Novell
Nterprise™ Linux* Services

INSTALLATION GUIDE

Novell®

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About This Guide

As part of the open-source movement, many CIOs have looked to Linux as a key platform for their business systems.

Novell$^{®}$ Nterprise™ Linux Services (NNLS) brings to the Linux platform all the network services you need to enable and manage the interaction of people with your business systems.

Use this guide for help with planning and installing NNLS.

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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When a single pathname can be written with a backslash for some platforms, or a forward slash for other platforms, the pathname is presented with a forward slash to reflect the Linux convention. Users of platforms that require a backslash, such as NetWare$^{®}$, should use backslashes as required by the software.

1 Preparing to Install Nterprise Linux Services

Before you install Novell® Nterprise™ Linux Services (NNLS), you should perform the tasks outlined in this section.

Use the Planning Worksheet

To ensure a successful installation of NNLS that meets your organization's requirements, we recommend that you print and use the PDF version of the NNLS Planning Worksheet (page 29).

Take Time to Plan Your eDirectory Tree

Novell eDirectory™ is the central, key component of NNLS. Before you install NNLS on your network, it is critical that you and your organization take time to plan and design your tree and its container objects.

You and your team should carefully think through the issues and design considerations discussed in "Designing the eDirectory Tree" in the *Novell eDirectory 8.7.3 Administration Guide*.

The following sections call attention to two critical aspects of installing eDirectory as part of NNLS.

The First Server in the Tree Is Critical

The first server you install in your tree is the server that will permanently host the Certificate Authority for your organization. Therefore, it is critical that the server be reliable, accessible, and a continuing part of your network.

For more information, see "Understanding the Novell Certificate Server" in the *Novell eDirectory 8.7.3 Administration Guide*.

Ensure That Server Times Are Synchronized

If you are installing NNLS into an existing eDirectory tree, or if you plan to install NNLS on multiple servers using the same eDirectory tree, you must ensure that the system time on each server is synchronized using the same time synchronization method prior to installing NNLS.

For example, you might choose to coordinate time using the Network Time Protocol (NTP). Information on setting up NTP support on Linux is available in various locations on the Web, such as the Red Hat* Web site (http://www.redhat.com/docs/manuals/linux).

The *Novell eDirectory 8.7.3 Administration Guide* also discusses time synchronization in "Synchronizing Network Time".

Meet NNLS Installation Prerequisites

Install Only on Supported Linux Platforms

You should install NNLS only on one of the following platforms:

- Red Hat Enterprise Linux AS 2.1
- Red Hat Enterprise Linux ES 2.1
- SuSE* Linux Enterprise Server 8.0

IMPORTANT: These are the only Linux distributions that Novell officially supports for NNLS and the only platforms that can receive patches and updates through Novell's Red Carpet update channel.

Have an Active Internet Connection during the NNLS Installation

The Red Carpet daemon that provides the channel for product updates is automatically installed on each NNLS server and requires an active Internet connection at install time. If a connection is not found, the Red Carpet daemon cannot be properly configured.

Once you have internet connectivity, you must uninstall Red Carpet and then reinstall it to receive product updates.

Ensure You Meet All Hardware and Software Requirements

Prior to installing NNLS, ensure that your system meets the requirements outlined in the NNLS Planning Worksheet (page 29), specifically the requirements found in

- Server Hardware Requirements
- System Software Requirements

Follow NNLS Linux Installation Requirements

When installing Linux on your target servers, follow the guidelines explained in this section.

Use a Static IP Address

The NNLS installation and configuration mechanisms require that your NNLS server use a static IP address rather than obtaining its address through DHCP. This means you must manually change the IP address settings in the RedHat and SuSE installs, both of which use DHCP by default.

Type Only the Hostname

When prompted for a hostname during the Linux install, remember that the hostname doesn't include DNS domain information. For example, enter only mylinuxbox.

Do not include the DNS domain information with the hostname (for example, mylinuxbox.mycompany.com).

If you include the domain with the hostname, eDirectory and other NNLS components will not install correctly.

Plan Your Partitions in Advance

When partitioning your server's hard drives, you must plan for the items shown in Table 2, "Partition Requirements," on page 31.

Check /etc/hosts Before Installing NNLS

You must do the following to ensure proper resolution of the server's IP address by NNLS products.

1 Edit the /etc/hosts file.

2 If present, remove the *servername* variable from the

```
127.0.0.1 servername localhost.localdomain localhost
```

line so it reads

```
127.0.0.1 localhost.localdomain localhost
```

3 Add the following line to the hosts file (if not already present):

```
serverip fullyqualifiedhostname servername
```

where *serverip* is the IP address of the NNLS server, *fullyqualifiedhostname* is the server's fully qualified hostname, and *servername* is the hostname of the NNLS server.

For example, you might add the following to the /etc/hosts file:

```
10.1.1.1 mycomputer.example.com mycomputer
```

Choose an NNLS Installation Type

The first time you run the installation script on a new server, you must choose an installation type, either Express or Custom. Both options are explained in this section.

NOTE: After successfully installing at least one product, should you run the install again, you are not prompted for a type. Rather, you are prompted to choose between uninstalling NNLS components or installing components that are not currently installed.

For more information, see Chapter 5, "Uninstalling NNLS Components," on page 25 and Appendix A, "Running install.sh after Initial Installation," on page 27.

About Express Installations

An Express installation requires only minimal input:

- ◆ The location of the eDirectory NICI Foundation Key file
- ◆ A network-unique name for the new tree
- ◆ A name and context for the Admin User object that will have the Supervisor right to the top of the tree
- ◆ A password for the Admin User object

An Express installation then does the following:

- ◆ Installs all NNLS product components on a single server
- ◆ Creates a new eDirectory tree and Admin user in the context specified

◆ Uses the Admin context as the eDirectory context for all other context parameters in the NNLS component configurations

◆ Assigns standard ports to all services (HTTP=80, LDAP=389, etc.)

Figure 1 illustrates an Express installation.

Figure 1   Express Installation Overview

New tree

One NNLS server

All NNLS services

File   Print   E-mail   Virtual Office

System administrator
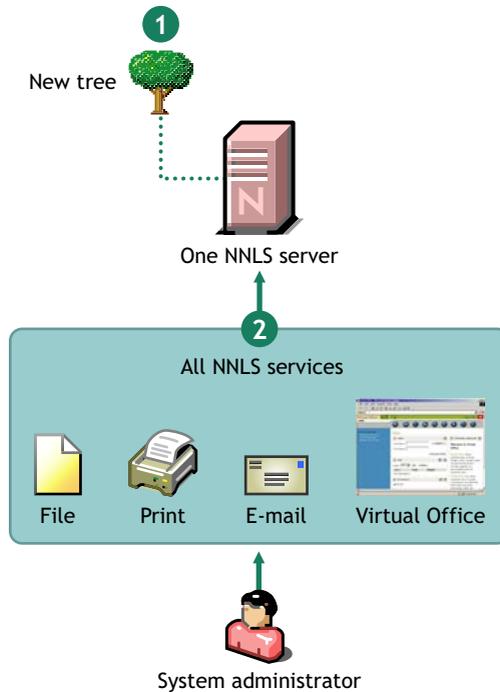
1 An Express installation creates a new eDirectory tree.

2 It then
   • Installs all NNLS components on the NNLS server.
   • Configures them to interact with the new tree and each other.

About Custom Installations

A Custom installation lets you fully customize your NNLS installation and requires specific answers regarding such things as

◆ The components you want to install.

◆ The eDirectory server where you want the NNLS Server object created (new tree or existing tree).

◆ The eDirectory servers you want to use for managing each component.

◆ Admin names, contexts, and passwords.

◆ The network ports you want NNLS components to use.

NOTE: Most NNLS product components have cross dependencies to other NNLS support components, such as eDirectory and the Apache server installed with NNLS.

The installation script ensures that the configuration you select includes all required cross dependencies.

Figure 2 illustrates a custom installation.

Figure 2   Custom Installation Overview
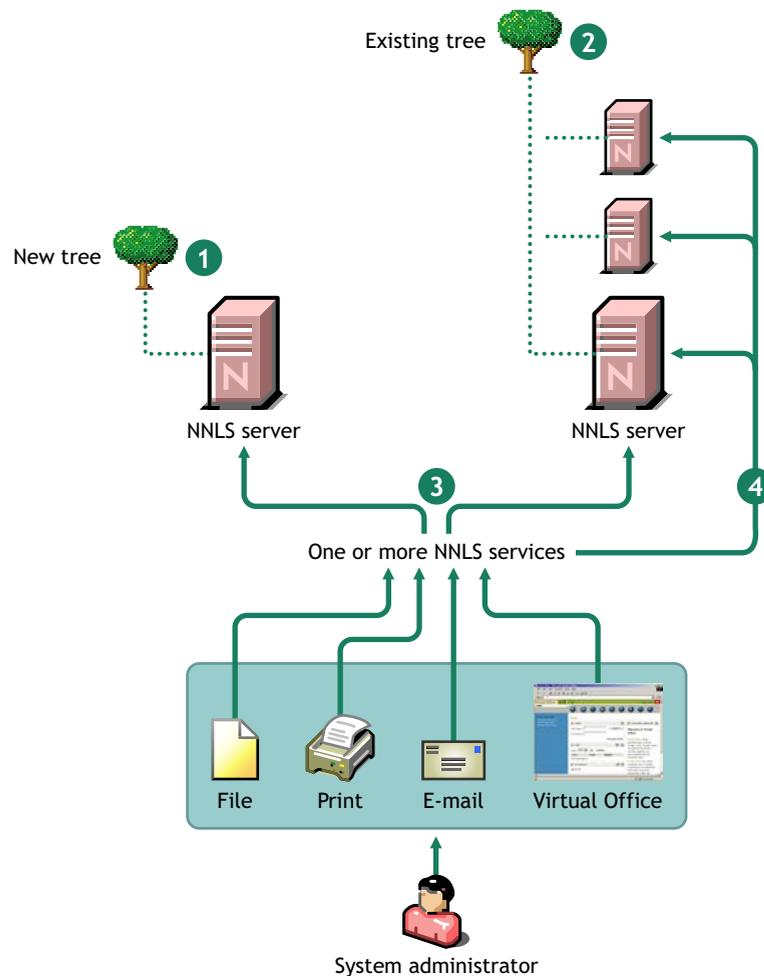
1 A Custom installation can create a new tree and place the NNLS server in that tree.	**3** A Custom installations lets you specify which NNLS components to install on each NNLS server.
2 Or it can place the NNLS server into an existing tree.	**4** And it lets you configure each installed component to work with different servers or eDirectory trees.

Using the Express Option to Start a Custom Installation

After you select an Express installation and answer the four required questions, you are shown a summary of the installation and asked if you want to make changes.

At this point you can change the configuration for any of the components. Some administrators find this a useful way to streamline the Custom installation process.

But because each NNLS installation is unique, guidelines for choosing between the Express and Custom options cannot be easily quantified. Generally, if your installation requires only minor changes from the Express defaults (same Admin/Context/Password for all services, standard ports, etc.), starting with the Express option and then modifying the few parameters that need to change would be a more efficient approach.

Decide between Interactive and Noninteractive Installation

By default, the installation script prompts you for each configuration item. However, you can also point the script to a response file and let the installation processes run automatically.

Figure 3 illustrates the contrast between an interactive and a noninteractive installation.

Figure 3   Interactive vs. Noninteractive Installation
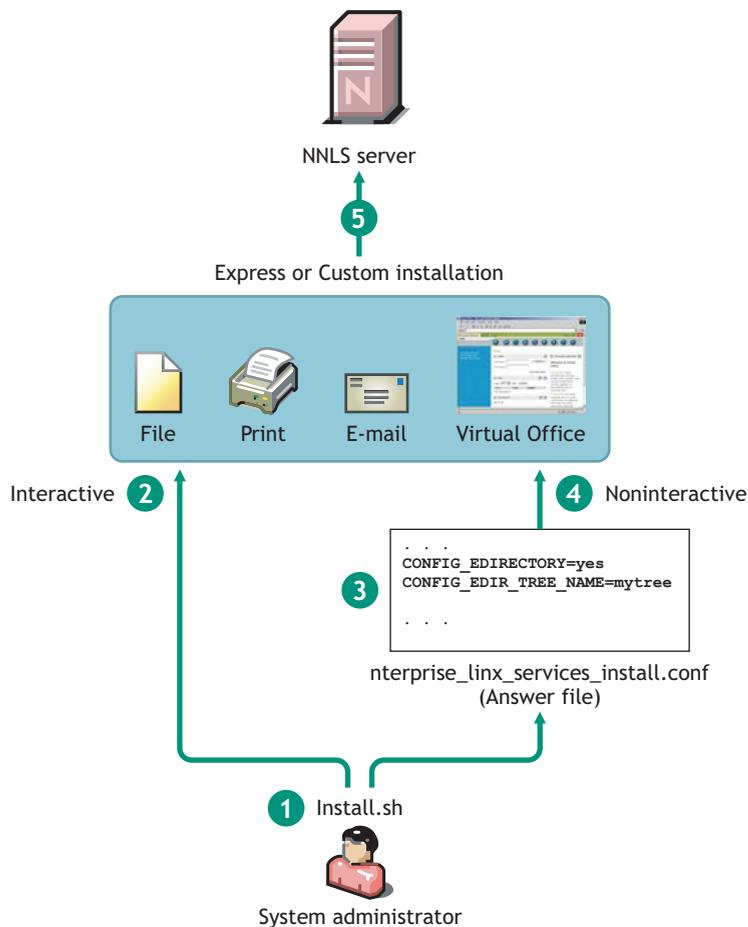
1 To install NNLS, a system administrator runs the install.sh installation script on a target server.

2 By default, the script runs in interactive mode, requiring direct input from the administrator.

3 Alternatively, the administrator can provide an answer file and specify that the script should run in silent mode (-s option).

4 Providing an answer file and specifying silent mode cause the installation script to run noninteractively.

5 Both options let the administrator perform either an Express or a Custom installation.

To install NNLS interactively, follow the instructions in "Performing an Interactive Express or Custom Installation" on page 15.

To install NNLS automatically (noninteractively), you must first prepare either an Express or a Custom response file. For more information, see "Performing an Interactive Express or Custom Installation" on page 15.

Table 1 might help you decide which installation method best fits your situation.

Table 1   **Interactive and Noninteractive Installation Comparisons**

Interactive	Noninteractive
The installer (usually a system administrator) must access the server and answer each installation question as it is presented.	A system administrator can prepare a response file before the installation is run. Someone else can then run the installation script.
Each installation requires roughly the same time investment.	Multiple response files can be prepared using the first file as a template. This is especially useful if you have a number of NNLS installations that share similar configurations.
The disadvantage to the interactive, manual process is that it takes more of an individual's time, but it provides a better understanding of what is happening during the installation process.	This automated option requires fewer man-hours and is easily repeatable.

2 Installing Nterprise Linux Services

The instructions in this section apply only the first time you run the installation script. You can rerun the script to change which components are installed on the NNLS server. For more information, see Appendix A, "Running install.sh after Initial Installation," on page 27.

IMPORTANT: You cannot use the installation script to modify the configuration of an installed component.

If you need to modify a component, refer to the product links included in the maintenance instructions for the component in the *Novell Nterprise Linux Services Overview, Planning, and Implementation Guide*.

Before installing Novell® Nterprise™ Linux Services, we recommend you review the product requirements and other information in "Preparing to Install Nterprise Linux Services" on page 5.

Obtaining NNLS Software and .NFK Files

To obtain your copy of Novell Nterprise Linux Services, contact your Novell Authorized Reseller or see the Linux product page (http://www.novell.com/products/linux) on Novell's Web site.

You will receive an e-mail with a URL for downloading the following files:

- An eDirectory NICI foundation key file (*.nfk) that is required during the installation.
- *Novell_Nterprise_Linux_Services_1.0.iso*

  Contains a CD image with files to install Nterprise Linux Services on your Linux server.
- *Novell_Nterprise_Linux_1.0_Companion_CD.iso*

  Contains a CD image with files to install
  - The Novell GroupWise Collaboration Client for Windows
  - Novell DirXML drivers for Windows and NetWare
  - Novell NetDrive client

Preparing the NNLS Files for Installation

Novell_Nterprise_Linux_Services_1.0.iso

There are two methods for using this image to install the NNLS software.

- Create a CD using the image file and install from CD.
- Mount the ISO image and install from the mount point.

Creating a CD using the Image File and Installing from CD

To create a CD using the image file:

1 Insert a blank, writable CD into your CD burner.

2 Select the option to create a CD from an image file.

3 Select ISO as the file type.

4 Select the NNLS CD image file (Novell_Nterprise_Linux_Services_1.0.iso) from the location you downloaded it to.

5 Complete the CD creation process.

Your CD is now ready to be used for an installation. You must now mount the CD and and change to the installation directory on the CD. For example:

1 Enter

```
mount /media/cdrom/
```

2 Enter

```
cd /media/cdrom
```

See for more information on how to proceed with the installation.

Mounting the ISO Image and Installing from the Mount Point

Use this method if you have downloaded the image file to a directory on your Linux server.

To mount the ISO image:

1 Create a mount point to use for the installation CD image.

For example:

```
mkdir -p /media/iso/Novell_Nterprise_Services_disk_1
```

2 Mount the ISO image.

Enter the following:

```
mount -o loop /path_to_the_ISO_image /path_to_the_desired_local_mount
```

where *path_to_the_ISO_image* is the path where you saved the ISO image file and *path_to_the_desired_local_mount* is the path where you want to mount the image.

For example, if you saved the ISO file in the root directory and you want to mount the image as /media/iso/Novell_Nterprise_Linux_Services_disk_1, you would enter

```
mount -o loop /root/Novell_Nterprise_Linux_Services_1.0.iso /media/
  iso/Novell_Nterprise_Linux_Services_disk_1
```

3 Enter `cd /media/iso/Novell_Nterprise_Linux_Services_disk_1`

Your mount point is now ready to be used for an installation.

See for more information on how to proceed with the installation.

Novell_Nterprise_Linux_1.0_Companion_CD.iso

You will need the NNLS Companion CD image file if you plan to install the GroupWise® Collaboration Client, DirXML®, or NetDrive. See the Novell Nterprise Linux Services Lab Guide and the Novell Nterprise Linux Services Overview, Planning, and Implementation Guide for information on installing these products.

To use this image file, you must burn it to a CD.

1 Insert a blank, writable CD into your CD burner.

2 Select the option to create a CD from an image file.

3 Select ISO as the file type.

4 Select the NNLS Companion CD image file from the location you downloaded it to.

5 Complete the CD creation process.

Your CD is now ready to be used for an installation.

The NNLS Installation Script (install.sh)

The NNLS installation script has support for various options, such as specifying the location of a configuration or response file you want to use or having the install run in silent mode.

For information about available options, see the command line help included with the script by entering the following at the command line:

./install.sh -h

Performing an Interactive Express or Custom Installation

1 In a text console on the Linux server, change to the root directory of the CD if you are installing from a CD or to the mount point directory if you are installing from a mounted ISO image.

See "Obtaining NNLS Software and .NFK Files" on page 13.

2 Enter the following command:

./install.sh

3 When prompted to install or uninstall, press Enter.

4 Do one of the following:

- ◆ To do an Express installation, enter **y** and skip to Step 6.

  For more information on Express installations, see "About Express Installations" on page 7.

- ◆ To do a Custom installation, press Enter and continue with Step 5.

5 Select the products you want to install using the options indicated on the screen.

6 Accept the license agreement.

7 When prompted for the location of the NICI Foundation Key file, type in the path to the NICI Foundation Key file.

If you need help understanding any of the information required for the components you have selected, refer to the "NNLS Planning Worksheet" on page 29.

When the installation concludes, continue with Chapter 3, "What to Do after Installing NNLS," on page 19.

Performing a Noninteractive Express or Custom Installation

As illustrated in Figure 3 on page 10, a noninteractive installation can be used for either an Express or a Custom installation.

IMPORTANT: A noninteractive installation requires that you install the gettext.rpm on the server or the installation will fail. See "System Software Requirements" on page 31.

The NNLS installation can run automatically (noninteractively) if you prepare a response file with the required information prior to running the installation script. When properly configured, a response file provides all the configuration input the installation script needs to install a product. We provide both Custom and Express template files that you can customize and then use as response files for performing noninteractive installations.

If you have multiple servers with similar configurations, you can quickly create a response file for each server by doing either of the following:

- Create a response file from the Express or Custom template response file and modify only the information that is unique to the server.

- Perform an Interactive installation on the first server, and then use the resulting nterprise_linux_services_install.conf file (in /etc/opt/novell) as a template for the other server installations.

IMPORTANT: All parameters must be properly specified, including passwords. Otherwise, a noninteractive installation will fail and indicate the first incorrectly specified parameter. The install script assigns the password you supply, but it doesn't write the password to the configuration file that you can save at the end of the installation process.

1 Download the template response file for the installation type you want to run:

- Express (http://www.novell.com/documentation/lg/nnls/answers/express.txt)

- Custom (http://www.novell.com/documentation/lg/nnls/answers/custom.txt)

2 Open the file in a text editor that saves in standard UNIX* text format.

For help identifying the information needed, refer to the "NNLS Planning Worksheet" on page 29.

For help completing the installation, refer to the instructions at the start of the file.

IMPORTANT: In contrast to Interactive installations that let you save the .conf file at the end of the process, noninteractive installations do not save (overwrite) the .conf file.

This means that the .conf file remains on the system after the installation concludes, and the passwords you specified in the .conf file are available to anyone who can read it.

Therefore, you might want to manually delete the .conf file after performing a noninteractive installation.

Logging Installation Events

The Nterprise Linux Services installation automatically logs all the events that occur during the installation of the Nterprise Linux Services suite in the following location:

```
/var/log/nterprise_linux_services_install.log
```

Log files are in plain text and include the following:

- Error messages

- Warnings

- Progress at each step in the install

- User input
- System-related information
- Install-related values (for debugging, etc.)

3 What to Do after Installing NNLS

The instructions in this section help you verify that the installation was successful and point you to instructions for configuring the products you have installed and preparing them for use on your network.

Verify That the Installation Was Successful

If no errors are reported during product installation, you can safely assume that the installation was successful.

You can also quickly verify this fact by accessing the server in your Web browser.

1 In the Address field of your Web browser, enter the following URL:

`http://IP_or_DNS`

where *IP_or_DNS* is the IP address or DNS name of your NNLS server.

You should see a screen similar to the following:

Figure 4   NNLS Welcome Screen
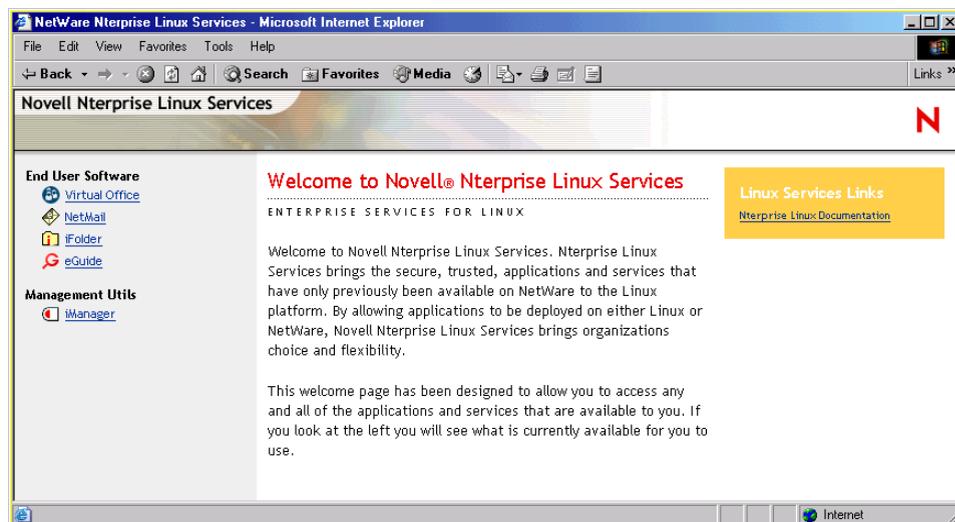
IMPORTANT: Do not access the End User Software links at this point. Most of these services require further configuration as explained in *Novell Nterprise Linux Services Overview, Planning, and Implementation Guide*.

2 (Optional) If you want to see the eDirectory™ tree and begin to get a feel for how iManager works, click the iManager link and log in as the Admin user you created during product installation.

Complete the Post-Installation Tasks

After NNLS is installed, there are post-installation tasks that must be completed before the individual service components can be used, depending on the products you have installed.

For help getting started with the services you have installed, refer to the *Novell Nterprise Linux Services Overview, Planning, and Implementation Guide*.

4 **Updating NNLS Components**

Novell® Resource Management provides an advanced mechanism to deliver software updates to NNLS servers, using Ximian® Red Carpet™ technology. Multiple NNLS servers can be grouped and updated concurrently, greatly simplifying the task of keeping your servers up to date.

ZENworks® provides the consolidated resource management user interface for Novell Resource Management.

To access Novell Resource Management:

1 Access iManager from a Web browser, using the following URL:

https://*IP_or_DNS*/nps/iManager

where *IP_or_DNS* is the IP address or DNS name of your NNLS server.

2 Click the Resource Management role.

After you have accessed the Resource Management role, consult the following for details on using Novell Resource Management:

Grouping NNLS Servers

NNLS servers can be grouped to enable you to easily update packages on one or more servers in this group. Details about this group are stored in an RCD Group object in Novell eDirectory™. After NNLS servers are added to an RCD group, software packages can be added, removed, and updated.

RCD Group objects can reside anywhere in your tree, and you can create as many RCD groups as needed.

Creating a New RCD Group

1 Click the Create RCD Group task in the Resource Management role.

2 Specify the name and context for the RCD Group object.

3 Click OK to create the object.

Adding NNLS Servers to an RCD Group

1 Click the Modify RCD Group task in the Resource Management role.

2 Specify the RCD Group object name, then click OK.

The Modify RCD Group page is displayed.

The Device List section contains all NNLS servers in the selected RCD group. The User List section contains all users with rights to this group.

3 To add an NNLS server to this group, click New under Device List, select NCP Server, then specify the path to the NCP Server object representing the NNLS server you want to add (for example, mynlsserver.novell).

4 To grant a user access to this group, click New under User List, specify the path to the user object, then check Read or Full depending on the type of access to grant.

After you are finished modifying this group, continue with the next section, Managing Software Packages, to updated these NNLS servers.

Managing Software Packages

Software packages can be added, deleted, or updated by selecting one or more NNLS servers from an RCD group, or by manually specifying the host information for each server you want to update.

Managing Packages Using an RCD Group

1 Click the Manage RCD Group task in the Resource Management role.

2 Specify the path to the RCD Group object, then click Get Devices.

All servers in the RCD group appear under Device List.

3 Select one or more servers to manage, then click OK.

The Packages page appears, containing all updates for the selected servers.

4 Select the updates you want to apply, then click Update.

Managing Packages on Standalone Servers

NOTE: Any information you provide when managing standalone severs is not saved and must be re-entered the next time you want to manage packages on these servers.

1 Click the Manage Standalone RCDs task in the Resource Management role.

2 Click Connect, specify all required information for the Red Carpet daemon running on the server you want to manage, then click OK.

3 (Optional) Repeat Step 2 for any additional servers you want to manage at this time.

4 Click OK.

The Packages page appears, containing all updates for the selected servers.

5 Select the updates you want to apply, then click Update.

Individual servers can also be updated from the command line using the Red Carpet Daemon. For details on using the Red Carpet Daemon, see the *Red Carpet 2.0 Software Manual* (http://www.ximian.com/support/) on the Ximian support site, or enter **man rug** or **man rcd** at the command line.

5 **Uninstalling NNLS Components**

You use the same script to both install and uninstall Novell® Nterprise™ Linux Services (NNLS) components.

Uninstalling NNLS Components

1 At the command line, go to the root of the CD you created or to the root of the mount point, depending on which media preparation method you used.

See "Preparing the NNLS Files for Installation" on page 13.

2 Enter the following command:

./install.sh

3 At the Selection prompt, enter **u** (uninstall).

4 Select the components you want to uninstall using the options indicated on the screen.

If you select a component that is required for other components to run (for example, the Apache Web server), the dependent components are automatically selected to be uninstalled. This prevents the NNLS component configuration from becoming invalid.

5 Enter **f** (finished).

The products you have selected are uninstalled.

6 You need to restart Apache and Tomcat if they are running on your server. As the root user at the system prompt, enter the following commands:

For Apache:

/etc/init.d/novell-httpd restart

For Tomcat:

/etc/init.d/novell-tomcat4 restart

Uninstalling iPrint

Before you can uninstall iPrint, you need to stop the following processes on the server by entering the following commands:

/etc/init.d/novell-idsd stop
/etc/init.d/novell-ipsmd stop

Then run the uninstall procedure as described in "Uninstalling NNLS Components" on page 25.

A Running install.sh after Initial Installation

You can run install.sh to uninstall NNLS components as explained in Chapter 5, "Uninstalling NNLS Components," on page 25.

You can also run install.sh to install NNLS components that are not currently installed on the server.

If you run install.sh to install NNLS components after the initial installation, you need to restart Apache and Tomcat. As the root user at the system prompt, enter the following commands:

For Apache:

`/etc/init.d/novell-httpd restart`

For Tomcat:

`/etc/init.d/novell-tomcat4 restart`

B NNLS Planning Worksheet

We strongly recommend that you print the PDF version of this worksheet to help you think through and record your plans prior to installing NNLS.

To ensure a smooth installation, we also recommend that you complete all the sections in this worksheet before you install the Linux operating system on your NNLS server.

About the Worksheet

This worksheet is designed to help you with the following planning tasks:

- Ensuring your system meets NNLS Server Hardware Requirements (page 30) and System Software Requirements (page 31).

  You should plan to install NNLS on one of the following platforms:

  - Red Hat Enterprise Linux AS 2.1

  - Red Hat Enterprise Linux ES 2.1

  - SuSE Linux Enterprise Server 8.0

  IMPORTANT: These are the only Linux distributions that Novell officially supports for NNLS and the only platforms that can receive patches and updates through Novell's Red Carpet update channel.

- Identifying the additional Server Hardware Requirements (page 30) (RAM, disk space, etc.) that your NNLS components must have to provide the services you expect. This includes planning your Disk Partitions (page 31) before you begin the installation.

- Integrating the NNLS server with your Firewall (page 32) strategy, identifying the communication ports needed and other firewall-related issues.

Starting with the Installation Planning (page 33) section, the worksheet contains standard information for the parameter information that you must provide as you run the installation script. Figure 5 illustrates a sample section of the installation worksheet.

NICI Foundation Key

1 *Install Script Prompt*:   Please select the NICI Foundation Key (.nfk) file [/mnt/floppy]:

2 *.conf File Directive*:   CONFIG_EDIR_NFK_FILE

3 *Description*:   Indicates the path and filename of the NICI Foundation Key file obtained from Novell. The file must be accessible while install.sh is running. For example, if the file is located on a floppy disk, the disk must be mounted before running install.sh

4 *Acceptable Parameters*:   A complete path and the name of the .nfk file obtained from Novell. For example, /mnt/floppy/123456789.nfk.

5 *Planned Parameter*:

This Installation Planning Worksheet contains the following:

1 The prompt for input that appears when running the install script (install.sh).

2 .Conf File Directive names that are
   - Included in answer files to provide input during noninteractive installations.
   - Saved to the nterprise_linux_services_install .conf file after an installation completes.

3 Descriptive Information about the Input that tells you
   - The purpose of the Input -- what the system uses it for.
   - Whether you need to provide the information for your NNLS installation

4 A short statement about what parameters are acceptable.

5 A place for you to plan your parameter input.

The section referenced in this example is "NICI Foundation Key" on page 35.

NNLS Server

The following sections outline the basic requirements for an NNLS server.

Server Hardware Requirements

Install NNLS only on a machine that meets the following requirements.

❑ Server-class computer

   Manufacturer and model: _____

❑ Pentium* II processor (Pentium 4 at 1.5 GHz recommended)

   Processor model and speed: _____

❑ 512 MB RAM minimum (1 GB recommended)

   Total RAM required: _____

NOTE: The RAM amounts shown here are for system components only. The NNLS service components you install might require additional RAM.

Be sure to complete the planning instructions found in the *Novell Nterprise Linux Services Overview, Planning, and Implementation Guide* for each component you install. During that planning process, you are instructed to record and track the additional RAM you need on this sheet.

❑ 30 GB free disk space

Total disk space required: _____

NOTE: The disk space amount shown here is for system components only. The NNLS service components you install (such as file services) require additional disk space.

Be sure to complete the planning instructions found in the Novell Nterprise Linux Services Overview, Planning, and Implementation Guide for each component you install. During that planning process, you are instructed to record and track the additional disk space you need on this sheet.

System Software Requirements

IMPORTANT: NNLS must be installed on a server that contains only a newly installed operating system with its accompanying utilities, etc.

❑ One of the following operating systems:

   ◆ Red Hat Enterprise Linux AS 2.1

   ◆ Red Hat Enterprise Linux ES 2.1

   ◆ SuSE Linux Enterprise Server 8.0

❑ The gettext RPM (for eDirectory™ to function correctly)

This package is needed if you are using a response file to install NNLS for both Express and Custom noninteractive installations.

Server Network Configuration

IMPORTANT: As explained in "Use a Static IP Address" on page 6, the NNLS server must use a static IP address.

   ◆ Linux server's IP address (for example, 10.1.1.123): _____._____ ._____._____

   ◆ Hostname (for example, myserver): _____

   IMPORTANT: When installing the operating system, specify only the hostname. Do not include the DNS context with the name (for example, myserver.mycompany.com).

   ◆ DNS context of hostname (for example, mycompany.com): _____

   ◆ Subnet mask (for example, 255.255.255.0): _____._____._____._____

   ◆ Default gateway (for example, 10.1.1.1): _____._____._____._____

   ◆ Primary DNS server (for example, 10.1.1.2): _____._____._____._____

Disk Partitions

Table 2 presents guidelines for setting up disk partitions on your NNLS server.

Table 2   **Partition Requirements**

Partition	Minimum Disk Space	Other Considerations	Planned Allocation
/boot	*	* See the documentation for your chosen operating system.	
/swap	*	* This should normally equal twice the RAM installed on your server up to 1 GB. For more information, see the documentation for your chosen operating systerm.	

Partition	Minimum Disk Space	Other Considerations	Planned Allocation
/	*	* The simplest partitioning method is to include all remaining disk space in this partition. Space for the subpartitions (/var, /opt, /usr, /etc, /home) is automatically available as the partitions expand. If you choose to define the partitions shown in the following rows (/var, /opt, and /usr), you should define this partition last and allocate all unused disk space to it.	
/var	350 MB	If you define this partition separately and you plan to install Novell® iFolder®, be aware that iFolder user data is stored in this partition by default.	
/opt	250 MB		
/usr	310 MB		

Firewall

Table 3 Shows the default ports used by NNLS. If you plan to use different ports for any listed items, you might want to note that in the table. This information is provided for integrating NNLS with your firewall.

Table 3

Port Number	Product	Protocol
80	Apache Web Server	HTTP
443	Apache Web Server secure	HTTPS (SSL)
8008	eDirectory iMonitor	HTTP
8010	eDirectory iMonitor secure	HTTPS (SSL)
8018	NetMail WebAdmin	HTTP
8020	NetMail WebAdmin secure	HTTPS (SSL)
52389	NetMail™ LDAP Server	LDAP
52080	NetMail ModWeb	HTTP
52443	NetMail ModWeb secure	HTTPS (SSL)
1026	NetMail CAP	CAP (Calendar Access Protocol)
25	NetMail SMTP Agent	SMTP (both secure and nonsecure)
110	NetMail POP Agent	POP3
995	NetMail POP Agent Secure	POP3 (SSL) This is not configured by default and is listed for reference only.

Port Number	Product	Protocol
143	NetMail IMAP Agent	IMAP4
993	NetMail IMAP Agent Secure	IMAP4 (SSL) This is not configured by default and is listed for reference only.
689	NetMail NMAP Agent UDP	NMAP This is not configured by default and is listed for reference only.
689	NetMail NMAP Agent TCP	NMAP
389	eDirectory™ LDAP Server	LDAP
636	eDirectory LDAP Server secure	LDAP (SSL)
631	iPrint IPP Server	IPP
443	iPrint IPP Server secure	IPP (SSL)
137	Samba	CIFS/SMB
138	Samba	CIFS/SMB
139	Samba	CIFS/SMB
8080	Tomcat	HTTP
8009	MOD_JK	MOD_JK
524	eDirectory	NDAP

Existing Apache Web Server

If the server where you install NNLS is already running an Apache Web server, the NNLS installation will disable the server and shut it down. It will not, however, uninstall the server.

The Apache Web server installed with NNLS must use the standard ports 80 and 443. The server's configuration files are installed to /etc/opt/novell/httpd/ and its document root is set to /var/opt/novell/httpd/htdocs.

If you want to run the previously installed Apache server in addition to the NNLS Apache server, you must change the ports it uses, re-enable it to run when the system boots, and restart it.

Installation Planning

If you are planning to install the first server in a new eDirectory tree, skip to "eDirectory" on page 35. Otherwise start with the information in "Planning to Install into an Existing Tree" on page 34.

The following sections are included in Installation Planning:

- "Planning to Install into an Existing Tree" on page 34
- "eDirectory Settings Default to a Single Server" on page 34

Planning to Install into an Existing Tree

The information in this section applies whenever you are planning to install an NNLS server into an existing eDirectory tree.

This could be the first NNLS server in a tree created when you installed eDirectory on another platform, such as NetWare® or Windows* 2000. Or it could be the second, third, etc., NNLS server installed in a tree created by an NNLS installation.

eDirectory Settings Default to a Single Server

To facilitate the installation of the first server in a new tree, the installation script uses the eDirectory information you have specified as the default for each eDirectory parameter that follows.

This also applies when you are installing NNLS into an existing eDirectory tree.

1. After the script prompts for the Tree Name (page 36), it requests an Existing eDirectory Server IP Address (page 37) using the following prompt:

   ```
   Enter the Existing Server IP Address:
   ```

2. The IP address or DNS name you enter is used to establish a connection with the target tree using the admin name and password that you also enter.

   This connection is required for eDirectory installation operations such as schema extensions and object creation.

3. The install script then uses this IP address or DNS name as the default setting for other eDirectory settings, as summarized in Table 4.

Table 4

NNLS Component	Worksheet Item	Purpose
Linux User Management	LDAP Server IP Address (page 39)	Installation
		Setting up LUM user authentication
DirXML® Starter Pack	eDirectory Server (page 42)	Installation
eGuide	LDAP Server IP Address or Hostname (page 43)	Setting up eGuide user authentication
Samba	eDirectory Server IP Address or Hostname (page 44)	Installation
Samba	LDAP Server IP Address or Hostname (page 45)	Setting up Samba user authentication
iFolder	eDirectory Server IP Address or DNS Hostname (page 47)	Installation
		Setting up iFolder user authentication
iManager	LDAP Server IP Address or Hostname (page 52)	Setting up iManager user authentication
iPrint	iPrint Server IP Address or Hostname (page 54)	Installation
Virtual Office	eDirectory Server IP Address or Hostname (page 54)	Installation
NetStorage	NetStorage Authentication Server (page 55)	Setting up Novell NetStorage™ user authentication

IMPORTANT: When the address is used for installation purposes, it must point to an eDirectory server that has a master or read/write replica of eDirectory installed to allow for schema extensions and other installation-related operations.

On the other hand, although servers responsible for fielding authentication requests must also have eDirectory installed, they need not contain a master or read/write replica.

Specifying Nondefault Settings

As you install the second, third, etc., server in your tree, you will want to start replacing the default eDirectory addresses or names proposed by the installation script with the addresses or names of eDirectory servers that meet the installation or authentication requirements for the component you are installing.

Changing eDirectory Authentication Settings

After you have installed a service, if you need to change the eDirectory authentication configuration, see "Modifying Service Authentication Settings Created by the NNLS Installation" in the *Novell Nterprise Linux Services Overview, Planning, and Implementation Guide*.

eDirectory

NICI Foundation Key

Install Script Prompt: Please select the NICI Foundation Key (.nfk) file [/mnt/floppy]:

.conf File Directive: CONFIG_EDIR_NFK_FILE

Description:	The path and filename of the NICI Foundation Key file obtained from Novell. The file must be accessible while install.sh is running.
Acceptable Parameters:	A complete path and the name of the .nfk file obtained from Novell.
Planned Parameter:	

Tree Type

Install Script Prompt:	Selection [New Tree]:
.conf File Directive:	CONFIG_EDIR_TREE_TYPE
Description:	Indicates whether this eDirectory installation creates a new tree on the network or becomes part of an existing tree.
Acceptable Parameters:	Existing Tree, New Tree
Planned Parameter:	

System Clock Synchronization

Install Script Prompt:	Is the system clock synchronized with the existing tree? [yes]:
.conf File Directive:	None
Description:	Appears only when you are joining an existing tree—in which case, you must ensure that the system clock on the new NNLS server is synchronized using the same method (time server, etc.) as the tree you are joining.
	There is no directive associated with this prompt. A noninteractive installation assumes that you have synchronized the system clock prior to installing NNLS.

Tree Name

Install Script Prompt:	Enter the new tree name:
	or
	Enter the existing tree name:
.conf File Directive:	CONFIG_EDIR_TREE_NAME
Description:	The tree name this installation of eDirectory uses.
	If Tree Type (page 36) (CONFIG_EDIR_TREE_TYPE) is set to New Tree, this must be the network-unique name of a new tree. If the value is set to Existing Tree, this must be the name of an existing, accessible tree on the network.
Acceptable Parameters:	A valid eDirectory tree name.
Planned Parameter:	

eDirectory Server Port

Install Script Prompt:	Enter the eDirectory Server Port [524]:
.conf File Directive:	CONFIG_EDIR_EXISTING_PORT
Description:	This port is used by the eDirectory server for network communications.
Acceptable Parameters:	A valid port number (default = 524).
Planned Parameter:	

Existing eDirectory Server IP Address

Install Script Prompt:	Enter the existing server IP address or DNS hostname:
.conf File Directive:	CONFIG_EDIR_EXISTING_IP
Description:	The primary IP address of the eDirectory server that contains the existing tree referenced in Tree Name (page 36) (CONFIG_EDIR_TREE_NAME).
	This directive is used only when Tree Type (page 36) (CONFIG_EDIR_TREE_TYPE) is set to Existing Tree.
Acceptable Parameters:	The primary IP address of the eDirectory server containing the designated existing tree.
Planned Parameter:	

eDirectory Admin Name and Context

Install Script Prompt:	Enter the FDN admin name with context (i.e., cn=admin.o=novell):
.conf File Directive:	CONFIG_EDIR_ADMIN_CONTEXT
Description:	The admin name and fully distinguished context within the eDirectory tree, specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
	If a new tree is created, this admin has administrative rights to the tree.
	If eDirectory is installed into an existing tree, this must be the name and context of a User object with administrative rights to the tree.
Acceptable Parameters:	A valid admin name and context.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password:
.conf File Directive:	CONFIG_EDIR_ADMIN_PASSWORD

Description:	The password for the admin specified in eDirectory Admin Name and Context (page 37) (CONFIG_EDIR_ADMIN_CONTEXT).
	If you are using this file as a planning worksheet and you choose to write the password on this sheet, remember that the password is secure only if the sheet is stored in a secure location.
	If you are using these instructions to create a response file, you must specify the password in the response file. The install script assigns the password you supply, but it doesn't write the password to the configuration file that you can save at the end of the installation process. For more information on response files, see "Performing a Noninteractive Express or Custom Installation" on page 16.
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

eDirectory Context for This Server

Install Script Prompt:	Enter the server context [*default server context*]:
.conf File Directive:	CONFIG_EDIR_SERVER_CONTEXT
Description:	The eDirectory context where the objects for this server are created, specified using typeful syntax (ou=*organizational*_unit.o=*organization*).
	Whether you are creating a new tree or installing into an existing tree, this context is created.
Acceptable Parameters:	A valid context within the eDirectory tree.
Planned Parameter:	

LDAP Port Number

Install Script Prompt:	Enter the LDAP port number [389]:
.conf File Directive:	CONFIG_EDIR_LDAP_PORT
Description:	The network port that the server uses for LDAP communications with eDirectory.
Acceptable Parameters:	A valid port number (default = 389).
Planned Parameter:	

Secure LDAP Port Number

Install Script Prompt:	Enter the secure LDAP port number [636]:
.conf File Directive:	CONFIG_EDIR_LDAP_SECURE_PORT
Description:	The network port that the server uses for secure LDAP communications with eDirectory.
Acceptable Parameters:	A valid port number (default = 636).
Planned Parameter:	

iMonitor HTTP Port Number

Install Script Prompt:	Enter the iMonitor HTTP port number [8008]:
.conf File Directive:	CONFIG_EDIR_HTTP_PORT
Description:	The HTTP network port through which administrators monitor and manage servers in the eDirectory tree using iMonitor.
Acceptable Parameters:	A valid port number (default = 8008).
Planned Parameter:	

iMonitor HTTPS Port Number

Install Script Prompt:	Enter the iMonitor HTTPS port number [8010]:
.conf File Directive:	CONFIG_EDIR_HTTPS_PORT
Description:	The HTTPS port on the network through which administrators monitor and manage servers in the eDirectory tree using iMonitor.
Acceptable Parameters:	A valid port number (default = 8010).
Planned Parameter:	

Linux User Management

LDAP Server IP Address

Install Script Prompt:	Enter the LDAP server IP address or DNS hostname [*default LDAP server*]:
.conf File Directive:	CONFIG_LUM_EDIR_IP_ADDR
Description:	The primary IP address of the eDirectory server for Linux User Management. This server is used for the following:

  - Linux users authenticate to the specified server using LDAP for access to this NNLS server.
  - Linux User Management objects and configuration information are created, stored, and managed on the specified eDirectory server.

The server must have a master or read/write replica of eDirectory installed.

Acceptable Parameters:	The IP address of an eDirectory server.
Planned Parameter:	

Admin Name with Context

Install Script Prompt:	Enter the admin name with context [*admin name with context*]:
.conf File Directive:	CONFIG_LUM_ADMIN_FDN

Description:	The fully distinguished name of a User object with administrative rights on the eDirectory server specified in (CONFIG_LUM_EDIR_IP_ADDR).
	The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of an administrative User object as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_LUM_ADMIN_PASSWORD
Description:	The password for the User object specified in (CONFIG_LUM_ADMIN_FDN).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

LDAP Port

Install Script Prompt:	Enter the LDAP port number [389]:
.conf File Directive:	CONFIG_LUM_LDAP_PORT
Description:	The LDAP port through which LUM users authenticate to the eDirectory server specified in (CONFIG_LUM_EDIR_IP_ADDR) for access to this NNLS server.
Acceptable Parameters:	A valid LDAP port number (default = 389).
Planned Parameter:	

Secure LDAP Port

Install Script Prompt:	Enter the secure LDAP port number [636]:
.conf File Directive:	CONFIG_LUM_LDAPS_PORT
Description:	The secure LDAP port through which LUM users authenticate to the eDirectory server specified in (CONFIG_LUM_EDIR_IP_ADDR) for access to this NNLS server.
Acceptable Parameters:	A valid secure LDAP port number (default = 636).
Planned Parameter:	

LDAP Search Base Context

Install Script Prompt:	Enter the partition root [*partition root*]:
.conf File Directive:	CONFIG_LUM_PARTITION_ROOT
Description:	The base context used in LDAP searches for User, Group, and Workstation objects on the LDAP server specified in LDAP Server IP Address (page 39) (CONFIG_LUM_EDIR_IP_ADDR).
	This context must be at the same level or higher than the LUM User, LUM Group, and LUM Workstation objects in the tree.
	The context must be specified using typeful syntax (ou=*organizational_unit*.o=*organzation*).
Acceptable Parameters:	A valid context on the designated eDirectory server.
Planned Parameter:	

Workstation Objects Context

Install Script Prompt:	Enter the workstation context [*default context*]:
.conf File Directive:	CONFIG_LUM_WS_CONTEXT
Description:	The location in the eDirectory tree where the install creates the LUM Workstation object.
	This context can be different for each server installed into the tree, but it must be in or below the context specified in LDAP Search Base Context (page 41) (CONFIG_LUM_PARTITION_ROOT).
	The context must be specified using typeful syntax (ou=*organizational_unit*.o=*organzation*).
Acceptable Parameters:	A valid context on the designated eDirectory server.
Planned Parameter:	

PAM-Enabled Services

Install Script Prompt:	Select PAM-enabled services that you want to make accessible to users who authenticate through eDirectory.
.conf File Directive:	CONFIG_LUM_SERVICE_LOGIN CONFIG_LUM_SERVICE_FTP CONFIG_LUM_SERVICE_SSHD CONFIG_LUM_SERVICE_SU CONFIG_LUM_SERVICE_RSH CONFIG_LUM_SERVICE_RLOGIN CONFIG_LUM_SERVICE_PASSWD
Description:	The PAM-enabled services on this server that are available to authenticated LUM users.
Acceptable Parameters:	yes, no

Planned Parameter:	_____ login _____ ftp _____ sshd _____ su _____ rsh _____ rlogin _____ passwd

DirXML Starter Pack

eDirectory Server

Install Script Prompt:	Enter the eDirectory server IP address or DNS hostname [*default server*]:
.conf File Directive:	CONFIG_DIRXML_HOST
Description:	The IP address or DNS hostname of the eDirectory server that DirXML® works with. The server must have a master or read/write replica of eDirectory installed.
Acceptable Parameters:	A valid IP address of either an existing eDirectory server or the NNLS server containing a new tree.
Planned Parameter:	

Admin Name and Context

Install Script Prompt:	Enter the Admin name with context [*admin name with context*]:
.conf File Directive:	CONFIG_DIRXML_ADMIN_CONTEXT
Description:	The fully distinguished name of the User object with administrative rights on the eDirectory server specified in eDirectory Server (page 42) (CONFIG_DIRXML_HOST). The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of the admin as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the Admin password [******]:
.conf File Directive:	CONFIG_DIRXML_ADMIN_PASSWORD
Description:	This is the password for the user specified in Admin Name and Context (page 42) (CONFIG_DIRXML_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

Secure LDAP Port Number

Install Script Prompt:	Enter the Secure LDAP port number [636]:
.conf File Directive:	CONFIG_DIRXML_LDAP_SECURE_PORT
Description:	The secure LDAP port number on which this NNLS server communicates with the eDirectory server specified in eDirectory Server (page 42) (CONFIG_DIRXML_HOST).
Acceptable Parameters:	A valid secure LDAP port number (default = 636).
Planned Parameter:	

eGuide

LDAP Server IP Address or Hostname

Install Script Prompt:	Enter the LDAP server IP address or DNS hostname [*default LDAP server*]:
.conf File Directive:	CONFIG_EGUIDE_EDIR_HOST
Description:	The IP address or DNS hostname of an eDirectory server that eGuide users authenticate to.
Acceptable Parameters:	A valid IP address or DNS hostname.
Planned Parameter:	

LDAP Port Number

Install Script Prompt:	Enter the LDAP port number [389]:
.conf File Directive:	CONFIG_EGUIDE_EDIR_LDAP_PORT
Description:	The LDAP port number on which this NNLS server communicates with the eDirectory server specified in LDAP Server IP Address or Hostname (page 43) (CONFIG_EGUIDE_EDIR_HOST).
Acceptable Parameters:	A valid LDAP port number (default = 389).
Planned Parameter:	

Secure LDAP Port Number

Install Script Prompt:	Enter the Secure LDAP port number [636]:
.conf File Directive:	CONFIG_EGUIDE_EDIR_LDAPS_PORT
Description:	The secure LDAP port number on which this NNLS server communicates with the eDirectory server specified in LDAP Server IP Address or Hostname (page 43) (CONFIG_EGUIDE_EDIR_HOST).
Acceptable Parameters:	A valid secure LDAP port number (default = 636).
Planned Parameter:	

LDAP Admin Name and Context

Install Script Prompt:	Enter the LDAP Admin name with context [*LDAP admin name with context*]:
.conf File Directive:	CONFIG_EGUIDE_ADMIN_CONTEXT
Description:	The fully distinguished name of a User object with administrative rights on the eDirectory server specified in LDAP Server IP Address or Hostname (page 43) (CONFIG_EGUIDE_EDIR_HOST).
	This administrative user manages eGuide in eDirectory and is also used as a proxy user to search the LDAP tree for eGuide users.
Acceptable Parameters:	The fully distinguished username as explained in the description.
Planned Parameter:	

LDAP Admin Password

Install Script Prompt:	Enter the LDAP admin password [******]:
.conf File Directive:	CONFIG_EGUIDE_EDIR_ADMIN_PASSWORD
Description:	The password for the user specified in specified in LDAP Admin Name and Context (page 44) (CONFIG_EGUIDE_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

Samba

eDirectory Server IP Address or Hostname

Install Script Prompt:	Enter the eDirectory server IP address or DNS hostname [*default server*]:
.conf File Directive:	CONFIG_SAMBA_EDIR_SERVER_HOST
Description:	The primary IP address or DNS hostname of the eDirectory server that has its eDirectory schema extended for this Samba installation.
	The server must have a master or read/write replica of eDirectory installed.
Acceptable Parameters:	The IP address of an eDirectory server.
Planned Parameter:	

Admin Name and Context

Install Script Prompt:	Enter the Admin name with context [*admin name with context*]:
.conf File Directive:	CONFIG_SAMBA_ADMIN_CONTEXT

Description:	The fully distinguished name of a user with administrative rights on the eDirectory server specified in eDirectory Server IP Address or Hostname (page 44) (CONFIG_SAMBA_EDIR_SERVER_HOST). This administrative user must have rights to extend the eDirectory schema.
	The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of the user as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_SAMBA_ADMIN_PASSWORD
Description:	The password for the user specified in Admin Name and Context (page 44) (CONFIG_SAMBA_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

LDAP Server IP Address or Hostname

Install Script Prompt:	Enter the LDAP server IP address or DNS hostname [*default LDAP server*]:
.conf File Directive:	CONFIG_SAMBA_LDAP_HOST
Description:	The primary IP address of the LDAP server to which CIFS client users (such as Windows users) authenticate using LDAP for access to the directories and files on this NNLS server.
Acceptable Parameters:	The IP address of an LDAP server.
Planned Parameter:	

LDAP Proxy User Name

Install Script Prompt:	Enter the Samba Proxy username with context [*LDAP proxy username with context*]:
.conf File Directive:	CONFIG_SAMBA_PROXY_USER_CONTEXT
Description:	A user on the LDAP server specified in LDAP Server IP Address or Hostname (page 45) (CONFIG_SAMBA_LDAP_HOST) with rights to search the LDAP tree for Samba users.
	The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*)
Acceptable Parameters:	The name and fully distinguished context of the proxy user as explained in the Description.
Planned Parameter:	

LDAP Proxy User Password

Install Script Prompt:	Enter the Samba Proxy user password [******]:
.conf File Directive:	CONFIG_SAMBA_PROXY_USER_PASSWORD
Description:	The password for the Samba proxy user specified in LDAP Proxy User Name (page 45) (CONFIG_SAMBA_PROXY_USER_CONTEXT).
Acceptable Parameters:	The proxy user password.
Planned Parameter:	

LDAP Port Number

Install Script Prompt:	Enter the LDAP port number [389]:
.conf File Directive:	CONFIG_SAMBA_LDAP_PORT
Description:	The LDAP port through which Windows users authenticate to the LDAP server specified in LDAP Server IP Address or Hostname (page 45) for access to the directories and files on this NNLS server.
Acceptable Parameters:	A valid LDAP port number (default = 389).
Planned Parameter:	

Secure LDAP Port Number

Install Script Prompt:	Enter the secure LDAP port number [636]:
.conf File Directive:	CONFIG_SAMBA_LDAP_SSL_PORT
Description:	The secure LDAP port through which CIFS client users authenticate to the LDAP server specified in LDAP Server IP Address or Hostname (page 45) for access to the directories and files on this NNLS server.
Acceptable Parameters:	A valid secure LDAP port number (default = 636).
Planned Parameter:	

Trusted Root Certificate File

Install Script Prompt:	Optional CA certificate file [/mnt/floppy]:
.conf File Directive:	CONFIG_SAMBA_CA_CERT_FILE

Description:	The name and path to a copy of the trusted root certificate file for the LDAP server specified in LDAP Server IP Address or Hostname (page 45) (CONFIG_SAMBA_LDAP_HOST).

If you are using eDirectory's LDAP server, specify a Trusted Root Certificate file that you extracted from any of the eDirectory tree's SSL Certificate objects.

The certificate must be in base64 format and the file must be available on the file system at install time. In addition, the filename must not contain spaces.

For example, if the default name of an exported file is TrustedRootCert - SSL CertificateDNS - linux.b64, you should rename the file to TrustedRootCert-SSLCertificateDNS-linux.b64.

NOTE: If you are installing Samba into a new eDirectory tree that you are creating on this NNLS server, and you plan to use its LDAP server for user authentication, this directive is optional. Under all other conditions, you should provide the certificate file at install time so that the system is correctly configured for secure LDAP authentication.

Acceptable Parameters: The name and path of the LDAP server's trusted root certificate file.

Planned Parameter:

Remove Existing Samba

Install Script Prompt: Remove existing Samba packages [yes]:

.conf File Directive: CONFIG_REMOVE_EXISTING_SAMBA

Description: Indicates whether Samba components installed prior to the NNLS install are removed.

NOTE: If you run the install script multiple times, this does not remove the NNLS distribution of Samba installed by a previous install. You must specifically uninstall any previous NNLS products to remove them. For more information, see Chapter 5, "Uninstalling NNLS Components," on page 25.

Acceptable Parameters: yes, no

Planned Parameter:

iFolder

eDirectory Server IP Address or DNS Hostname

Install Script Prompt: Enter the LDAP server IP address or DNS hostname [*default LDAP server*]:

.conf File Directive: CONFIG_IFOLDER_EDIR_IP_ADDR

Description: The IP address or DNS hostname of an eDirectory server that

- ◆ Has its schema extended for iFolder objects and global settings.
- ◆ Serves as the LDAP server that iFolder users authenticate to.

The server must have a master or read/write replica of eDirectory installed.

Acceptable Parameters: The IP address of the eDirectory server.

Planned Parameter:

LDAP Port Number

Install Script Prompt:	Enter the LDAP port number [389]:
.conf File Directive:	CONFIG_IFOLDER_EDIR_PORT
Description:	The LDAP port that the LDAP server uses.
Acceptable Parameters:	A valid LDAP port number (default = 389).
Planned Parameter:	

eDirectory Admin Name and Context

Install Script Prompt:	Enter the LDAP admin name with context [*LDAP admin name with context*]:
.conf File Directive:	CONFIG_IFOLDER_ADMIN_CONTEXT
Description:	The fully distinguished name of the User object with sufficient rights to extend the schema and install iFolder objects on the eDirectory server specified in eDirectory Server IP Address or DNS Hostname (page 47) (CONFIG_IFOLDER_EDIR_IP_ADDR). The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of a user as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the LDAP admin password [******]:
.conf File Directive:	CONFIG_IFOLDER_EDIR_ADMIN_PASSWORD
Description:	The password for the user specified in eDirectory Admin Name and Context (page 48) (CONFIG_IFOLDER_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

iFolder Server IP Address or Hostname

Install Script Prompt:	Enter the iFolder server IP address or DNS hostname [*default iFolder server*]:
.conf File Directive:	CONFIG_IFOLDER_SERVER_IP_ADDR
Description:	The IP address on this NNLS server that iFolder uses.
Acceptable Parameters:	A valid IP address on this server.
Planned Parameter:	

iFolder Admin Names

Install Script Prompt:	Enter the iFolder admin usernames [admin]:
.conf File Directive:	CONFIG_IFOLDER_ADMIN_USERS
Description:	The User objects that have rights to manage iFolder after it is installed. At least one of these users must have rights to extend the schema for certain tasks, such as creating new iFolder users.
	These users must exist in the same context as the User object specified in eDirectory Admin Name and Context (page 48) (CONFIG_IFOLDER_ADMIN_CONTEXT).
Acceptable Parameters:	Usernames as explained in the Description separated by semicolons (;) with no spaces.
Planned Parameter:	

iFolder User Data Path

Install Script Prompt:	Enter the iFolder user data path [/var/opt/novell/ifolderdata]:
.conf File Directive:	CONFIG_IFOLDER_USER_DATA_PATH
Description:	The location where the iFolder user directories and files are stored on this NNLS server.
	This location must have sufficient disk space to accommodate user file storage requirements.
Acceptable Parameters:	A valid directory path on this server.
Planned Parameter:	

NetMail

Admin and Context

Install Script Prompt:	Enter the admin name with context [*admin name and context*]:
.conf File Directive:	CONFIG_NETMAIL_ADMIN_CONTEXT
Description:	The fully distinguished name of a User object with administrative rights on the eDirectory server that NetMail users authenticate to.
	The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of the user as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_NETMAIL_ADMIN_PASSWORD

Description:	The password for the user specified in Admin and Context (page 49) (CONFIG_NETMAIL_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

Primary DNS Server IP Address or Hostname

Install Script Prompt:	Enter the NetMail primary DNS server address or DNS hostname [*primary server*]:
.conf File Directive:	CONFIG_NETMAIL_DNS1
Description:	The first DNS server that NetMail uses for resolving e-mail addresses.
Acceptable Parameters:	The IP address of the primary DNS server.
Planned Parameter:	

Secondary DNS Server IP Address or Hostname

Install Script Prompt:	Enter the NetMail secondary DNS server address or DNS hostname (optional) [*secondary server*]:
.conf File Directive:	CONFIG_NETMAIL_DNS2
Description:	The DNS server that NetMail uses for resolving e-mail addresses that the primary DNS server couldn't resolve.
Acceptable Parameters:	The IP address of the secondary DNS server.
Planned Parameter:	

E-Mail Domain Name

Install Script Prompt:	Enter the domain name for the NetMail server [*domain name*]:
.conf File Directive:	CONFIG_NETMAIL_DOMAIN
Description:	The official domain name used for e-mail addresses on your system. This is also known as the messaging system's Internet domain name. For example, novell.com or mycompany.com.
Acceptable Parameters:	Any valid official domain name.
Planned Parameter:	

WebAccess HTTP Port Number

Install Script Prompt:	Enter the NetMail WebAccess HTTP port number [52080]:
.conf File Directive:	CONFIG_NETMAIL_HTTP_PORT
Description:	The HTTP port on the network that NetMail users access this NetMail server through.

Acceptable Parameters:	A valid port number (default = 52080).
Planned Parameter:	

WebAccess HTTPS Port Number

Install Script Prompt:	Enter the NetMail WebAccess HTTPS port number [52443]:
.conf File Directive:	CONFIG_NETMAIL_HTTPS_PORT
Description:	The HTTPS port on the network that NetMail users access this NetMail server through.
Acceptable Parameters:	A valid port number (default = 52443).
Planned Parameter:	

LDAP Port Number

Install Script Prompt:	Enter the NetMail LDAP port number [52389]:
.conf File Directive:	CONFIG_NETMAIL_LDAP_PORT
Description:	The port for NetMail's MsgLDAP that is used for Address Book lookups.
Acceptable Parameters:	A valid LDAP port number (default = 52389).
Planned Parameter:	

iManager

iManager Server Address

Install Script Prompt:	Enter the iManager server address or DNS hostname [*default iManager server*]:
.conf File Directive:	CONFIG_IMANAGER_ADDRESS
Description:	The IP address on this server that iManager uses.
	The server must have a master or read/write replica of eDirectory installed.
Acceptable Parameters:	An IP address on this server.
Planned Parameter:	

iManager Admin Name and Context

Install Script Prompt:	Enter the admin name with context (for example, cn=admin.o=novell) [*admin name with context*]:
.conf File Directive:	CONFIG_IMANAGER_ADMIN_CONTEXT

Description:	The fully distinguished name of the top-level admin of the eDirectory server that iManager manages.
	The name and context must be specified using typeful syntax (cn=*name*.ou=*organizational_unit*.o=*organization*).
Acceptable Parameters:	The name and fully distinguished context of the admin as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_IMANAGER_ADMIN_PASSWORD
Description:	The password for the Admin specified in iManager Admin Name and Context (page 51) (CONFIG_IMANAGER_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

LDAP Server IP Address or Hostname

Install Script Prompt:	Enter the LDAP server IP address or DNS hostname [*default LDAP server*]:
.conf File Directive:	CONFIG_IMANAGER_LDAP_ADDRESS
Description:	The IP address of the eDirectory server that iManager users authenticate to eDirectory through.
Acceptable Parameters:	A valid IP address.
Planned Parameter:	

Secure LDAP Port Number

Install Script Prompt:	Enter the LDAP port number [636]:
.conf File Directive:	CONFIG_IMANAGER_LDAP_PORT
Description:	Indicates the secure LDAP port that users communicate with the eDirectory server through specified in LDAP Server IP Address or Hostname (page 52) (CONFIG_IMANAGER_LDAP_ADDRESS using LDAP).
Acceptable Parameters:	A valid secure LDAP port number (default = 636).
Planned Parameter:	

iManager WebAdmin HTTP Port Number

Install Script Prompt:	Enter the iManager WebAdmin HTTP port number [8018]:

.conf File Directive:	CONFIG_IMANAGER_WEBADMIN_HTTP_PORT
Description:	The HTTPS port number that WebAdmin users administer NetMail and Red Carpet™ through.
	This directive is included here because WebAdmin is accessed through iManager in NNLS.
Acceptable Parameters:	A valid HTTP port number (default = 8018).
Planned Parameter:	

iManager WebAdmin HTTPS Port Number

Install Script Prompt:	Enter the iManager WebAdmin HTTPS port number [8020]:
.conf File Directive:	CONFIG_IMANAGER_WEBADMIN_HTTPS_PORT
Description:	The HTTPS port number that WebAdmin users administer NetMail and Red Carpet through.
	This directive is included here because WebAdmin is accessed through iManager in NNLS.
Acceptable Parameters:	A valid HTTPS port number (default = 8020).
Planned Parameter:	

iPrint

Admin Name and Context

Install Script Prompt:	Enter the admin name with context [*admin name with context*]:
.conf File Directive:	CONFIG_IPRINT_ADMIN_CONTEXT
Description:	The fully distinguished name of the User object with rights to extend the schema for iPrint installation on the eDirectory server specified in iPrint Server IP Address or Hostname (page 54).
Acceptable Parameters:	A fully distinguished username as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_IPRINT_ADMIN_PASSWORD
Description:	The password of the user specified in Admin Name and Context (page 53) (CONFIG_IPRINT_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

iPrint Server IP Address or Hostname

Install Script Prompt:	Enter the eDirectory IP address or DNS hostname [*default iPrint server*]:
.conf File Directive:	CONFIG_IPRINT_EXISTING_IP
Description:	The IP address or DNS hostname of the eDirectory server that iPrint is installed and the schema is extended on.
	The server must have a master or read/write replica of eDirectory installed.
Acceptable Parameters:	A valid IP address or DNS hostname.
Planned Parameter:	

iPrint Tree Name

Install Script Prompt:	Enter the name of the eDirectory tree that hosts iPrint [*default iPrint tree name*]:
.conf File Directive:	CONFIG_IPRINT_TREE_NAME
Description:	The name of the eDirectory tree that hosts iPrint.
Acceptable Parameters:	A valid eDirectory tree name.
Planned Parameter:	

Virtual Office

eDirectory Server IP Address or Hostname

Install Script Prompt:	Enter the eDirectory server IP address or DNS hostname [*default eDir server*]:
.conf File Directive:	CONFIG_VO_ADDRESS
Description:	The IP address or DNS name of the eDirectory server that Virtual Office is installed on.
	This server must have a master or read/write replica of eDirectory installed.
Acceptable Parameters:	A valid IP address or DNS hostname.
Planned Parameter:	

Admin Name and Context

Install Script Prompt:	Enter the admin name with context [*admin name with context*]:
.conf File Directive:	CONFIG_VO_ADMIN_CONTEXT
Description:	The fully distinguished name of the User object with administrative rights to the eDirectory server specified in eDirectory Server IP Address or Hostname (page 54) (CONFIG_VO_ADDRESS).
	This user must have rights to extend the schema for the Virtual Office installation on the designated eDirectory server.

Acceptable Parameters:	A fully distinguished username as explained in the Description.
Planned Parameter:	

Admin Password

Install Script Prompt:	Enter the admin password [******]:
.conf File Directive:	CONFIG_VO_ADMIN_PASSWORD
Description:	The password for the user specified in Admin Name and Context (page 54) (CONFIG_VO_ADMIN_CONTEXT).
Acceptable Parameters:	The admin user's password.
Planned Parameter:	

NetStorage Authentication Server

Install Script Prompt:	Enter the NetStorage authentication domain host [*default NetStorage server*]:
.conf File Directive:	CONFIG_VO_EDIR_SERVER_HOST
Description:	The IP address or DNS hostname of the eDirectory server that NetStorage users authenticate to using LDAP. This does not necessarily have to be the IP address of the server where NetStorage is to be installed.
Acceptable Parameters:	A valid IP address or DNS hostname.
Planned Parameter:	

NetStorage Proxy User Name and Context

Install Script Prompt:	Enter the NetStorage proxy username with context [*proxy username with context*]:
.conf File Directive:	CONFIG_VO_PROXY_CONTEXT
Description:	The fully distinguished name of a User object with rights to do the following:
	◆ Search the LDAP (eDirectory) tree on the specified in NetStorage Authentication Server (page 55) (CONFIG_VO_EDIR_SERVER_HOST) for NetStorage users.
	◆ If an iFolder storage location is defined in NetStorage, store the iFolder user passphrase in eDirectory the first time users access the storage location. This prevents users from having to enter their passphrase when accessing files and directories on an iFolder server.
Acceptable Parameters:	A fully distinguished LDAP username.
Planned Parameter:	

NetStorage Proxy User Password

Install Script Prompt:	Enter the NetStorage proxy user password [******]:

.conf File Directive:	CONFIG_VO_PROXY_PASSWORD
Description:	The password of the user specified in NetStorage Proxy User Name and Context (CONFIG_VO_PROXY_CONTEXT).
Acceptable Parameters:	The proxy user's password.
Planned Parameter:	

NetStorage Users Context

Install Script Prompt:	Enter the users' context [o=novell]:
.conf File Directive:	CONFIG_VO_USERS_CONTEXT
Description:	The context of the NetStorage Authentication Server (CONFIG_VO_EDIR_SERVER_HOST) to search for NetStorage users on. All subcontexts are searched as well. If you want NetStorage to search the entire eDirectory tree, specify the root context.
Acceptable Parameters:	A valid LDAP context.
Planned Parameter:	

iFolder Server IP Address or Hostname

Install Script Prompt:	Enter the iFolder server address (optional) [*default iFolder server*]:
.conf File Directive:	CONFIG_VO_IFOLDER_HOST
Description:	(Optional) The IP address or hostname of the iFolder server you want created as a storage location in NetStorage. This makes iFolder automatically available to Virtual Office users. Users must have their iFolder user accounts enabled through the iFolder server in order to access their files stored in iFolder using NetStorage. You must also enable the ability for users to set iFolder passphrases in NetStorage.
Acceptable Parameters:	A valid IP address or DNS hostname.
Planned Parameter:	

Red Carpet

Admin E-Mail Address

Install Script Prompt:	Enter the e-mail address [admin_name@company_name.com]:
.conf File Directive:	CONFIG_REDCARPET_EMAIL
Description:	(Optional) The e-mail address you want to be notified at about NNLS updates.
Acceptable Parameters:	A valid e-mail address.
Planned Parameter:	

Proxy Server

Install Script Prompt: Is this machine connected to the Internet via a proxy server? [no]:

.conf File Directive: CONFIG_RCD_PROXY

Description: Indicates whether the NNLS server connects to the Internet through a proxy server.

Acceptable Parameters: yes, no

Planned Parameter:

Proxy Server Contact URL

Install Script Prompt: Enter the proxy URL:

.conf File Directive: CONFIG_RCD_PROXY_URL

Description: The URL that the NNLS server uses to communicate with its Proxy Server (page 57) (CONFIG_RCD_PROXY).

Acceptable Parameters: A valid URL.

Planned Parameter:

Proxy User Name

Install Script Prompt: Enter the proxy username:

.conf File Directive: CONFIG_RCD_PROXY_USER

Description: The username the NNLS server uses to authenticate with its Proxy Server (page 57) (CONFIG_RCD_PROXY).

Acceptable Parameters: A valid username.

Planned Parameter:

Proxy User Password

Install Script Prompt: Enter the password:

.conf File Directive: CONFIG_RCD_PROXY_USER_PASSWORD

Description: The password for the Proxy User Name (page 57) (CONFIG_RCD_PROXY_USER).

Acceptable Parameters: The proxy user password.

Planned Parameter:

C NNLS File and Data Locations

This section contains information about the conventions Novell® follows when determining where various data types and program components are stored on the Linux file system.

Where possible, we have tried to ensure that NNLS components follow Linux Standard Base (LSB) requirements regarding file location. Efforts to do this are detailed in the following sections.

General Rules

Where possible, product teams have followed these rules:

- **/opt/novell:** Contains all static data in the following standard subdirectories:

/opt/novell/bin	Executable files that are used by multiple products or are intended to be executed by an end user.
/opt/novell/*product*/bin	Executable files that are used only by a product and are not executed by an end user.
/opt/novell/lib	Shared libraries that are used by multiple products and shared or static libraries that are part of an SDK.
/opt/novell/include	Header files for SDKs—typically in a product subdirectory.
/opt/novell/include	Header files for SDKs—typically in a product subdirectory.

- **/etc/opt/novell:** Generally contains host-specific configuration data.

  NOTE: The eDirectory .conf file is /etc/nds.conf.

  If a product has a single configuration file, it is named *product*.conf.

  If a product uses multiple configuration files, they are placed in a subdirectory named for the product.

- **/var/opt/novell:** Contains all variable data.

  Variable data (data that changes during normal run time operations) is stored in a *product* subdirectory.

- **/var/opt/novell/log:** Generally contains log files.

  NOTE: The eDirectory log file is /etc/nds/ndsd.log.

  If a product has a single log file, it is stored in a file with the product name.

  If a product has multiple log files, they are stored in a subdirectory named for the product.

- All files and directories that could not follow the first four rules have the prefix *novell-* where possible.

Exceptions

Some files must reside in nonstandard locations for their products to function correctly. Two examples are init scripts, which must be in /etc/init.d, and cron scripts, which must be in /etc/cron.d. When possible, these files have a *novell-* prefix.

When standard conventions preclude the use of prefixes (for example in the case of PAM modules, which use suffixes instead of prefixes), the standard conventions are followed.

Some Examples

Table 5 contains examples that illustrate the guidelines presented in this section.

Table 5   **Examples**

Subdirectory or File	Contents
/opt/novell/bin/htpasswd	Because this command might be executed by end users, it resides in /opt/novell/bin.
/opt/novell/httpd/bin/httpd	This command is not executed by end users. Rather, it is typically invoked by an init script.
/etc/init.d/novell-httpd	This init script is prefixed by *novell-* as dictated by the standard rule.
/opt/novell/include/libldap_c/ldap.h	This header file is in the libldap_c product subdirectory as dictated by the standard rule.
/opt/novell/lib/libldapsdk.so	This shared library is used by multiple products and is part of an SDK.
/etc/opt/novell/ifolder/httpd_unix_ifolder.conf	This is a host-specific configuration file for the iFolder® product.
/var/opt/novell/ifolderdata/	This subdirectory contains data files that change as part of normal iFolder run-time operations.
/var/opt/novell/log/httpd/error.log	This is one of multiple log files associated with the NNLS version of the Apache Web server.