AUTHORIZED DOCUMENTATION

Administration Guide

Novell®
Client™ for Linux

2.0 SP2

September 2009

www.novell.com

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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 7
- Chapter 2, “Configuring the Novell Client for Linux,” on page 9
- Chapter 3, “Managing Login,” on page 21
- Chapter 4, “Managing File Security,” on page 31
- Chapter 5, “Security Considerations,” on page 37
- Appendix A, “The Novell Client for Linux Command Line Utilities,” on page 43
- Appendix C, “Novell Client for Linux Man Pages,” on page 49

Audience

This guide is intended for network administrators.

Feedback

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

Documentation Updates

For the latest version of this documentation, see the Novell Client online documentation (http://www.novell.com/documentation/linux_client/index.html) Web site.

Additional Documentation

For information on installing the Novell Client for Linux, see the Novell Client 2.0 SP2 for Linux Installation Quick Start (http://www.novell.com/documentation/linux_client/ncl20sp2_installqs/data/ncl20sp2_installqs.html).

For information on the Novell Client tray application, see the *Novell Client 2.0 SP2 for Linux User Guide*.

For information on login scripts, see the *Novell Login Scripts Guide*.

Documentation Conventions

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

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Understanding the Novell Client for Linux

1

The Novell® Client™ for Linux software allows users of Linux* workstations 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. The Novell Client for Linux fully supports NetWare®, OES, and eDirectory services and utilities on a Linux workstation, 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 7
- Section 1.2, "Understanding the Novell Client for Linux Virtual File System," on page 8

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 7
- Section 1.1.2, "Logging In," on page 7
- Section 1.1.3, "User Interface," on page 8
- Section 1.1.4, "Login Scripts," on page 8ss

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 SP2 for Linux Installation Quick Start (http://www.novell.com/documentation/linux_client/ncl20sp2_installqs/data/ncl20sp2_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, "Using Configuration Files to Preconfigure the Novell Client," on page 17.

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 21 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 26.
- 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 SP2 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 43 and Appendix C, "Novell Client for Linux Man Pages," on page 49.

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*.

1.2 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 for Linux has a Virtual File System that consists of 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 chapter 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. This chapter also discusses about server side configuration for sending messages from client to users and groups.

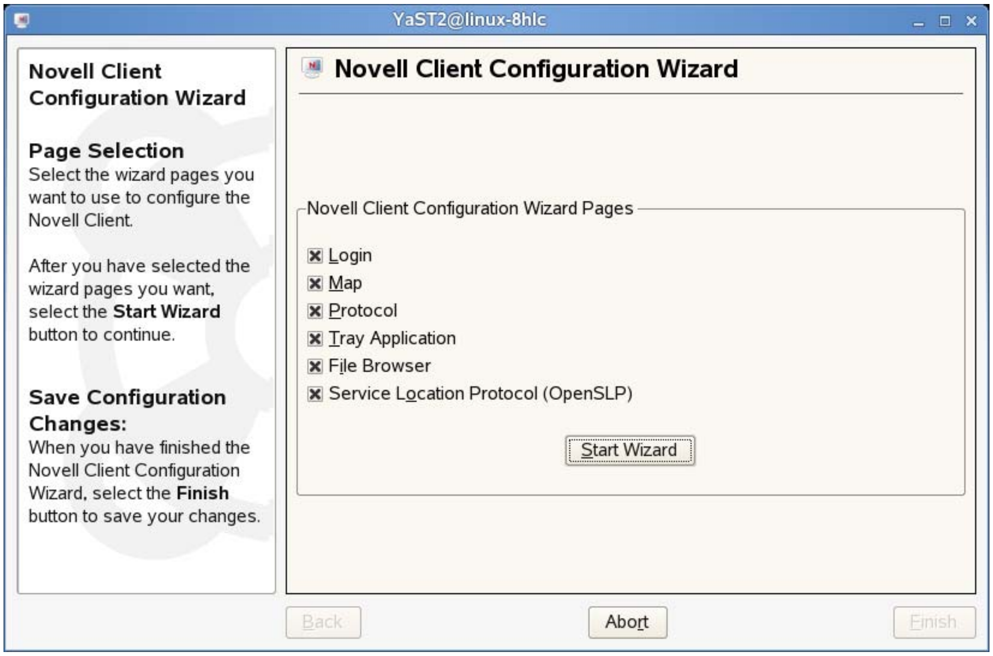
- Section 2.1, “Using the Novell Client Configuration Wizard,” on page 9
- Section 2.2, “Using Configuration Files to Preconfigure the Novell Client,” on page 17
- Section 2.3, “Deploying the Novell Client to Multiple Users Through ZENworks Linux Management,” on page 18
- Section 2.4, “Server Side Configuration for Sending Messages from Client to Users and Groups,” on page 19

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 Description: Novell Client tray application icon > *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.

Description: Novell Client Configuration Wizard in NLD



Novell Client Configuration Wizard

Page Selection
Select the wizard pages you want to use to configure the Novell Client.

After you have selected the wizard pages you want, select the **Start Wizard** button to continue.

Save Configuration Changes:
When you have finished the Novell Client Configuration Wizard, select the **Finish** button to save your changes.

Novell Client Configuration Wizard

Novell Client Configuration Wizard Pages

☒ Login
☒ Map
☒ Protocol
☒ Tray Application
☒ File Browser
☒ Service Location Protocol (OpenSLP)

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.

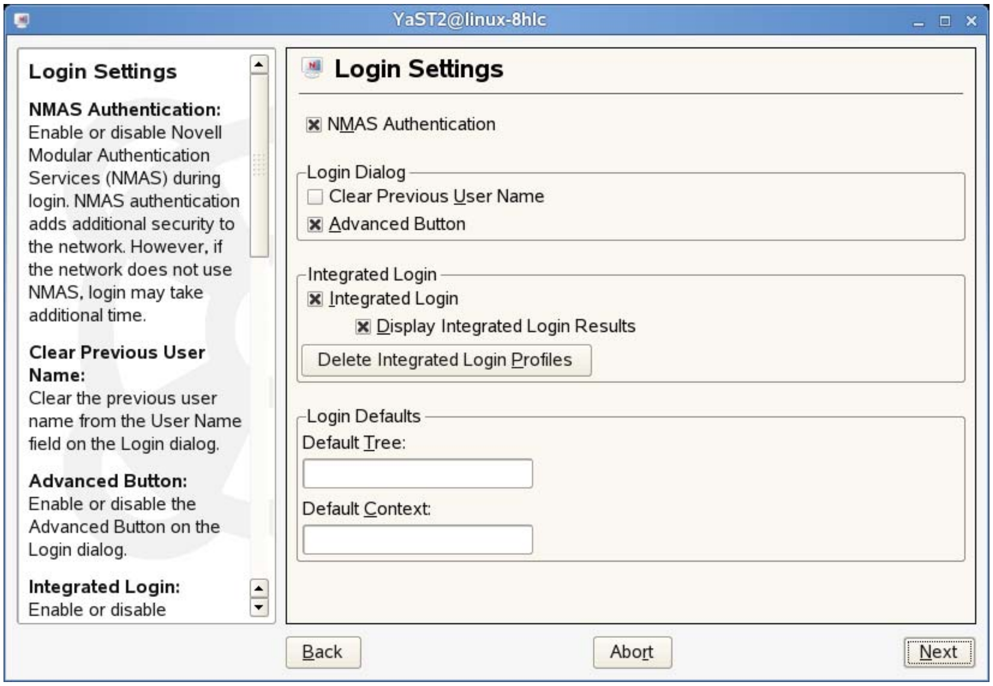
Any changes you make to the Novell Client settings are written to a set of configuration (`.conf`) files in the `/etc/opt/novell/ncl` directory.

IMPORTANT: When the Novell Client software is uninstalled, these settings are not saved.

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*



Login Settings

NMAS Authentication: Enable or disable Novell Modular Authentication Services (NMAS) during login. NMAS authentication adds additional security to the network. However, if the network does not use NMAS, login may take additional time.

Clear Previous User Name: Clear the previous user name from the User Name field on the Login dialog.

Advanced Button: Enable or disable the Advanced Button on the Login dialog.

Integrated Login: Enable or disable

Login Settings

☒ NMAS Authentication

Login Dialog
☐ Clear Previous User Name
☒ Advanced Button

Integrated Login
☒ Integrated Login
☒ Display Integrated Login Results
Delete Integrated Login Profiles

Login Defaults
Default Tree:
Default Context:

This page contains the following options:

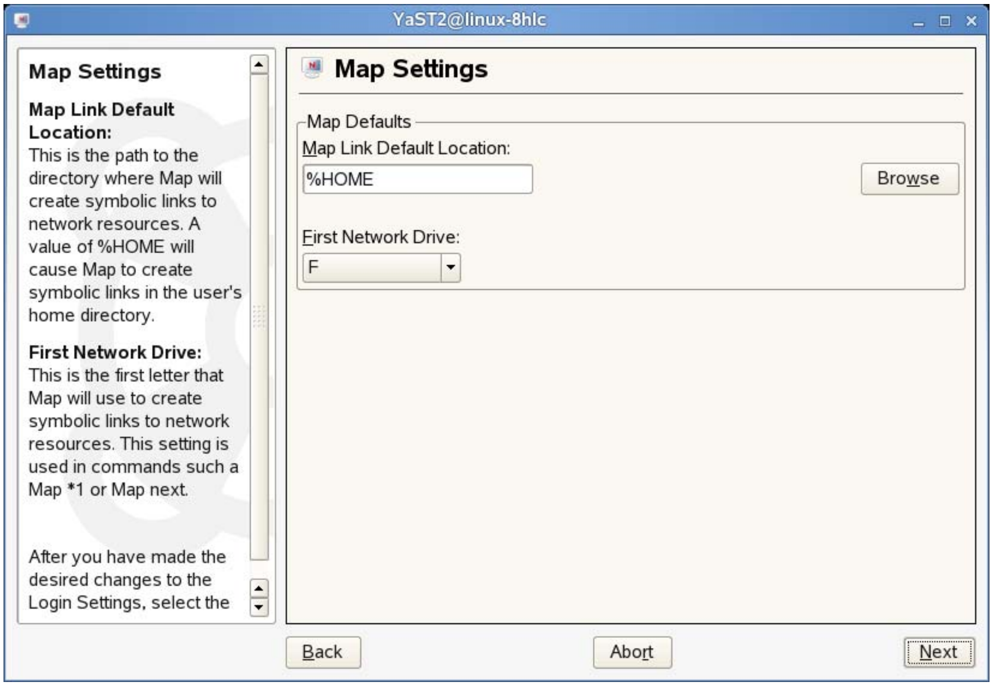
- **NMAS Authentication:** Enables or disables Novell Modular Authentication Services (NMAS™) during login. NMAS authentication can add additional security to the network, but if the network does not use NMAS, login might take additional time, so you can disable NMAS authentication by disabling this 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 SP2 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*



Map Settings

Map Link Default Location:
This is the path to the directory where Map will create symbolic links to network resources. A value of %HOME will cause Map to create symbolic links in the user's home directory.

First Network Drive:
This is the first letter that Map will use to create symbolic links to network resources. This setting is used in commands such a Map *1 or Map next.

After you have made the desired changes to the Login Settings, select the

Map Settings

Map Defaults

Map Link Default Location: %HOME

First Network Drive: F

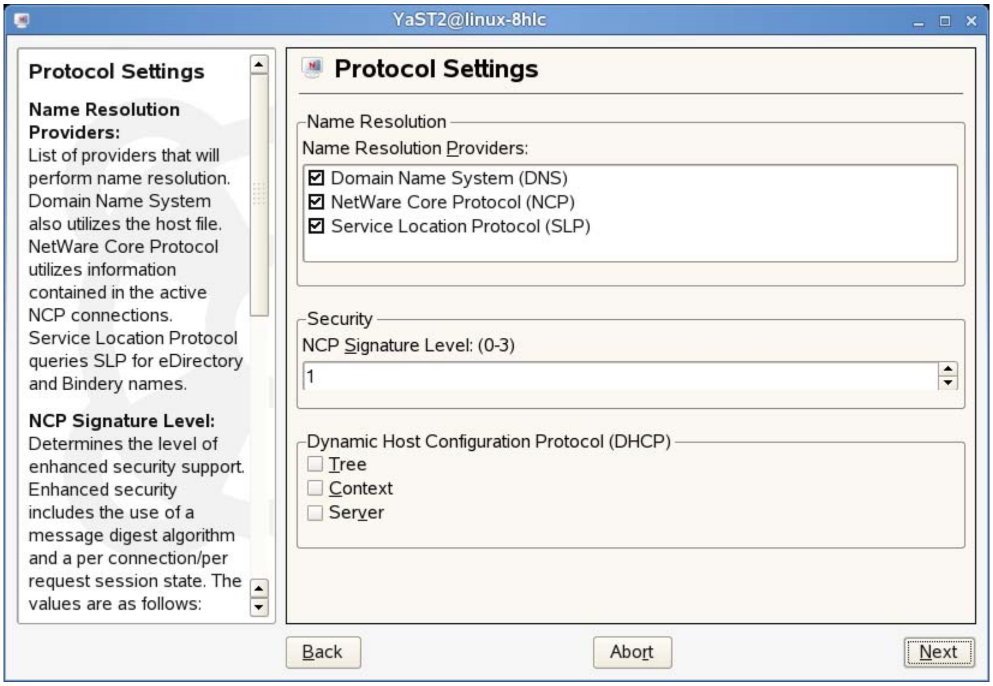
This page contains the following options:

- **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 a `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*



Protocol Settings

Name Resolution Providers: List of providers that will perform name resolution. Domain Name System also utilizes the host file. NetWare Core Protocol utilizes information contained in the active NCP connections. Service Location Protocol queries SLP for eDirectory and Bindery names.

NCP Signature Level: Determines 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:

Protocol Settings

Name Resolution

Name Resolution Providers:

☑ Domain Name System (DNS)
☑ NetWare Core Protocol (NCP)
☑ Service Location Protocol (SLP)

Security

NCP Signature Level: (0-3) 1

Dynamic Host Configuration Protocol (DHCP)

☐ Tree
☐ Context
☐ Server

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® Core Protocol™ uses information contained in the active NCP™ connections. Service Location Protocol queries SLP for eDirectory™ 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=Required

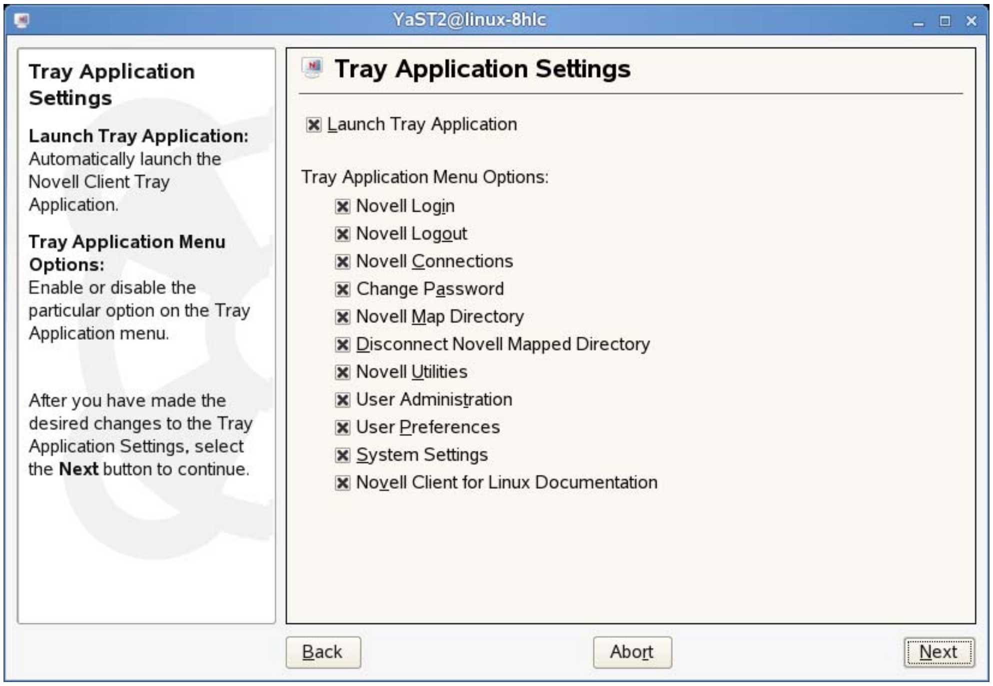
  Changing the value of this setting to 2 or 3 increases security but decreases performance.
- **Dynamic Host Configuration Protocol (DHCP):** If a DHCP server is set up on your network, the DHCP server can inform the Novell Client of network-specific configuration information. This information is made 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*



Tray Application Settings

Launch Tray Application: Automatically launch the Novell Client Tray Application.

Tray Application Menu Options: Enable or disable the particular option on the Tray Application menu.

After you have made the desired changes to the Tray Application Settings, select the **Next** button to continue.

Tray Application Settings

☒ Launch Tray Application

Tray Application Menu Options:

- ☒ Novell Login
- ☒ Novell Logout
- ☒ Novell Connections
- ☒ Change Password
- ☒ Novell Map Directory
- ☒ Disconnect Novell Mapped Directory
- ☒ Novell Utilities
- ☒ User Administration
- ☒ User Preferences
- ☒ System Settings
- ☒ Novell Client for Linux Documentation

This page contains the following options:

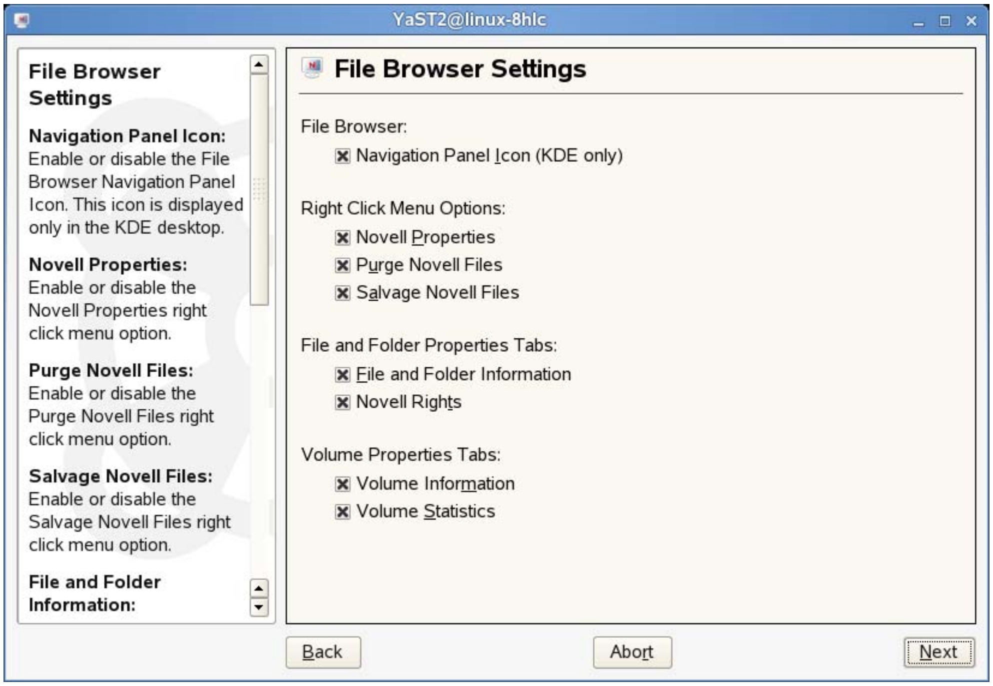
- **Launch Tray Application:** Select this option to automatically launch the Novell Client Tray Application.
- **Tray Application Menu Options:** Enables or disables the options available to users on the Tray Application menu.

For more information, see "Using the Novell Client Tray Application" in the *Novell Client 2.0 SP2 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*



File Browser Settings

Navigation Panel Icon: Enable or disable the File Browser Navigation Panel Icon. This icon is displayed only in the KDE desktop.

Novell Properties: Enable or disable the Novell Properties right click menu option.

Purge Novell Files: Enable or disable the Purge Novell Files right click menu option.

Salvage Novell Files: Enable or disable the Salvage Novell Files right click menu option.

File and Folder Information:

File Browser Settings

File Browser:

- ☒ Navigation Panel Icon (KDE only)

Right Click Menu Options:

- ☒ Novell Properties
- ☒ Purge Novell Files
- ☒ Salvage Novell Files

File and Folder Properties Tabs:

- ☒ File and Folder Information
- ☒ Novell Rights

Volume Properties Tabs:

- ☒ Volume Information
- ☒ Volume Statistics

This page contains the following options:

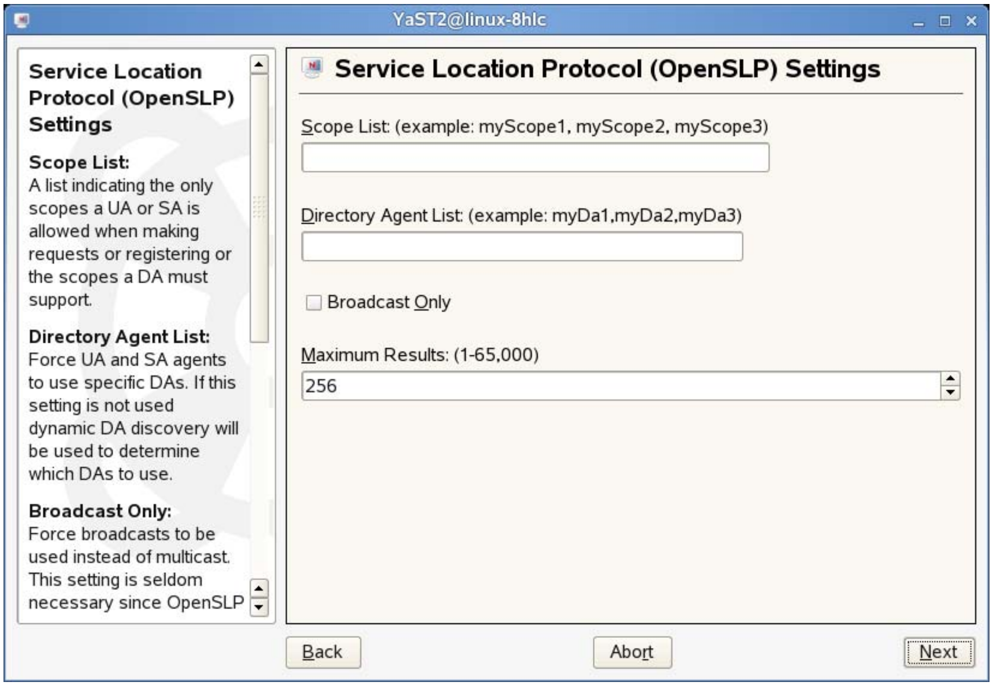
- **Navigation Panel Icon (KDE only):** Enables or disables the *File Browser Navigation Panel* icon. This icon is displayed only in KDE.
- **Novell Properties:** Enables or disables the *Novell Properties* menu option when users right-click a Novell file system directory or file in a file manager.
- **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*



Service Location Protocol (OpenSLP) Settings

Scope List:
A list indicating the only scopes a UA or SA is allowed when making requests or registering or the scopes a DA must support.

Directory Agent List:
Force UA and SA agents to use specific DAs. If this setting is not used dynamic DA discovery will be used to determine which DAs to use.

Broadcast Only:
Force broadcasts to be used instead of multicast. This setting is seldom necessary since OpenSLP

Service Location Protocol (OpenSLP) Settings

Scope List: (example: myScope1, myScope2, myScope3)

Directory Agent List: (example: myDa1,myDa2,myDa3)

☐ Broadcast Only

Maximum Results: (1-65,000)
256

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 26, SLP Fundamentals (http://www.novell.com/documentation/edir873/qsedir873/data/aksciti.html), and the OpenSLP (http://www.openslp.org) Web site.

2.2 Using Configuration Files to Preconfigure the Novell Client

The Novell Client for Linux allows you to apply preconfigured client settings contained in one or more configuration (`.conf`) files. This option works similarly to the unattend file that can be used to configure the Novell Client for Windows (see Creating the Configuring File (http://www.novell.com/documentation/noclienu/noclienu/data/bu01sei.html#hn62kppa) in the *Novell Client for Windows Installation and Administration Guide* for more information).

Preconfiguring the Novell Client for Linux requires the `novell-client-conf.spec` file and the `make_novell-client-conf_rpm` Bash script located in the `/add-on/novell-client-conf` subdirectory in the directory where you unarchived the Client download file.

1 Create the preconfigured settings using the Novell Client Configuration Wizard.

  See Section 2.1, "Using the Novell Client Configuration Wizard," on page 9.

2 Copy the appropriate `.conf` files to the `/add-on/novell-client-conf` directory.

  Depending on the settings you preconfigured, copy one or more of the following files:

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

3 Run the `make_novell-client-conf_rpm` script to create a `novell-client-conf-`*`version_number.platform`*`.rpm` file (for example, `novell-client-conf-1.0.0-0.i586.rpm`) using all of the `.conf` files contained in the `/add-on/novell-client-conf` directory.

  3a Make sure you are the `root` user.

  3b Enter the following in a terminal:

```
bash make_novell-client-conf_rpm
```

4 Install the preconfigured settings contained in `novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm` using one of the following methods:

- **Install manually in a terminal:** Enter `rpm -i novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm` in a terminal.
- **Install using the ncl_install script:** When you launch the `ncl_install` script (located in `/opt/novell/ncl/bin` or in the directory where you unarchived the Client download file), it looks for `novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm` in the `/add-on/novell-client-conf` directory and adds it to the list of RPMs it installs as part of the Client.
- **Install with the Novell Client using YaST:** Add the location of the newly created `novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm` to the list of installation sources in YaST (add a local directory in the *Installation Source* option and point it to the directory containing `novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm`). When the YaST install runs, `novell-client-conf-`*`version_number`*`.`*`platform`*`.rpm` is added as one of the RPMs in the Novell Client selection.

  The Novell Client configuration settings on a workstation can be updated at any time using the YaST method.

The `.conf` files contained in the RPM are copied to the `/etc/opt/novell/ncl` directory, overwriting the files of the same name that already exist there. The installation then copies the `slp.conf` file to the `/etc` directory, overwriting that file as well.

TIP: Backup copies of the existing files are made in the same directory so that you can revert to the old files if you need to.

2.3 Deploying the Novell Client to Multiple Users Through ZENworks Linux Management

You can deploy the Novell Client to multiple users in a network by creating a bundle of Novell Client configuration files and distributing it through ZENworks Linux Management.

1 Install the ZENworks Agent on the user's devices and register the devices against a ZENworks Server.

For more information on installing the ZENworks Agent and registering the devices, see "Installing the ZENworks Agent and Registering the Device" (http://www.novell.com/documentation/zlm73/lm7admin/?page=/documentation/zlm73/lm7admin/data/bxles95.html) in the "Novell ZENworks 7.3 Linux Management Administration Guide" (http://www.novell.com/documentation/zlm73/lm7admin/?page=/documentation/zlm73/lm7admin/data/front.html)

2 Create a File bundle of the Novell Client configuration files by using ZENworks Control Center, which is installed on the ZENworks Server in the Management Zone.

For more information on Novell Client configuration files, see Section 2.2, "Using Configuration Files to Preconfigure the Novell Client," on page 17

For step-by-step instructions, see "Creating File Bundles" (http://www.novell.com/documentation/zlm73/lm7admin/?page=/documentation/zlm73/lm7admin/data/b3k0x30.html) in the *Novell ZENworks 7.3 Linux Management Administration Guide.*

3 Assign and install the File bundle to all the devices registered in Step 1.

For step-by-step instructions on assigning and installing the bundle, see "Assigning Bundles" (http://www.novell.com/documentation/zlm73/lm7admin/?page=/documentation/zlm73/lm7admin/data/bwuhitv.html) in the *Novell ZENworks 7.3 Linux Management Administration Guide*.

2.4 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` (organizational unit 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=ou=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:

  ```
  ndsd restart
  ```
- 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

3

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 21
- Section 3.2, "Setting Up Login Scripts," on page 24
- Section 3.3, "Setting Up Login Restrictions," on page 24
- Section 3.4, "Using OpenSLP to Simplify Login," on page 26
- Section 3.5, "Single Sign-On for LUM Users," on page 29

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 SP2 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 and your Novell network. Users enter a name and password only once to access all the resources they are authorized to use.

![How does this work?]

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.

NOTE: CASA is a prerequisite for the integrated login feature. Since CASA is not packaged with SLES 11, CASA must be manually installed on SLES 11 to use the integrated login feature.

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 22
- Section 3.1.2, “Configuring Integrated Login,” on page 22
- Section 3.1.3, “Managing System-Wide Integrated Login Settings,” on page 23

3.1.1 Installing and Enabling CASA

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.

   ![Exactly which packages need to be selected? How many are there?]
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

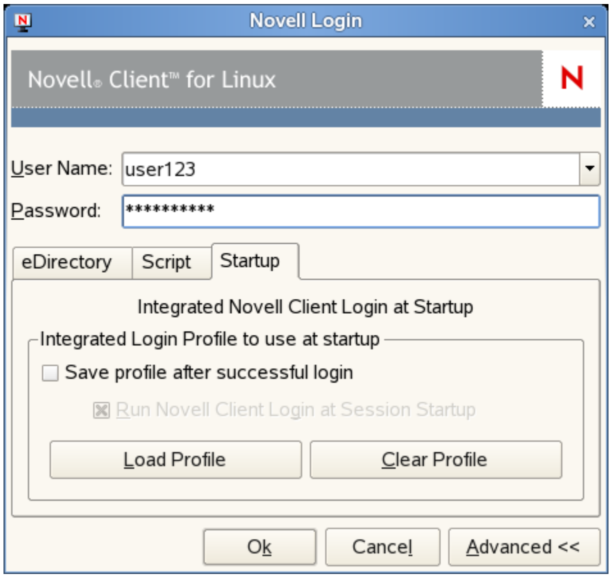
1. Use one of the following methods to open the Novell Login dialog box:
   - Click Description: Novell Client tray application icon N > *Novell Login*.
   - **GNOME:** Click *Computer* > *More Applications* > *Novell Login*.

- **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).



Novell Login

Novell® Client™ for Linux

User Name: user123

Password: **********

Integrated Novell Client Login at Startup

Integrated Login Profile to use at startup

☐ Save profile after successful login

☒ Run Novell Client Login at Session Startup

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 Managing System-Wide Integrated Login Settings

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

- Click Description: Novell Client tray application icon > *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`

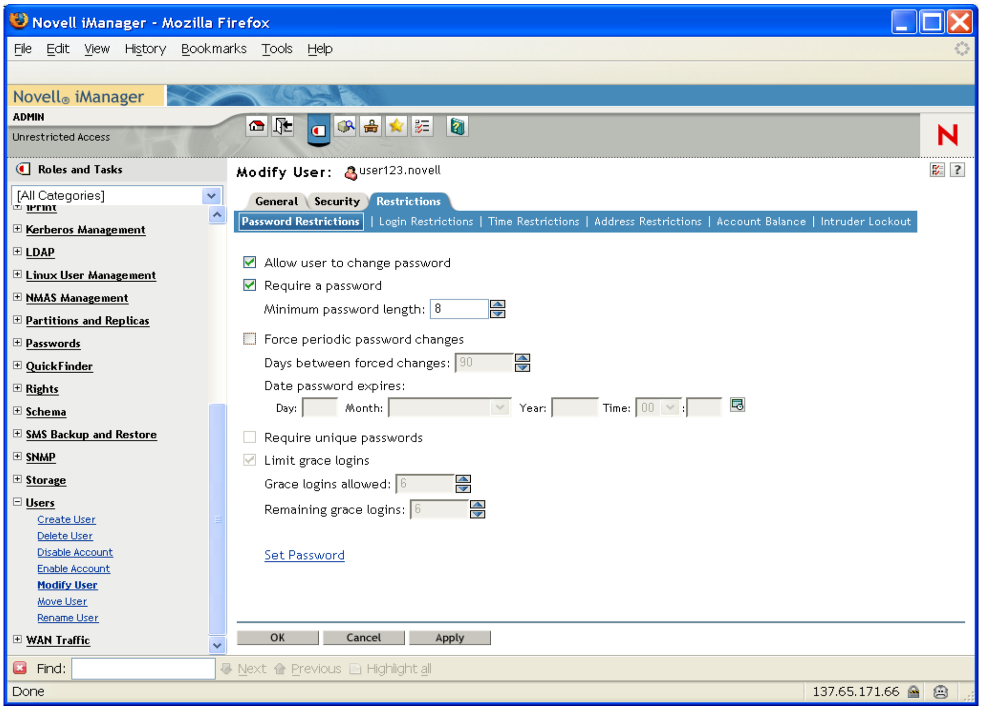
2 Log in using your username and password.

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 Description: Roles and Tasks icon 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).


Novell iManager - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Novell® iManager
ADMIN
Unrestricted Access
N
Roles and Tasks
[All Categories]
iPrint
Kerberos Management
LDAP
Linux User Management
NMAS Management
Partitions and Replicas
Passwords
QuickFinder
Rights
Schema
SMS Backup and Restore
SNMP
Storage
Users
Create User
Delete User
Disable Account
Enable Account
Modify User
Move User
Rename User
WAN Traffic
General
Security
Restrictions
Password Restrictions | Login Restrictions | Time Restrictions | Address Restrictions | Account Balance | Intruder Lockout
Set Password
OK
Cancel
Apply
Find:
Next
Previous
Highlight all
Done
137.65.171.66

Modify User: user123.novell

☑ Allow user to change password
☑ Require a password
Minimum password length: 8
☐ Force periodic password changes
Days between forced changes: 90
Date password expires:
Day: Month: Year: Time: 00 :
☐ Require unique passwords
☑ Limit grace logins
Grace logins allowed: 6
Remaining grace logins: 6

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" in the *SUSE LINUX Enterprise Server Installation and Administration Guide* (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). 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 26
- Section 3.4.2, "Troubleshooting SLP Configuration," on page 27
- Section 3.4.3, "Configuring SLP and the SUSE Firewall to Work with the Novell Client for Linux," on page 27

3.4.1 Setting Up SLP

1. Launch the Novell Client Configuration Wizard by using either of the following methods:
    - Click Description: Novell Client tray application icon > *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
```

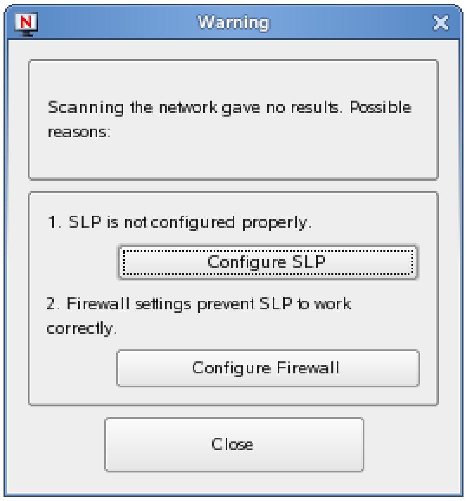
This should display a list of the hosts that are running `slpd`, which indicates that OpenSLP is successfully installed and working. If you do not get a list, OpenSLP is not installed correctly or is not working. See Section 3.4.1, "Setting Up SLP," on page 26 for more information.

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

![Bug 192298]

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 Enterprise 11), a warning message is displayed when you try to scan for or access Novell services.

Figure 3-1 *SLP/Firewall Message*



Scanning the network gave no results. Possible reasons:

1. SLP is not configured properly.

2. Firewall settings prevent SLP to work correctly.

Click *Configure SLP* to open the Novell Client Configuration Wizard. Follow the instructions in Section 3.4.1, "Setting Up SLP," on page 26 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 28
- "Manually Configuring the SUSE Firewall" on page 28
- "Adding SLP Daemon Rules for External or DMZ Firewall Zones" on page 29
- "Changing Your LAN Interface Definition to Internal" on page 29

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/SuSEfirewall2` 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_denyall()` 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*.

3.5 Single Sign-On for LUM Users

To configure single sign-on for LUM users, follow the steps given below:

1. Configure Linux User Management (LUM) for a user and verify that the LUM user can log in successfully.
2. Install Novell Client.
3. Login as `root`.
4. In YaST, click *Network Services* > *Novell Client* to launch the Novell Client Configuration Wizard.
5. Select the *Login* option and click *Start Wizard*.

6 In the *Default Tree* field, specify the tree server IP or the DNS name.

7 Click *Next* and then click *Finish* to close the Novel Client Configuration Wizard.

8 Open the appropriate PAM login file (`/etc/pam.d/gdm`, `/etc/pam.d/xdm`, or `/etc/pam.d/kdm`) and do the following:

   1. Delete the line `auth sufficient pam_nam.so`.
   2. Add the line `auth sufficient pam_nam.so use_first_pass`.

9 Edit the `/etc/opt/novell/ncl/login.conf` file and add the line `Allow_PAM_SSO=true`.

10 Logout and then log in as the LUM user.

NOTE: Consider the following while configuring single-sign on for LUM users:

- The *Default Tree* field in the Novell Client Configuration Wizard is a mandatory field. You must specify a value in this field for the Single Sign-On feature to work.
- If single-sign on fails, the LUM-login will still remain unaffected.
- More than one tree login is not supported.

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 Services (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).

Rights are granted and revoked by creating trustee assignments. For more information, see Section 4.2, "Changing Trustee Rights," on page 33.

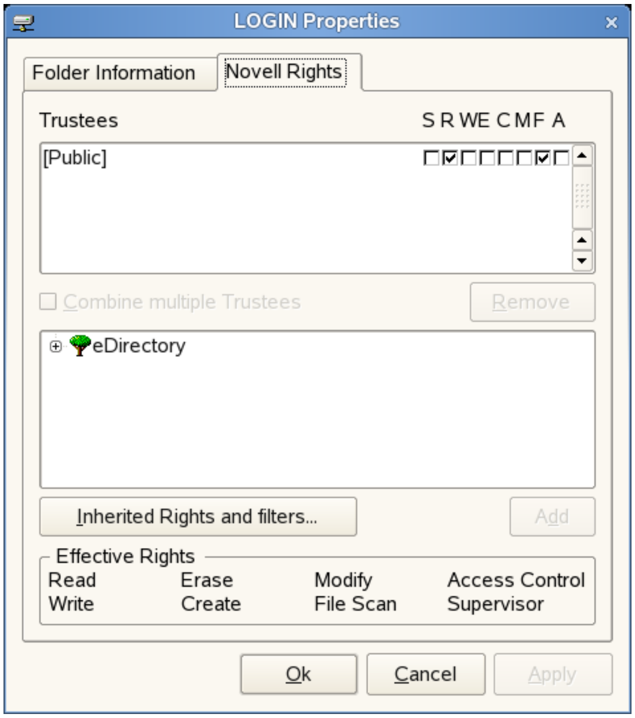
This section explains the following:

- Section 4.1, "Checking File or Folder Rights," on page 31
- Section 4.2, "Changing Trustee Rights," on page 33
- Section 4.3, "Adding a Trustee," on page 33
- Section 4.4, "Removing a Trustee," on page 34
- Section 4.5, "Combining Multiple Trustees," on page 34

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.

Description: Novell Rights Property Page


LOGIN Properties
Folder Information
Novell Rights
Trustees
S R W E C M F A
[Public] ☐☑☐☐☐☐☑☐
☐ Combine multiple Trustees
Remove
eDirectory
Inherited Rights and filters...
Add
Effective Rights
Read
Write
Erase
Create
Modify
File Scan
Access Control
Supervisor
Ok
Cancel
Apply

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) 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 filter*s.

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 37
- Section 5.2, "Known Security Threats," on page 38
- Section 5.3, "Security Characteristics," on page 38
- Section 5.4, "New and Modified Files," on page 39
- Section 5.5, "Other Security Considerations," on page 42

5.1 Security Features

The following table contains a summary of the Novell® Client™ 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™ and LDAP connections via user authentication into eDirectory™. 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 NICI 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 39
- Section 5.3.2, “Authorization and Access Control,” on page 39
- Section 5.3.3, “Roles,” on page 39
- Section 5.3.4, “Security Auditing,” on page 39

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 40
- Section 5.4.2, “PAM Login Files,” on page 40
- Section 5.4.3, “User Profile Startup Files,” on page 41
- Section 5.4.4, “KDE and GNOME Desktop Startup Files,” on page 41
- Section 5.4.5, “Installation Files,” on page 42

5.4.1 Configuration Files

Table 5-3 *New and Modified Configuration Files*

File	New	Modified	Description
`$HOME/.novell/ncl/StartupLogin.conf`	X		Local user autologin configuration file. All fields in the Novell Login dialog box (except the password) are stored in this file.
`$HOME/.novell/ncl/MapDrives.conf`			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.
`/etc/opt/novell/ncl/login.conf`			Optional global configuration file that overrides defaults. This file is 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).

5.4.2 PAM Login Files

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

File	New	Modified	Description
`/lib/security/pam_ncl_autologin.so`	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.
`/etc/pam.d/xdm`		X	PAM configuration file for the X Display Manager login.
`/etc/pam.d/gdm`		X	PAM configuration file for the GNOME* Display Manager login.
`/etc/pam.d/kdm`		X	PAM configuration file for the KDE Display Manager login.
`/etc/pam.d/sshd`		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		This script determines if the desktop is GNOME or KDE, then installs (or removes) the session startup file (`$HOME/.kde/Autostart/ncl_autologin.desktop` or `$HOME/.gnome2/session-manual`) for that Display Manager. This file is used in the context of integrated login
`/opt/novell/ncl/bin/ncl_autologin.desktop`			This file is copied to `$HOME/.kde/Autostart` and runs `ncl_autologin`. This file is also copied to `$HOME/.config/autostart` in case of a GNOME Session in the context of Integrated Login.

5.4.4 KDE and GNOME Desktop Startup Files

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

File	New	Modified	Description
`$HOME/.kde/Autostart/ncl_autologin.desktop`	X		KDE startup for `ncl_autologin`.
`$HOME/.config/autostart/ncl_autologin.desktop`		X	GNOME startup file for `ncl_autologin`.
`/opt/novell/ncl/bin/ncl_autologin`	X		Validates and runs `nwlogin` or `gnwlogin`.
`/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 *Startup*) 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 *Clear Profile* on the Startup tab, the `$HOME/.novell/ncl/StartupLogin.conf` file is deleted. When the user clicks *Save Current Profile*, 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 `StartupLogin.conf`.

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.
`/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.

A

The Novell Client for Linux Command Line Utilities

The Novell® Client™ 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™ 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 43
- Section A.2, "GUI Utilities," on page 44

A.1 Shell Commands

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

Utility	Description	Syntax
`ncl_tray`	Loads the Novell Client for Linux tray application and allows customization of the tray interface.	`ncl_tray basic_options Qt_options KDE_options`
`nwconnections`	Lists active connections for the currently logged-in user.	`nwconnections [--] [-v] [-h]`
`nwcopy`	Copies files and directories to and from Novell file systems.	`nwcopy flags -p source_path -t target_path`
`nwflag`	Displays or modifies the attributes of files and directories on Novell file systems.	`nwflag {-a|-n} {-w|-e eDir object|+|-attr modifier} [-s] [-d|-f] [--] [-v] [-h] URI1 {URI2} {URI3} ...`
`nwlogin`	Logs a user in to a Novell file server or an eDirectory tree.	`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]`
`nwlogout`	Logs the user out of a Novell or eDirectory tree.	`nwlogout {-s string|-t string} [-f] [--] [-v] [-h]`

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

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. For more information on using this dialog box, see "" in the *Novell Client for Linux User Guide*.
`gnwlogin`	Displays the Novell Login dialog box. For more information on using this dialog box, see "Logging In to the Network" in the *Novell Client 2.0 SP2 for Linux User Guide*.
`gnwservers`	Displays a dialog box showing the servers you are logged in to
`gnwtrees`	Displays a dialog box showing the eDirectory trees you are logged in to.

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 C, "Novell Client for Linux Man Pages," on page 49.

Documentation Updates

B

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 B.1, "August 19, 2008," on page 47
- Section B.2, "March 24, 2009," on page 47

B.1 August 19, 2008

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

B.2 March 24, 2009

- Changed the following instances:
    - SLED 10 and SLED 10 SP2 to SLE 11.
    - SUSE Linux Enterprise Desktop 10 and SUSE Linux Enterprise Desktop 10 SP2 to SUSE Linux Enterprise 11.
    - Novell Client 2.0 for Linux SP1 to Novell Client 2.0 SP2 for Linux.
- Removed text regarding the dependency of virtual file system module novfs.ko on the kernel version and compilation for a new kernel.
- Added scenarios pertaining to integrated login. For more information, see Section 3.1, "Setting Up Integrated Login," on page 21.
- Modified section 5.4.3 to add reference to integrated login. For more information, see Section 5.4.3, "User Profile Startup Files," on page 41.
- Modified section 5.4.4 to add reference to GNOME Startup file for ncl_autologin. For more information, see Section 5.4.4, "KDE and GNOME Desktop Startup Files," on page 41.
- Removed the section on compiling `novfs`.

Novell Client for Linux Man Pages

C

- "gnwlogin(1)" on page 49
- "login.conf(4)" on page 52
- "mapdrives.conf(4)" on page 53
- "ncl_control(8)" on page 54
- "ncl_install(8)" on page 55
- "ncl_man(1)" on page 56
- "ncl_tray(1)" on page 57
- "nwconnections(1)" on page 58
- "nwcopy(1)" on page 59
- "nwflag(1)" on page 60
- "nwlogin(1)" on page 62
- "nwlogout(1)" on page 64
- "nwmap(1)" on page 66
- "nwpurge(1)" on page 67
- "nwrights(1)" on page 68
- "nwsalvage(1)" on page 70
- "nwsend(1)" on page 72
- "StartupLogin.conf(4)" on page 73
- "StartupMaps.conf(4)" on page 75

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 <profilescript>] [-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 <profilescript>, --profilescript <profilescript>

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_control(8)

Name

`ncl_control` - Start, stop, or restart Novell Client for Linux-specific daemon modules.

Syntax

```
ncl_control [start | stop | restart | status | help]
```

Description

Allows you to stop, start, and restart the client-specific daemon modules. It can be used to troubleshoot whether the client has been installed correctly or it can be useful if you receive errors.

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

Options

start

Loads all Novell Client for Linux daemon modules.

stop

Stops all Novell Client for Linux daemon modules.

restart

Stops and then reloads all Novell Client for Linux daemon modules.

status

Verifies that the Novell Client for Linux daemon modules are running. This is useful for troubleshooting issues with the Novell Client. If the Novell Client is running correctly, the status is returned as 0 with a message stating that the daemon is running.

If the Novell Client is not running correctly, you receive a status other than 0 and a message stating the issues.

-h, --help

Displays help for ncl_control.

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)

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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.

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.

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.

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/TES

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.

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_distiguished_eDirectory_path (such as a cluster volume--for example, my_dir.usrs.accnt.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.

Authors

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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.

Authors

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

```
nwsalvage -l  /home/localuser1/VKNSSVOl1
```

Displays the objects to be salvaged.

```
nwsalvage -a /home/localuser1/VKNSSVOl1
```

Salvages all file system objects at the current level.

```
nwsalvage -f file1 /home/localuser1/VKNSSVOl1/Salvage1/Salvage12/
```

Salvages only the specified objects.

Authors

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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.

Options

-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.

Authors

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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 =
```

Authors

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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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