd`.

- ♦ **Cause:** `namcd` is attempted to start before Network Manager is started.

**Symptom:** The following error messages are displayed in `/var/log/messages`:

```
network: If service network should wait until connection is established  
network: then set /etc/sysconfig/network/config:NM_ONLINE_TIMEOUT
```

**Solution:** Setting an appropriate value for the variable `NM_ONLINE_TIMEOUT` in the file `/etc/sysconfig/network/config` will ensure that all other dependent services will wait for the Network Manager to come up at least for the specified timeout duration. A suggested duration is 20, which indicates a timeout of 20 seconds.

---

**NOTE:** Alternatively, `namcd` can be configured to start from the local cache itself. This will allow the desktop to startup without the error even when network is not available. To do this, run the following command:

```
namconfig cache-only=yes
```

---

After any of the above mentioned solutions is implemented, restart the following services:

1. Restart `named` by running the following command:

```
rcnamcd restart
```

2. Restart `novell-xregd` as root by running the following command:

```
rcnovell-xregd restart
```

3. Restart novfsd as root by running the following command:

```
rcnovfsd restart
```

4. Manually launch Novell Client tray application by running the command `/opt/novell/ncl/bin/ncl_tray` either on the command line of a terminal window or in Run Application utility that can be launched by pressing Alt-F2.

If any of these commands display any errors, restart the Linux\* machine.

# The Novell Client for Linux Command Line Utilities

# A

The Novell<sup>®</sup> Client<sup>™</sup> for Linux provides a set of command line utilities that let you start and stop the Novell Client daemon, install and uninstall the Novell Client for Linux, load the Novell Client for Linux tray application, list active connections for the currently logged-in user, copy files and directories to and from Novell file systems, display or modify the attributes of files and directories on Novell file systems, log a user in to or out of a Novell file server or eDirectory<sup>™</sup> tree, map a local file system to a remote file system on a Novell file server, and display or modify a user's trustee assignments or inherited rights filter for volumes, directories, or files.

The utilities are located in the `/opt/novell/ncl/bin` directory, and include the following:

- ♦ [Section A.1, “Shell Commands,” on page 47](#)
- ♦ [Section A.2, “GUI Utilities,” on page 48](#)

## A.1 Shell Commands

**Table A-1** *The Novell Client for Linux Shell Commands*

Utility	Description	Syntax
<code>ncl_tray</code>	Loads the Novell Client for Linux tray application and allows customization of the tray interface.	<code>ncl_tray [--waitfortray &lt;integer&gt;] [-author] [--] [-v] [-h]</code>
<code>nwconnections</code>	Lists active connections for the currently logged-in user.	<code>nwconnections [--] [-v] [-h]</code>
<code>nwcopy</code>	Copies files and directories to and from Novell file systems.	<code>nwcopy flags -p source_path -t target_path</code>
<code>nwflag</code>	Displays or modifies the attributes of files and directories on Novell file systems.	<code>nwflag {-a -n} {-w -e eDir object + -attr modifier} [-s] [-d -f] [--] [-v] [-h] URI1 {URI2} {URI3} ...</code>
<code>nwlogin</code>	Logs a user in to a Novell file server or an eDirectory tree.	<code>nwlogin [-u string] [-p string] [-t string] [-c string] [-s string] [-r] [-L path] [-P path] [-2 string] [-3 string] [-4 string] [-5 string] [--] [-v] [-h]</code>
<code>nwlogout</code>	Logs the user out of a Novell or eDirectory tree.	<code>nwlogout {-s string -t string} [-f] [--] [-v] [-h]</code>

Utility	Description	Syntax
map	Creates a mapping (mount) from a local file system to a remote file system on a Novell file server.	<pre>map -d drive -s server -v volume -f filespec</pre> <p>or</p> <pre>map options   parameters drive:=path   local_path:=remote_path</pre>
nwrights	Displays or modifies a user's trustee assignments or inherited rights filter for volumes, directories, or files.	<pre>nwrights flags -r + -rights_list -o user_or_group_object -p network_path</pre>

## A.2 GUI Utilities

**Table A-2** The Novell Client for Linux GUI Utilities

Utility	Description
gnwconnections	Displays the Novell Connections dialog box, which lets you see what servers and trees you are logged in to, refresh connections, set a specific tree as your primary connection, or log out of a tree or server.
gnwlogin	Displays the Novell Login dialog box. For more information on using this dialog box, see <a href="#">“Logging In to the Network”</a> in the <i>Novell Client 2.0 SP3 for Linux User Guide</i> .
gnwpurge	GUI utility to purge salvaged files.
gnwsalvage	GUI utility to salvage deleted files.

## A.3 Using the Novell Client for Linux Man Pages

Each of the utilities has a man page associated with it that contains information on the utility, such as a definition, usage, and samples. There is a known bug related to the MANPATH environment variable on both SUSE® Linux Enterprise Desktop and SUSE Linux. The `ncl_man` utility has been provided for convenience until the manpath bug is resolved. You should use the `ncl_man` command (instead of the traditional `man` command) to view NCL-related man pages. To do this, enter the following in a terminal the first time you want to view a Novell Client for Linux man page:

```
/opt/novell/ncl/bin/ncl_man
```

This modifies the MANPATH to allow the Novell Client man pages to be displayed. You can then access the man page for a specific Novell Client for Linux utility by entering the following:

```
ncl_man utility_name
```

For example:

```
ncl_man ncl_tray
```

In the man pages, use the PgUp and PgDn keys to move up and down. Use the Home and End keys to move between the beginning and the end of a document. To exit a man page, press q. You can learn more about the `man` command by entering `man man` in a terminal window.

You can also enter `utility_name --help` in a terminal window to access a help page for the utility.

For more information, see [Appendix B, “Novell Client for Linux Man Pages,”](#) on page 51.



# Novell Client for Linux Man Pages

# B

- ♦ “gnwlogin(1)” on page 52
- ♦ “login.conf(4)” on page 55
- ♦ “mapdrives.conf(4)” on page 57
- ♦ “ncl\_install(8)” on page 59
- ♦ “ncl\_man(1)” on page 61
- ♦ “ncl\_tray(1)” on page 62
- ♦ “nwconnections(1)” on page 63
- ♦ “nwcopy(1)” on page 64
- ♦ “nwflag(1)” on page 66
- ♦ “nwlogin(1)” on page 69
- ♦ “nwlogout(1)” on page 72
- ♦ “nwmap(1)” on page 74
- ♦ “nwpurge(1)” on page 76
- ♦ “nwrights(1)” on page 78
- ♦ “nwsalvage(1)” on page 80
- ♦ “nwsend(1)” on page 82
- ♦ “StartupLogin.conf(4)” on page 83
- ♦ “StartupMaps.conf(4)” on page 86

# gnwlogin(1)

## Name

gnwlogin - Logs a user in to a Novell file server or an eDirectory tree.

## Syntax

```
gnwlogin [--author] [-x] [--auto] [--passenv] [-D] [-d] [-A] [-a] [-R][--r] [-L  
<loginscript>] [-P <profilesript>] [-5 <value>] [-4 <value>] [-3 <value>] [-2  
<value>] [--clearconn] [-c <context>] [-u <name>] [-s <server>] [-t <tree>] [-  
-] [-v] [-h]
```

## Description

The gnwlogin utility allows a user to log in to a Novell file server or eDirectory tree. Running the gnwlogin command launches the Novell Login dialog box. You can add variables and strings to run additional scripts and modify variables.

You must specify the username, password, tree, context, and server.

## Options

**-c <context>, --context <context>**

Specifies the context that the user is logging in to. This value is required.

**-u <name>, --user <name>**

Specifies the user's eDirectory username. This value is required.

**-s <server>, --server <server>**

Specifies the server that the user is logging in to. This value is required.

**-t <tree>, --tree <tree>**

Specifies the tree that the user is logging in to. This value is required.

**--author**

Show author information.

**-x, --anotherapp**

Running from another application indicator.

**--auto**

Automatically log in. You can use this option along with the --passenv option to keep the Novell Login dialog box from pausing on the password prompt.

**--passenv**

Specifies the password via the NWPassword environment variable. You can set NWPassword to be the password that you want login to use (when you pass it using -passenv) instead of specifying the password on the command line.

For example:

```
export NWPASSWORD=novell  
gnwlogin -t mytree -c mycontext -u admin --auto --passenv
```

**-D, --displayoff**

Turns the display results window off.

**-d, --displayon**

Turns the display results window on.

**-A, --closeoff**

Close automatically off.

**-a, --closeon**

Close automatically on.

**-R, --runoff**

Any scripts associated with the specified username are not run.

**-r, --runon**

Runs any scripts associated with the specified username.

**-L <loginscript>, --loginscript <loginscript>**

Runs the specified login scripts during login.

**-P <profilesript>, --profilesript <profilesript>**

Runs the specified Profile login scripts during login.

**-5 <value>, --var5 <value>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-4 <value>, --var4 <value>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-3 <value>, --var3 <value>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-2 <value>, --var2 <value>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**--clearconn**

Clears existing server connections before logging in to the current server.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays version information and exits.

**--h, --help**

Display usage information and exits.

## Authors

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## See Also

`nwlogin(1)`

To report problems with this software or its documentation, visit <http://bugzilla.novell.com>

# login.conf(4)

## Name

login.conf - Novell Client for Linux system-wide configuration file.

## Files

/etc/opt/novell/ncl/login.conf

## Description

This file can be modified only by the `root` user, normally with YaST through the Novell Client Configuration Wizard for the login page (click the *Novell Tray* icon, select *System Settings*, and start the Login Wizard).

## Usage

Each entry occupies a single line in the file. Lines that are blank, or that start with a pound sign (`#`), are ignored.

### **Advanced\_Button=[true or false]**

Enables or disables the *Advanced* button on the Login dialog box.

### **Allow\_Integrated\_Login=[true or false]**

Globally enables or disables automatic login for the workstation.

### **Allow\_Integrated\_LoginGUI=[true or false]**

If authentication fails, calls `gnwlogin` so the user can reenter his or her password.

### **Clear\_Username=[true or false]**

Clears the previous username from the *User Name* field in the Login dialog box.

### **Debug\_Level=[0-9]**

Turns on syslog logging of warnings and debug for both the PAM authentication, login, and mapping (no interface, must be edited by the `root` user). 0=(default) no debug, 9= highest debug.

### **Default\_Context=<context>**

Specify a default context to appear in the *Context* field on the *eDirectory* tab of the Login dialog box.

### **Default\_Tree=<tree>**

Specify a default tree name to appear in the *Tree* field on the *eDirectory* tab of the Login dialog box.

## Examples

A sample `login.conf` file is given below:

```
Clear_Username=true  
Allow_Integrated_Login=false  
Default_Tree=mycompany  
Default_Context=marketing
```

## **Authors**

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# mapdrives.conf(4)

## Name

mapdrives.conf - Novell Client for Linux user configuration file.

## Files

`$HOME/.novell/ncl/MapDrives.conf`

## Description

Allows you to specify drive mappings to run at startup. Integrated Login is not required, but credentials must be saved or the login dialog box appears to get the password at desktop startup.

## Usage

Each entry occupies a single line in the file. Lines that are blank, or that start with a pound sign (#), are ignored.

**[/home/steve/Desktop/Q]**

Location and name of drive link.

**UserName=<username>**

**Tree= <name of tree>**

**Context=<context>**

Append to UserName for a Fully Distinguished Name.

**[/home/steve/Desktop/next\_drive]**

## Examples

A sample MapDrives.conf file is given below:

```
n4u.base.tree-name=EXAMPLE-TREE
n4u.base.dclient.use-udp=0
n4u.base.slp.max-wait=30
n4u.nds.advertise-life-time=3600
n4u.nds.dibdir=/var/nds/dib
n4u.nds.server-name=SAMPLE-SERV
n4u.nds.server-context=O=sample
```

```
n4u.nds.external-reference-life-span=192
n4u.nds.inactivity-synchronization-interval=60
n4u.nds.synchronization-restrictions=off
n4u.nds.janitor-interval=2
n4u.nds.backlink-interval=7
```

## **Authors**

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# ncl\_install(8)

## Name

ncl\_install - Install, uninstall, or verify the installation of Novell Client for Linux components.

## Syntax

```
ncl_install [ install | upgrade | uninstall | verify | information | files ] [ force ]
```

## Description

Allows you to install, upgrade, and uninstall the Novell Client for Linux packages. You can also run it to verify the installation of the files.

You must be logged in as `root` to run this utility.

## Options

### install

Installs all Novell Client for Linux packages.

### install force

Forces the installation of all Novell Client for Linux packages.

### upgrade

Upgrades all Novell Client for Linux packages.

### upgrade force

Forces the upgrade of all Novell Client for Linux packages.

### uninstall

Uninstalls all Novell Client for Linux packages.

### information

Displays the package information for all installed Novell Client for Linux packages.

### files

Displays a list of all files related to the packages installed with Novell Client for Linux.

### verify

Verifies installation of all installed Novell Client for Linux packages.

### help

Displays help for ncl\_install.

## **Authors**

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# ncl\_man(1)

## Name

ncl\_man - Displays the Novell Client for Linux man pages.

## Syntax

```
ncl_man <Novell Client man page name>
```

## Description

The ncl\_man utility modifies the MANPATH to allow the Novell Client man pages to be displayed.

If you enter `man <Novell Client man page name>`, the following error is displayed:

```
No manual entry for <Novell Client man page name>.
```

Entering `ncl_man <Novell Client man page name>` adds the Novell Client man path to the MANPATH and launches man, which displays the specified man page.

## Usage

### **ncl\_man**

Displays a list of all Novell Client man pages.

### **ncl\_man <Novell Client man page name>**

Modifies the MANPATH and launches man to display the specific man page.

## Authors

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# ncl\_tray(1)

## Name

ncl\_tray - Loads the Novell Client for Linux tray application.

## Syntax

```
ncl_tray [--waitfortray <integer>] [--author] [--] [-v] [-h]
```

## Description

Allows you to manually load the Novell Client for Linux tray application. This application provides GUI access to Novell Client functionality such as login, logout, mapping drives, and many other functions. It requires the X Windows System to be running, because it is a GUI application.

## Options

### Basic Options:

**--waitfortray <integer>**

Wait for tray (value required).

**--author**

Shows author information.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays version information and exits.

**-h, --help**

Displays version information and exits.

## Authors

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# nwconnections(1)

## Name

`nwconnections` - Lists active connections for the currently logged-in user.

## Syntax

```
nwconnections [--] [-v] [-h]
```

## Description

The `nwconnections` utility lets you view all active connections for the currently logged-in user. Use the `nwmap` utility to detach from listed connections.

## Options

### **--, -ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

### **-v**

Displays the version for the package that supplies the `nwconnections` utility.

### **-h, -help**

Displays the help strings.

## Authors

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## See Also

`nwmap(1)`

To report problems with this software or its documentation, visit <http://bugzilla.novell.com>

# nwcopy(1)

## Name

`nwcopy` - Copies files and directories to and from Novell file systems.

## Syntax

```
nwcopy [-f] [-c] [-s] -t <target_path> -p <source_path> [--] [-v] [-h]
```

## Description

The `nwcopy` utility allows you to copy files and directories to and from Novell file systems. Using `nwcopy` preserves Novell file system attributes.

---

**NOTE:** The source and target must be Novell file system (Netware traditional file system or Novell storage services).

---

## Options

### **-f, --force**

Rewrites existing targets.

### **-c, --compress**

Retains the Novell compression attribute if it is supported.

### **-s, --subdir**

Traverses the subdirectories.

### **-t <string>, --target <string>**

Specifies the target path where you want the files copied to.

### **-p <string>, --source <string>**

Specifies the source path of the files you want to copy.

### **--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

### **-v, --version**

Displays the version for the package that supplies the `nwconnections` utility.

### **-h, --help**

Displays usage information and exits.

## Examples

```
nwcopy -c -p . -t my_vol
```

Copies all files in the current working directory to `my_vol` (retaining Novell compression).

**nwcopy -s -p my\_vol -t your\_vol**

Recursively copies all files and directories from `my_vol` to `your_vol`.

**nwcopy -f -p my\_vol -t your\_vol**

Copies all files or directories from `my_vol` to `your_vol` and rewrites the existing targets.

## **Authors**

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# nwflag(1)

## Name

`nwflag` - Displays or modifies the attributes of files and directories on Novell file systems.

## Syntax

```
nwflag {-a|-n} {-w|-e <eDir object>|<+|-> <attr modifier>} [-s] [-d|-f] [--]  
[-v] [-h] <URI1> {URI2} {URI3} ...
```

## Description

The `nwflag` utility allows you to display and modify the attributes of files or directories.

## Type

Displays or sets either the attributes or the owner flag information.

### **-a, --attributes**

Displays or sets attribute flags.

### **-n, --owner**

Displays or sets owner flags.

## Options

### **-s**

Traverse subdirectories.

### **-d, --directories**

Displays or modifies directories only.

### **-f, --files**

Displays or modifies files only.

### **--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

### **-n, --owner**

Sets the file owner.

### **-v, --view\_owner**

Displays files that a user owns.

### **-h, --help**

Displays the help strings.

## Attributes

For additional information on file system attributes, see the *File Systems Management Guide for OES* at [http://www.novell.com/documentation/oes/stor\\_filesys/data/hn0r5fzo.html](http://www.novell.com/documentation/oes/stor_filesys/data/hn0r5fzo.html).

In this guide, the “Understanding File System Access Control for NSS and NetWare Traditional File Systems” section provides information on flags. See [http://www.novell.com/documentation/oes/stor\\_filesys/data/bs3fih1.html](http://www.novell.com/documentation/oes/stor_filesys/data/bs3fih1.html).

o=Read-only

w=Read-write

c=Compressed

h=Hidden

y=System

k=Can't Compress

p=Purge

a=Archive Needed

m=Migrated

d>Delete Inhibit

r=Rename Inhibit

s=Shareable

t=Transactional

i=Copy Inhibit

x=Execute Only

q=Don't Migrate

e=Immediate Compress

f=Don't Compress

b=Don't Suballocate

l=All

n=Normal

## Examples

```
nwflag -a -f -e +o //MYSERVER/SYS/PUBLIC/TEST
```

Gives all files in the `TEST` directory a read-only attribute.

```
nwflag -a -s -d -e +d //MYSERVER/SYS/PUBLIC/TEST
```

Sets all child directories of the `TEST` directory to Delete Inhibit.

**nwflag -a -e +p**

Sets the current directory to Purge.

**nwflag -a -s -f -e +a+e //MYSERVER/SYS //MYSERVER/USER**

Sets all files on vol SYS: and USER: to Archive Needed and Immediate Compress.

**nwflag -n -e -s -f adam.cont.org**

Makes user ADAM the owner of the files in the current directory and subdirectories.

**nwflag -n -w -s -f //MYSERVER/USER | grep -i "adam.cont.org"**

Lists all files owned by user ADAM on volume USER.

## Authors

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# nwlogin(1)

## Name

`nwlogin` - Logs a user in to a Novell file server or an eDirectory tree.

## Syntax

```
nwlogin [-c <string>] [-t <string>] [-p <string>] [-u <string>] [-s <string>]
[-r] [-L <string>] [-P <string>] [-2 <string>] [-3 <string>] [-4 <string>] [-5
<string>] [--clearconn] [--] [-v][-h]
```

## Description

The `nwlogin` utility allows a user to log in to a Novell file server or eDirectory tree from a terminal. When you execute the `nwlogin` command, you can add variables and strings to run additional scripts and modify variables.

You must specify the username, password, tree, context, and server.

## Options

**-c <string>, --context <string>**

Specifies the context that the user is logging in to. This value is required.

**-t <string>, --tree <string>**

Specifies the tree that the user is logging in to. This value is required.

**-p <string>, --password <string>**

Specifies the user's eDirectory password. This value is required.

**-u <string>, --user <string>**

Specifies the user's eDirectory username. This value is required.

**-s <string>, --server <string>**

Specifies the server that the user is logging in to. This value is required.

**-E, --passenv**

Specifies the password via the `NWPassword` environment variable. You can set `NWPassword` to be the password that you want login to use (when you pass it using `-passenv`) instead of specifying the password on the command line.

For example:

```
export NWPassword=novell
```

```
nwlogin -r -t mytree -s myserver -u admin -c mycontext --passenv
```

**-r runscripts**

Runs any scripts associated with the specified username.

**-L <string>, --LoginScript <path to login script file on local workstation>**

Runs the specified login scripts during login.

**-P <string>, --ProfileScript <path to a login script file on local workstation>**

Runs the specified Profile login scripts during login.

**-2 <string>, --variable2 <string>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-3 <string>, --variable3 <string>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-4 <string>, --variable4 <string>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**-5 <string>, --variable5 <string>**

Allows an additional parameter to be entered that the login utility passes to the login script.

There are four %n variables that can be specified during login (2, 3, 4, and 5). The utility then substitutes these parameters for the %n variables in the login script.

The variables are replaced in the order specified, by selecting -2, -3, -4, or -5.

**--clearconn**

Clears existing server connections before logging in to the current server.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays version information and exits.

**-h, --help**

Displays usage information and exits.

## Examples

```
nwlogin -s MYSERVER -u MYUSER -c MYCONTEXT -t MYTREE -p MYPASSWORD -2  
MYVARIABLE L P r
```

```
nwlogin -u MYUSER -p MYPASSWORD -t MYTREE -c MYCONTEXT -s MYSERVER
```

## **Authors**

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## **See Also**

`nwlogout(1)`, `nwconnections(1)`

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# nwlogout(1)

## Name

nwlogout - Logs the user out of a Novell or eDirectory tree.

## Syntax

```
nwlogout {-s <string>|-t <string>|-a} [-f] [--] [-v] [-h]
```

## Description

The nwlogout utility allows a user to log out of a specific Novell file server or eDirectory tree or to log out of all trees and servers.

## Options

### Required:

**-s <string>, --server <string>**

Specifies the server the user is logging out of. This value is required if either the tree or closeall option is not used.

**-t <string>, --tree <string>**

Specifies the tree that the user will be logged out of. This value is required if either the server or closeall option is not used.

**-a, --closeall**

Closes all open connections. This value is required if either the server or tree option is not used.

### Optional:

**-f, --forceall**

Forces all confirmations.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays the version of the package that nwlogout is a part of.

**--help, --help**

Display the help strings.

## Examples

```
nwlogout -s MYSERVER
```

```
nwlogout -t MYTREE
```

## **Authors**

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## **See Also**

`nwlogin(1)`

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# nwmap(1)

## Name

`nwmap` - Creates a mapping (mount) from a local file system to a remote file system on a Novell file server.

## Syntax

```
map -d drive <-s server> -v volume <-f filespec>
```

or

```
map <<options> | <parameters> drive:=<path> | local_path:=<remote_path>>
```

## Description

The `nwmap` utility creates a mapping (similar to a mount point) to a remote path on a Novell file server.

---

**NOTE:** `nwmap` is a symbolic link to the `map`. You can use `nwmap` command to map a remote volume. If you are already authenticated using a `nwlogin` command, `nwmap` will not require you to re-authenticate. However, if you want to run `nwmap` on a new machine and you want `nwmap` itself to authenticate, you can either pass the username, password as a parameter or use the `-E` switch which will take an environment variable `NWPassword` as the password.

---

## Options

### **-d, --drive <drive letter or path>**

Specifies the drive letter or path that you are mapping to.

The path can be in the following forms:

`//server/volume/path`

`server/volume:`

`server/volume:/path`

`.directory_object_name.fully_distinguished_eDirectory_path` (such as a cluster volume--for example, `my_dir.usrs.accent.mycompany`)

### **-s, --server <string>**

Specifies the server that you are mapping to.

### **-v, --volume <string>**

Specifies the volume that you are mapping to.

### **-f, --filespec**

Specifies any remote file system folders that are relative to the volume or folder you have specified.

**-display <on|off>**

Determines whether or not the results of this specific Map command are displayed at the command terminal.

**-errors <on|off>**

This does not function in Linux. It is included for script compatibility only.

**-h, --help**

Displays the help strings.

## Parameters

**INS or INSERT**

This does not function in Linux. It is included for script compatibility only.

**DEL or DELETE**

Deletes a drive mapping, making that drive letter available for other mapping assignments.

**R or ROOT**

This does not function in Linux. It is included for script compatibility only.

**C or CHANGE**

This does not function in Linux. It is included for script compatibility only.

**P or PHYSICAL**

This does not function in Linux. It is included for script compatibility only.

**N or NEXT**

Maps the next available drive when used without specifying a drive number or letter.

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# nwpurge(1)

## Name

nwpurge - Purges deleted files and directories from Novell file system.

## Syntax

```
nwpurge {-l|-a|-r|-f <string> ... } [--] [-v] [-h] <FileSystem objects  
to perform operations with> ...
```

## Description

The nwpurge utility enables you to purge deleted files and directories from Novell file system.

## Options

**-l, --list**

Displays the objects to be purged.

**-a, --purgeall**

Purges all file system objects at the current level.

**-r, --subdirectories**

Purges subdirectories.

**-f <string>, --files <string>**

Purges listed files. This option accepts multiple values.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays version information and exits.

**-h, --help**

Displays usage information and exits.

**<FileSystem objects to perform operations with>**

Accepts multiple file system objects.

---

**NOTE:** It is mandatory to use either of the following options with the nwpurge utility: -l, -a, -r, -f.

---

## Authors

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## See Also

nwsalvage(1)

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# nwrights(1)

## Name

`nwrights` - Displays or modifies a user's trustee assignments or inherited rights filter for volumes, directories, or files.

## Syntax

```
nwrights {-t|-f <+|->rights_list |-r <+|->rights_list} {-m <+|->rights_list |-w|-e} [-o <string>] [-s] [--] [-v] [-h] <FileSystem objects to perform operation with> ...
```

## Description

The `nwrights` utility allows you to display and give rights to files and directories on a Novell server. Rights can be given directly or through inherited rights filters.

## Options

**-w**

View the trustees, inheritance filter, or effective rights.

**-e**

Remove Trustee.

**-s**

Traverse subdirectories.

**-r <+|-><rights>**

Allows you to add (+) or delete (-) specified rights to or from the rights list. The rights are:

s=Supervisor

r=Read

w=Write

c=Create

e=Erase

m=Modify

f=File Scan

a=Access Control

n=No Rights

l=All rights except Supervisor

**-t**

Displays the trustee rights.

**-m**

Removes the specified trustee rights.

**-f**

Displays or modifies the inherited rights filter.

**-i**

Displays or modifies the inherited rights filter.

**-o <user or group object name>**

Specifies the User or Group object that you want to change the rights for.

**-p <network path>**

Specifies the network path to the file.

**-v**

Displays version information and exits.

**-h**

Displays the help strings.

## Examples

```
nwrights -t -w dir1
```

Displays the trustees on a directory named dir1.

```
nwrights -r -w dir1
```

Displays the effective rights.

```
nwrights -f -w dir1
```

Displays inheritance filter.

```
nwrights -t -e -o "abc.xyz" dir1
```

Removes the trustee abc.xyz.

```
nwrights -t -m +r -o "abc.xyz" dir1
```

Assigns read access to the trustee abc.xyz.

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# nwsalvage(1)

## Name

nwsalvage - Restores deleted files and directories on Novell file system.

## Syntax

```
nwsalvage {-l|-a|-f <string> ... } [--] [-v] [-h] <FileSystem objects  
to perform operations with> ...
```

## Description

The nwsalvage utility enables you to salvage deleted files and directories from Novell file system. In a hierarchical directory structure, you must use this utility to salvage files or directories at each level of the directory structure before proceeding to the next level.

## Options

**-l, --list**

Displays the objects to be salvaged.

**-a, --salvageall**

Salvages all file system objects at the current level.

**-f <string>, --files <string>**

Salvages listed files. This option accepts multiple values.

**--, --ignore\_rest**

Ignores the rest of the labeled arguments following this flag.

**-v, --version**

Displays version information and exits.

**-h, --help**

Displays usage information and exits.

**<FileSystem objects to perform operations with>**

Accepts multiple file system objects.

---

**NOTE:** It is mandatory to use either of the following options with the nwsalvage utility: -l, -a, -f.

---

## Examples

The following examples describe the usage of *nwsalvage* command when the user working directory is a mapped volume:

```
nwsalvage -l .
```

Lists the set of files and directories that can be salvaged in the current directory.

```
nwsalvage -a .
```

Salvages all the files and directories in the current directory.

```
nwsalvage -f file1 file5 dir1 dir3
```

Salvages only the specified objects.

The following examples describe the usage of *nwsalvage* command when the user working directory is not a mapped volume:

```
nwsalvage -l /home/localuser1/VKNSSV011
```

Displays the objects to be salvaged.

```
nwsalvage -a /home/localuser1/VKNSSV011
```

Salvages all file system objects at the current level.

```
nwsalvage -f file1 /home/localuser1/VKNSSV011/Salvage1/Salvage12/
```

Salvages only the specified objects.

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## See Also

[nwpurge\(1\)](#)

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# nwsend(1)

## Name

`nwsend` - Sends messages to users or groups who are currently connected to a Novell server or sends a message to the server console.

## Syntax

```
nwsend <flags> -s <target_server> -o <fully_distinguished_user_name> -m  
<message_text>
```

## Description

The `nwsend` utility allows you to send messages to users or groups who are currently connected to a Novell server, or allows you to send a message to the server console.

---

**NOTE:** When you send a message to a group, you must specify only the groupname and not the FQDN of the groupname.

---

## Options

**-g <message>**

Sends messages to groups.

**-c <message>**

Sends a message to the server console.

**-c <message>**

Sends a message to the server console.

**-s <server\_name>**

Specifies the server.

**-o <string>**

Specifies the user's fully distinguished eDirectory user name.

**-m <message>**

Specifies the message sent to a specific person.

**-h, --help**

Displays the help strings.

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# StartupLogin.conf(4)

## Name

StartupLogin.conf - Novell Client for Linux user configuration file.

## Files

`$HOME/.novell/ncl/StartupLogin.conf`

## Description

All the current fields in the Novell Login dialog box (except the password) are stored in this configuration file. This file uses the same format as the `login.conf` file.

## Usage

Each entry occupies a single line in the file. Lines that are blank, or that start with a pound sign (`#`), are ignored.

### **UserName=<username>**

The user's eDirectory username. This line is required.

### **Tree=<tree name>**

The name of the eDirectory tree the user is logging in to. This line is required.

### **Context=<context>**

The location of the User object in the eDirectory tree. This line is required.

### **Server=<server name>**

The name or IP address of the server the user is logging in to.

### **ClearConnections=[true or false]**

Clears any existing connections to servers before logging in. The default is false.

### **RunScripts=[true or false]**

Runs the user's login script. The default is true.

### **DisplayResults=[true or false]**

Displays the results of the log in script in a window during login. The default is false.

### **CloseAutomatically=[true or false]**

Closes the login script display window after login. The default is true.

### **LoginScript=<DEFAULT>/<user defined text>**

Specify a login script for the user. The default is `<DEFAULT>`.

### **ProfileScript=<DEFAULT>**

Specify a profile login script for the user. The default is `<DEFAULT>`.

**Variable2=<user defined text>**

%2 variable. When a user logs in, additional parameters can be entered that the LOGIN utility passes to the login script. The utility then substitutes these parameters for any %n variables in the login script. These variables are replaced in order by the parameters the user entered when logging in.

**Variable3=<user defined text>**

%3 variable. When a user logs in, additional parameters can be entered that the LOGIN utility passes to the login script. The utility then substitutes these parameters for any %n variables in the login script. These variables are replaced in order by the parameters the user entered when logging in.

**Variable4=<user defined text>**

%4 variable. When a user logs in, additional parameters can be entered that the LOGIN utility passes to the login script. The utility then substitutes these parameters for any %n variables in the login script. These variables are replaced in order by the parameters the user entered when logging in.

**Variable5=<user defined text>**

%5 variable. When a user logs in, additional parameters can be entered that the LOGIN utility passes to the login script. The utility then substitutes these parameters for any %n variables in the login script. These variables are replaced in order by the parameters the user entered when logging in.

**AllowLoginGUI=[true or false]**

The default is true. If eDirectory authentication fails, display Novell Login dialog during session startup (after initial login).

## Examples

A sample StartupLogin.conf file is given below:

```
[Startup]
UserName = admin
Tree = MYCOMPANY_TREE
Context = novell
Server =
LastSessionID = 1
RunScripts = yes
DisplayResults = yes
CloseAutomatically = yes
LoginScript = <DEFAULT>
ProfileScript = <DEFAULT>
Variable2 =
```

Variable3 =

Variable4 =

Variable5 =

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# StartupMaps.conf(4)

## Name

StartupMaps.conf - Novell Client for Linux configuration file.

## Files

`$HOME/.novell/ncl/StartupMaps.conf`

## Description

Specify drive mappings to run at startup. Integrated Login is not required, but credentials must be saved or the login dialog box appears to get the password at desktop startup.

## Usage

Each entry occupies a single line in the file. Lines that are blank, or that start with a pound sign (#), are ignored.

**[/home/<username>/Desktop/<drive\_link>]**

Location and name of drive link.

**UserName=<username>**

A valid eDirectory username.

**Tree= <tree name>**

The eDirectory tree.

**Context=<context>**

Append to UserName for a fully distinguished name.

**Mapped=<filesystem\_path>**

For example: Mapped = \\mycompany\sys:

**[/home/<username>/Desktop/next\_drive]**

## Examples

A sample StartupMaps.conf file is given below:

```
[/home/mycompany/Desktop/xyzzy]
```

```
UserName = admin.novell
```

```
Tree = MYCOMPANY_TREE
```

```
Context =
```

```
Mapped = \\mycompany\sys:
```

```
[/home/mycompany/Desktop/pub]
UserName = admin.novell
Tree = MYCOMPANY_TREE
Context =
Mapped = \\mycompany\SYS:PUBLIC\
```

## **Authors**

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# Documentation Updates

# C

This section contains information on documentation content changes made in this guide since the initial release of the Novell® Client™ for Linux. The information will help you keep current on updates to the documentation.

The documentation was updated on the following dates:

- ♦ [Section C.1, “September, 2009,” on page 89](#)
- ♦ [Section C.2, “August, 2008,” on page 89](#)

## C.1 September, 2009

- ♦ Added integrated login scenarios [Section 3.1, “Setting Up Integrated Login,” on page 23](#).
- ♦ Added section on server side configuration [Section 2.3, “Server Side Configuration for Sending Messages from Client to Users and Groups,” on page 21](#).
- ♦ Modified man pages for nwpurge [nwpurge\(1\) \(page 76\)](#).
- ♦ Modified man pages for nwsalvage [nwsalvage\(1\) \(page 80\)](#).
- ♦ Modified man pages for nwrights [nwrights\(1\) \(page 78\)](#).
- ♦ Added a note in the manpages for nwcopu [nwcopu\(1\) \(page 64\)](#)

## C.2 August, 2008

- ♦ Updated the title page in the PDF version of the guide.

