Novell Remote Manager for Linux Administration Guide

Open Enterprise Server 2 SP3

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Novell.

Contents

About This Guide

This guide describes how to access and use Novell Remote Manager on a host that is running the Linux operating system. This guide includes the following information:

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 most recent version of the *Novell Remote Manager Administration Guide for Linux*, visit the Open Enterprise Server online documentation Web site (http://www.novell.com/documentation/oes2/index.html?page=/documentation/oes2/mgmt_remotemgr_nw_lx/data/front.html#bktitle).

1 Overview of Novell Remote Manager for Linux

Novell Remote Manager for Linux is a browser-based utility that you can use to manage one or more Linux servers from a remote location.

You can use Novell Remote Manager to monitor your server's health, change the configuration of your server, or perform diagnostic and debugging tasks.

The advantages of using Novell Remote Manager for server management are that:

- It does not require a special client.
- It provides a graphical interface that makes interpreting diagnostic information much more comprehensive and easier to manage.
- It provides added functionality that is not available in the other management utilities.

This section explains the following:

1.1 Benefits of Using Novell Remote Manager

Organizations usually don't have a technician physically located at the server when it needs attention. Servers are frequently placed in remote or distributed locations and, in the case of service providers, at many different companies. The ability to centrally monitor, diagnose, and repair (or preventively avoid) server problems is a significant advantage. It is also a major benefit to be able to provide technical service from any location—any point in the world—across the Internet.

Novell Remote Manager provides IT staff and service providers the ability to monitor and control a complete selection of server controls and functions through a standard Web browser.

The management power and flexibility now available simplifies network administration and allows fewer staff to effectively manage more resources. Novell Remote Manager lets you do the following:

- Securely access and manage a Linux server from any location. With proper login credentials and Internet access, administrators can control servers from any location.
- Group servers for collective management, allowing you to manage multiple servers through the same interface and application.
- Quickly locate and assess problems. An intuitive graphical user interface provides a control dashboard with indicators for server health and status.
- Manage servers comprehensively. Novell Remote Manager provides control for viewing or managing Linux servers, directories, processes, and hardware.

While using Novell Remote Manager, you can perform the following major tasks:

- Monitor and manage your server's health
  - Monitor the health status of one or more servers
  - Build a group of servers and items to be monitored together
  - Access server and configuration logs
- Configure your server
  - View information about all hardware adapters, hardware resources, and processor data
  - Upload and replace files
  - Monitor memory resources
  - Access files
  - Shut down or reset a server
- Troubleshoot server problems
  - Find high memory users
  - Monitor server processes

1.2 Other Management Utilities

Novell Remote Manager does not replace other management utilities that are available in Open Enterprise Server. For an understanding of which utilities are best for the task you need to perform, see "OES Utilities and Tools" in the *OES 2 SP3: Planning and Implementation Guide*.

1.3 What's Next

Now that you have learned some of the benefits of using Novell Remote Manager, use the information in Table 1-1 to help you access and use it.

Table 1-1 *Information About Novell Remote Manager*

For Information About	See
Accessing and understanding the layout of Novell Remote Manager	"Accessing Novell Remote Manager for Linux" on page 27
Determining whether Novell Remote Manager for Linux is compatible with other operating systems and how it fits in your current network	"Migrating Novell Remote Manager from OES 1 NetWare to OES 2 Linux" on page 21
Managing a virtualized OES 2 Linux server with Novell Remote Manager.	"Setting Up Novell Remote Manager for Linux" on page 25
Installing Novell Remote Manager for Linux	"Setting Up Novell Remote Manager for Linux" on page 25
Changing the configuration of Novell Remote Manager	"Changing the Configuration" on page 33

For Information About	See
Using Novell Remote Manager to monitor and manage your OES Linux and NetWare servers	◆ "Diagnosing Problems" on page 39
	◆ "Viewing File Systems" on page 45
	◆ "Managing Linux" on page 69
	◆ "Managing Hardware" on page 81
	◆ "Using Group Operations" on page 87
Things to consider for setting up your system in a secure environment.	"Security Considerations" on page 105

2 What's New

This section identifies the features that were added in Novell Remote Manager (NRM) for Linux since its release in Open Enterprise Server 2 Linux.

2.1 What's New (April 2013 Patches)

Upgrade to eDirectory 8.8.7

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

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

2.2 What's New (January 2013 Patches)

Novell Client Support for Windows 8 and Server 2012

The January 2013 Scheduled Maintenance for OES 11 SP1 announces the availability of Novell Client 2 SP3 for Windows with support for:

- Windows 8 (32-bit and 64-bit) excluding Windows 8 RT
- Windows Server 2012 (64-bit)

Novell Client 2 documentation links in this guide have been updated to reflect the release of SP3.

Novell Client 2 SP3 for Windows documentation is available on the Web (http://www.novell.com/documentation/windows_client/). Documentation for earlier versions is available under Previous Releases (http://www.novell.com/documentation/windows_client/#previous).

Support for Internet Explorer 10

Web-based access to Novell Remote Manager is supported for the Internet Explorer 10 Web browser in the desktop user interface view for Windows 7 clients and Windows 8 clients.

Support for Safari 6.0 on Mac OS X 10.8

Web-based access to Novell Remote Manager is supported for the Apple Safari 6.0 Web browser on Mac OS X 10.8 clients.

2.3 What's New (May 2012 Patches)

In addition to bug fixes, the following enhancement is available in the May 2012 Scheduled Maintenance patches for OES 2 SP3:

- Section 2.3.1, "NCP Server Plug-In: NCP Trustee Report," on page 14

2.3.1 NCP Server Plug-In: NCP Trustee Report

Under *Manage NCP Services*, the new *NCP Trustee Report* option allows you to generate a trustee report for a specified NSS volume, including Dynamic Storage Technology shadow volumes comprised of two NSS volumes. You can display the last trustee report in the Web browser, or send the report to the email addresses that you have pre-configured for Novell Remote Manager. A trustee report shows the rights settings by folder for each user or group that is a trustee on the NSS volume. For information, see Section 9.6, "Generating and Viewing NCP Trustee Reports for NSS Volumes," on page 66.

2.4 What's New (November 2011 Patches)

In addition to bug fixes, the following changes were made to Novell Remote Manager in the OES 2 SP3 November 2011 Scheduled Maintenance patch:

- Section 2.4.1, "HttpOnly Command," on page 14
- Section 2.4.2, "InventoryResolveNonLumOwnerName Command," on page 15
- Section 2.4.3, "Inventory Reports," on page 15
- Section 2.4.4, "VNC Consoles," on page 15

2.4.1 HttpOnly Command

The `HttpOnly` configuration option is available in the Novell Remote Manager `/etc/opt/novell/httpstkd.conf` file. By default, Novell Remote Manager sets an HTTP-only cookie attribute that specifies that the cookie is not accessible through a script. This helps mitigate the risk of cross-site scripting. For information, see Appendix A, "HTTPSTKD Configuration File Options," on page 111.

2.4.2 InventoryResolveNonLumOwnerName Command

The `InventoryResolveNonLumOwnerName` configuration option is available in the Novell Remote Manager `/etc/opt/novell/httpstkd.conf` file. This allows you to choose whether the inventory of a Novell Storage Services (NSS) volume reports the names of owners as the Nobody user if their Novell eDirectory user names are not enabled with Linux User Management. By default, this option is set to false (not resolved) in order to give you faster performance for an inventory of files on an NSS volume. For information, see Section A.6, "InventoryResolveNonLumOwnerName Command," on page 116.

2.4.3 Inventory Reports

- The *View File Systems > NCP Volumes Inventory* option allows you to view a list of NCP volumes and generate inventories for them.

- The Volume Information page for a volume provides an *Inventory* option to generate an inventory. This provides the same output as running *View File System > General File Inventory* for Linux paths and for *View File Systems > NCP Volumes Inventory* for NCP volumes.

- An inventory report is saved when you run an inventory on an NCP volume. You can view the last saved report by going to the *Manage NCP Services > Volume Inventory Reports* page and clicking the *View Last Report > Display* option for the volume. The saved report provides the same statistics as running *View File Systems > NCP Volumes Inventory*. Graphics are not available in a saved report.

- You can email a saved NCP volume inventory report to addresses that are configured in the `/etc/opt/novell/httpstkd.conf` file. To send the report, go to the *Manage NCP Services > Volume Inventory Reports* page and click the *Email Report > Send* option for the volume.

- In a file inventory for NSS volumes, the *File Owner Profile* reports the eDirectory identity of the file owner without requiring the users to be enabled with Linux User Management (LUM). For information, see Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60.

2.4.4 VNC Consoles

The `root` user can view VNC consoles from within Novell Remote Manager. This capability requires that the `HttpOnly` security feature be disabled in the `/etc/opt/novell/httpstkd.conf` file.

2.5 What's New (September 2011 Patches)

In addition to bug fixes, Novell Cluster Services added support for OES 2 SP3 services and file systems on the SUSE Linux Enterprise Server (SLES) 10 SP4 operating system. You can upgrade to SLES 10 SP4 by using the `move-to-sles10-sp4 patch` in the SLES patch channel.

2.6 What's New (April 2011 Patches)

In addition to bug fixes, the following changes were made to Novell Remote Manager in the OES 2 SP3 April 2011 Scheduled Maintenance patch:

- Section 2.6.1, "SSL Key Cipher Strength," on page 16
- Section 2.6.2, "Inventory Reports," on page 16
- Section 2.6.3, "Open Connections," on page 16

2.6.1 SSL Key Cipher Strength

You can set the cipher strength for the SSL Key in the `/etc/opt/novell/httpstkd.conf` file. For information, see Section A.9, "SSL Key Cipher Strength Command," on page 119.

2.6.2 Inventory Reports

- On the Volume Information page, the *Inventory* option generates a report with statistics about the files stored on the selected volume.
- In a file inventory for NSS volumes, the *File Owner Profile* reports the eDirectory identity of the file owner without requiring the users to be enabled with Linux User Management (LUM). For information, see Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60.

2.6.3 Open Connections

On the Manage NCP Services > Connection Information page, the *Open File Information* list now links to the file and lock details for each file that is held open by connection number.

2.6.4 Salvage and Purge for NSS Volumes

The following capabilities were added for salvaging and purging deleted files for NSS volumes where the Salvage attribute is enabled:

- The *Salvageable File List* option allows you to view a list of deleted files that are available for salvage or purge on the volume.
- The *Purge* option allows you to purge a deleted file.
- The *Salvage* option allows you to recover a deleted file.
- The *Purge all files* allows you to purge all deleted files on a selected volume.

2.6.5 Share Information

On the Share Information page, the following capabilities were added:

- The *Inventory* option generates a report with statistics about the files stored on a selected volume.
- Additional details about the volume are displayed, such as size and namespace.
- The *Create Subdirectory* option allows you to create subdirectories on an NSS volume.
- The *Delete Directory and Contents* option allows you to recursively delete a selected folder and its contents.
- The *Rename Directory* option allows you modify the name of a selected directory.
- The *Compression* option shows whether the Compression attribute is enabled for the NSS volume.

2.6.6 View File System Listing

On the View File System Listing page for a volume, the following capabilities were added:

- The *Text Search* option allows you to search the content of files for a specified text string.
- The *File Search* option allows you to search for a file on the selected volume.
- The *Inventory* option generates a report with statistics about the files stored on a selected volume.
- The *Upload* option allows you to upload a file to the selected volume.

2.7 What's New (OES 2 SP3 Linux)

There were bug fixes for the OES 2 SP3 Linux release. No new features were added.

2.8 What's New (OES 2 SP2 Linux)

There were bug fixes for the OES 2 SP2 Linux release. No new features were added.

2.9 What's New (OES 2 SP1 Linux)

The features in this section were added to Novell Remote Manager for Linux in OES 2 SP1 Linux.

Area of Service	Functionality	For More Information
Root user access versus admin user access	For security reasons, while logged in to NRM as the Admin user or equivalent eDirectory user, the user's `root` privileges are now limited to only those needed to manage NRM.	Section 6.2, "Accessing Novell Remote Manager," on page 27 Section 14.1, "Security Features," on page 105

2.10 What's New (OES 2 Linux)

The features in this section were added to Novell Remote Manager for Linux since its initial release in OES 1 Linux.

2.10.1 What's New (OES 2 Linux)

The features in this section were added to Novell Remote Manager for Linux in the initial release of OES 2 Linux:

Area of Service	Functionality	For More Information
Health Monitor	On the Health Monitor page, you can view the online or offline status of the services running on your OES 2 Linux server. You can also change the online or offline status of these services.	"Monitoring Overall Server Health or the Health of a Specific Item" on page 39.
Installation	When you add OES 2 to a server, Novell Remote Manager is no longer installed by default like it was in OES 1. Novell Remote Manager has its own pattern and it is selected for installation with all other OES 2 patterns.	"Setting Up Novell Remote Manager for Linux" on page 25.
Manage Linux, Scheduled Task	You can schedule a task using a cron job.	"Scheduling cron Jobs to Run on the Server" on page 77.
All	You can use Novell Remote Manager to access and manage virtualized OES 2 Linux servers.	"Managing a Virtualized Linux Server with Novell Remote Manager" on page 23.

2.10.2 What's New (OES 1 SP2 Linux)

The features in this section were added to Novell Remote Manager for Linux in OES 1 SP2 Linux:

Area of Service	Functionality	For More Information
View File System (Home)	On the home page, you can view the percent of free space available on each mounted physical devices or external file systems that have actual disk space. Available disk space on virtual file systems is not shown. You can also view the details of the file system on the Information Page for each mounted system on the device. The *Unmount* button was moved to this page.	"Viewing Mounted Devices and Performing Actions on Them" on page 46.

Area of Service	Functionality	For More Information
View File System	The *General File Inventory* link in this section provides a page where you can get an inventory of all the files from the `root` directory or browse to a specific subdirectory and generate a file inventory of all the files in the selected subdirectory. This same functionality is available by clicking the *Inventory* link when browsing the file system from the *View File System* link. The *Volume Inventory* link in this section provide a list of all NCP mounted volumes. When you click the volume name link from this page, an inventory report of all the files from the root of that volume is generated. From these generated reports, you can also perform actions on the files or directories such as moving, copying, deleting, and renaming.	"Generating Inventories for Directories or NCP Volumes" on page 60.
Use Group Operation	If you want to scan the network for specific services, access the Network Discovery page and specify the host and ports that should be scanned for. After discovering the items on the network, you can click the item and add it to the current group for future monitoring. Using this feature can help you to quickly gather the information you need to create monitoring groups.	"Discovering Items on the Network to Monitor" on page 98.

2.10.3   What's New (OES 1 SP1 Linux)

The features in this section were added to Novell Remote Manager for Linux in OES 1 Linux SP1:

Area of Service	Functionality	For More Information, see
Configure	Added configuration options for controlling which users can log in to Novell Remote Manager and specifying which languages the browser supports for Novell Remote Manager.	◆ "Accessing and Editing the HTTPSTKD Configuration File" on page 34 ◆ "HTTPSTKD Configuration File Options" on page 111.
View File System (Home)	Left navigation frame includes collapsible categories that are remembered for the next time you log in. This lets you display the Novell Remote Manager features that you use most often and hide the ones that you don't.	"Navigation Frame" on page 31
Diagnose, Health Monitor	CPU usage process information is now reporting the correct information.	"Diagnosing Problems" on page 39

Area of Service	Functionality	For More Information, see
Access	Network services now has a selection for installing the Novell Remote Manager services. This lets you install Novell Remote Manager after the server installation and performs the proper configuration steps that weren't performed if you installed the packages separately.	"Setting Up Novell Remote Manager for Linux" on page 25
Manage Linux, VNC Consoles	If VNC services are configured on the server, you can access the VNC console screens by clicking the *VNC Consoles* link under the *Manage Linux* heading in the navigation frame. Then click the *1024 X 728* button on the VNC Console Screens page.	"Accessing VNC Consoles" on page 69

3 Migrating Novell Remote Manager from OES 1 NetWare to OES 2 Linux

This section contains information about the following:

- Section 3.1, "Coexistence," on page 21
- Section 3.2, "Migration," on page 21

3.1 Coexistence

This section provides information regarding the compatibility and coexistence of Novell Remote Manager for Linux with existing networks containing NetWare or Linux platforms.

3.1.1 Compatibility

When you create a group, you can get server health status from a NetWare server running NetWare 6.0 or later or from a Linux server running Novell Open Enterprise Server 1 or Open Enterprise Server 2.

You can access the Novell Remote Manager on Linux only on servers with OES services installed. See "System Requirements" on page 27.

3.1.2 Coexistence Issues

Monitoring on Linux servers that are not running the owcimomd module can report only an Up/Down status.

3.2 Migration

There is no need to migrate Novell Remote Manager from NetWare to Novell Remote Manager for Linux. Novell Remote Manager is selected for installation when any pattern from Open Enterprise Server is installed.

You can combine server groups for monitoring OES NetWare and OES Linux servers. You can save the group file locally or to an eDirectory object. See "Saving a Group" on page 92 and "Accessing an Existing Group" on page 93.

Configuring Novell Remote Manager is somewhat different on an OES Linux server than an OES NetWare server. See "Changing the Configuration" on page 33.

Not all tasks that are available in Novell Remote Manager for NetWare are available on Novell Remote Manager for Linux, such as IP Address Management; however, you have the functionality to monitor the server health for individual servers or groups of servers, the ability to load and unload programs, and access console screens.

4 Managing a Virtualized Linux Server with Novell Remote Manager

Using Novell Remote Manager for Linux to access and manage a virtualized OES 2 Linux server is the same in every way as accessing and managing a physical OES 2 Linux server and requires no special configuration or other changes.

To get started with virtualization, see "Introduction to Xen Virtualization" (http://www.novell.com/documentation/sles10/book_virtualization_xen/data/sec_xen_basics.html) in the *Virtualization with Xen* (http://www.novell.com/documentation/sles10/book_virtualization_xen/data/book_virtualization_xen.html) guide.

For information on setting up virtualized OES 2 Linux, see "Installing, Upgrading, or Updating OES on a Xen-based VM" in the *OES 2 SP3: Installation Guide* guide.

5 Setting Up Novell Remote Manager for Linux

This section contains the following information:

5.1 Installing Novell Remote Manger During the Initial Server Installation

To install Novell Remote Manager during the OES 2 installation or while adding OES 2 on an existing server, select the Novell Remote Manager (NRM) pattern to install Novell Remote Manager.

It does not require any additional configuration during the installation and does not display on the Installation Settings page. For information on changing the configuration after the installation is complete, see Chapter 7, "Changing the Configuration," on page 33

For a list of RPMs that it installs, see Appendix B, "Novell Remote Manager Packages," on page 121.

5.2 Installing Novell Remote Manager After the Initial Server Installation

If you did not install Novell Remote Manager when you first installed OES 2 Linux, do the following to install and configure Novell Remote Manager:

1 Open YaST.

2 Click *Open Enterprise Server > OES Install and Configuration*.

3 Select the Novell Remote Manager (NRM) pattern.

   Selecting this pattern automatically selects the Novell Linux User Management (LUM) and Novell Backup/Storage Management Services (SMS) patterns.

4 (Conditional) If you want only the Novell Remote Manager pattern installed, deselect the Novell Linux User Management (LUM) and Novell Backup/Storage Management Services (SMS) patterns.

   If you have only Novell Remote Manager installed, then you can log in to Novell Remote Manager only as user root or a local Linux user.

   If you log in as a local Linux user, you can see only the information that the user you log in as has rights to view.

5 Click *Accept*.

6 If necessary, complete any required information for other services selected on the Novell Open Enterprise Server Configuration summary page. When all the settings on the Novell Open Enterprise Server Configuration summary page are set as desired, click *Next*.

The necessary files are installed and configuration of the services are completed.

No additional configuration during the installation for Novell Remote Manager is required. For information on changing the configuration after the installation is complete, see Chapter 7, "Changing the Configuration," on page 33.

For a list of RPMs that it installs, see Appendix B, "Novell Remote Manager Packages," on page 121.

6 Accessing Novell Remote Manager for Linux

This section includes information about the following:

6.1 System Requirements

❒ Supported Web browsers:

- Mozilla Firefox 12 or later
- Microsoft Internet Explorer 8, 9, and 10 (for Windows 7 and 8 clients in the desktop view only)
- KDE Konqueror 4 or later (limited functionality)
- Apple Safari 5 and Safari 6.0 (for Mac OS X Mountain Lion (version 10.8) clients only)
- Google Chrome 21 or later

❒ The HTTPSTKD package loaded and running on the server. This package is selected for installation by the Novell Remote Manager pattern. The Novell Remote Manager (NRM) pattern is selected for installation when you install any of the Open Enterprise Server 2 patterns on Linux unless you deselect it.

For information on installing Novell Remote Manager, see Chapter 5, "Setting Up Novell Remote Manager for Linux," on page 25.

For package details, see "Novell Remote Manager Packages" on page 121.

❒ To view the graphical displays in the file system inventory report, the Sun Java 1.4.2 plug-in (`java-1_4_2-sun-plugin.rpm`) must be installed on the machine you use to to access Novell Remote Manager, and the browser must have Java and Javascript enabled.

6.2 Accessing Novell Remote Manager

1 Open a Web browser.

2 Point the browser to the URL of the server you want to manage by entering the following in the Address (URL) field:

```
http://server's_TCP/IP_address:8008
```

For example:

http://172.16.123.11:8008

If you have Domain Name Services (DNS) installed on your network for server name-to-IP address resolution, you can also enter the server's DNS name instead of the IP address.

3 Accept the SSL certificate.

You need to have SSL 2.0 and SSL 3.0 (where available) enabled in your browser. Otherwise, the browser displays an error indicating that the page cannot be displayed.

4 When the login dialog box appears, provide the required information.

Log in as user `root`, a local Linux user, or as an eDirectory user that is Linux User Management enabled.

If you have Linux User Management enabled in your tree and have it installed and configured on the local server, you can log in to Novell Remote Manager using your eDirectory credentials. For instructions on enabling Linux, see "Setting Up Linux Computers to Use eDirectory Authentication" in the *OES 2 SP3: Novell Linux User Management Administration Guide*.

If you log in as a local Linux user or as a non-Admin eDirectory user, you can see only the information that the user you log in as has rights to view.

Two specific things to remember when logging in as an eDirectory user to Novell Remote Manager:

- ◆ For users to log in as user Admin or equivalent, the Admin user must either be associated to the group that has the Supervisor right for the Entry Rights property for the UNIX Workstation object or have the Supervisor right for the Entry Rights to the NCP object that represents the Linux server in the eDirectory tree.

  IMPORTANT: When eDirectory users who have the Supervisor right to one of these objects are logged in to the server with their eDirectory user names, they are granted limited `root` user privileges so they can modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying.

  If eDirectory and LUM are installed on the local server, the eDirectory user Admin can log in to Novell Remote Manager using its fully distinguished name (admin.context) because this user is enabled for Linux User Management by default in this case.

- ◆ For non-Admin users to log in using eDirectory credentials, they must be users enabled for Linux User Management.

  Users who are enabled for Linux User Management have a Linux Profile tab on their Modify User page in iManager and an eDirectory object that is associated with the UNIX Workstation object that represents the Linux server.

  You can use iManager or the LUM command line utility `namuseradd` to enable users for Linux User Management. For instructions, see "Overview" in the *OES 2 SP3: Novell Linux User Management Administration Guide*.

The Admin user has limited file system rights equivalent to `root` that are needed to modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying. For a list of these files, see Section 14.1, "Security Features," on page 105. The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.

After logging in, your session for Novell Remote Manager remains open until you close all your browser windows at that workstation.

6.3 Starting or Stopping HTTPSTKD

When you install and configure the Novell Remote Manager pattern on Open Enterprise Server (OES) 2 on Linux server, Novell Remote Manager is started by default.

A script for starting and stopping the Novell Remote Manager/Linux components is in `/etc/init.d/novell-httpstkd`. Enter the following commands at a console shell prompt to perform the desired action:

Table 6-1 *Commands for Starting, Stopping, or Checking the Status of Novell Remote Manager*

Task	Command

To see whether the module is running	`rcnovell-httpstkd status`
	or
	`/etc/init.d/novell-httpstkd status`

To restart HTTPSTKD	`rcnovell-httpstkd restart`
	or
	`/etc/init.d/novell-httpstkd restart`

To start HTTPSTKD	`rcnovell-httpstkd start`
	or
	`/etc/init.d/novell-httpstkd start`

To stop HTTPSTKD	`rcnovell-httpstkd stop`
	or
	`/etc/init.d/novell-httpstkd stop`

6.4 Understanding the Layout of Novell Remote Manager

The Web pages for Novell Remote Manager have three main frames: the header frame (top), the navigation frame (left), and the main content frame (right). They also contain the *Overall Health Indicator* and online help.

Figure 6-1 *Layout of Novell Remote Manager*
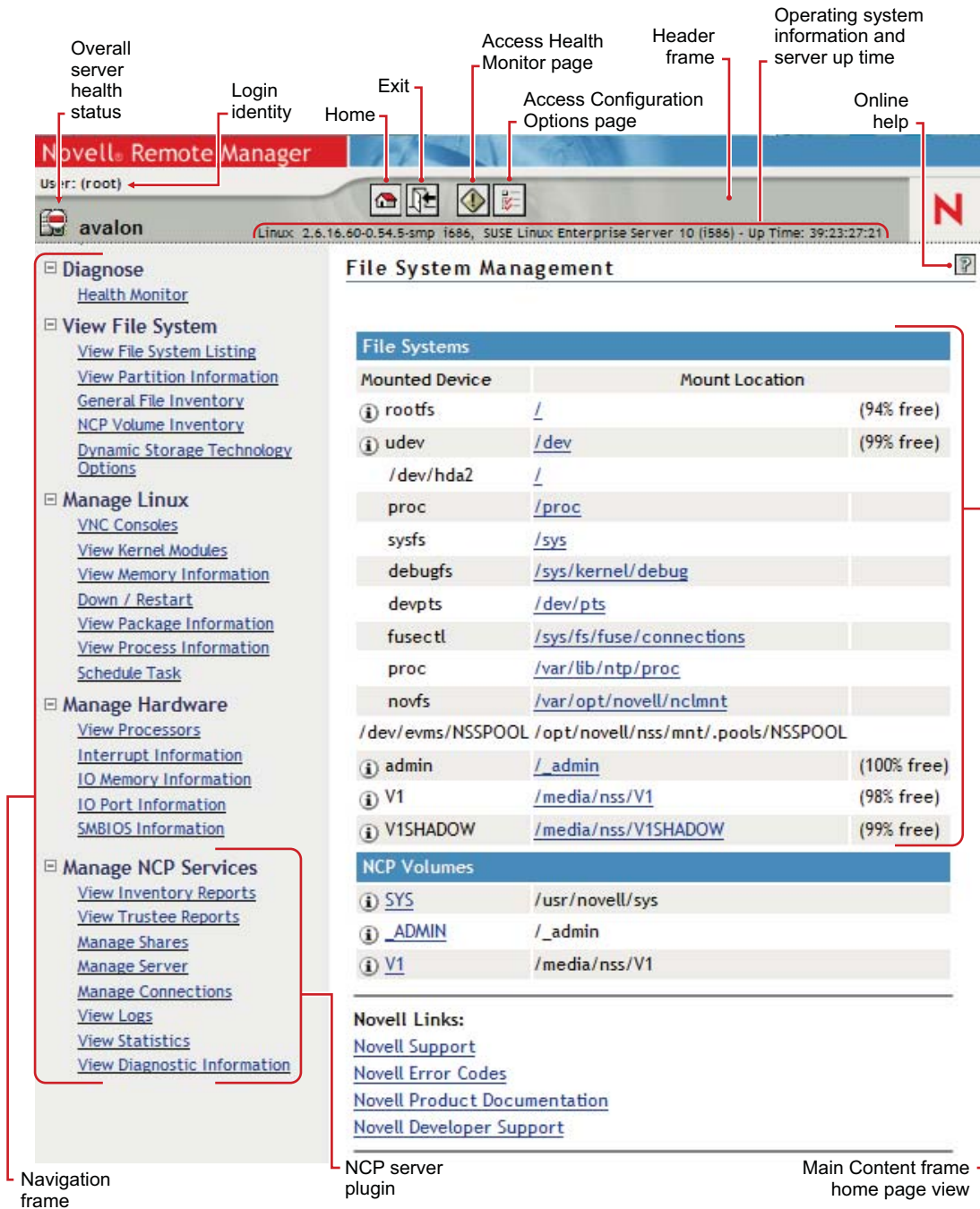
Header Frame

Contains general information about the server as well as links to the Health Monitor and Configuration pages and an *Exit* link to close the browser window. The File System Management page is considered the Home page.

The general information about the server includes the following:

- ◆ Overall server health status as one of the following:

    - ◆ Green (good)

    - ◆ Yellow (suspect)

    - ◆ Red (bad)

    - ◆ White with black X (no connection)

- ◆ Server name
- ◆ Name of the user you are logged in to Novell Remote Manager as
- ◆ Version of the operating system running on the server and the amount of time the server has been running

Navigation Frame

Lists general tasks that you can do using Novell Remote Manager as well as links to specific pages for performing those tasks. The left navigation frame includes collapsible categories that are remembered for the next time you log in. This lets you display the Novell Remote Manager features that you use most often and hide some of the ones that you do not.

The links in the navigation frame change depending on the plug-in programs that are installed on the server.

IMPORTANT: When working in Novell Remote Manager, using the browser's *Back* button can result in unintended actions being re-sent to the server. Ensure that you use the navigation links provided in the tool.

Main Content Frame

The information in this frame changes depending on which link you click in the header or navigation frame.

Overall Health Indicator

Shows the overall health for the server as determined by the selections on the Health Monitoring page. Clicking the *Server Health* icon also takes you to the Health Monitoring page where you can view or configure the specifics of the server's health.

Online Help

When a *Help* icon appears in the upper right corner of a page in the main content frame, you can view help for the page that is displayed.

6.5   Accessing Online Help

Online help, which provides detailed information and instructions for using Novell Remote Manager features, is available for most management tasks and settings.

To access the online help, click the *Help* icon ⍰ on the upper right portion of the page or next to the specific item link.

6.6   Accessing Novell Web Pages

Novell Links on the Home (File System Management) page provide quick access to the following:

◆ *Novell Support Web* page (http://www.novell.com/support/supportcentral/ supportcentral.do?id=m1) links directly to the Novell Support Web site, where you can get current server patch kits and updates or find troubleshooting information. You can also access this link by clicking the word *Novell* in the upper-right area of the header frame.

◆ *Novell Error Codes* documentation Web page (http://www.novell.com/documentation/nwec/ index.html) links directly to the information about Novell Error Codes, including what they mean and possible causes and actions for them.

◆ *Novell Product Documentation* Web page (http://www.novell.com/documentation) links directly to the product documentation for all shipping Novell products.

◆ *Novell Developer Support* Web page (http://developer.novell.com/wiki/index.php/ Developer_Support) links directly to the Novell Developer Support Web site, where you can find tips and suggestions beyond the basics for managing, troubleshooting, and diagnosing your server.

7 Changing the Configuration

When Novell Remote Manager (NRM) is installed, it sets up a small Web server on your server. The interface and module is called HTTPSTKD. Its basic configuration parameters that allow it to work are set.

You might need to configure Novell Remote Manager after the initial installation for a variety of reasons. For example, you might want to bind additional IP addresses to HTTPSTKD, set up stronger security, set up mail notification for health events, or extend the eDirectory schema for Group Monitoring.
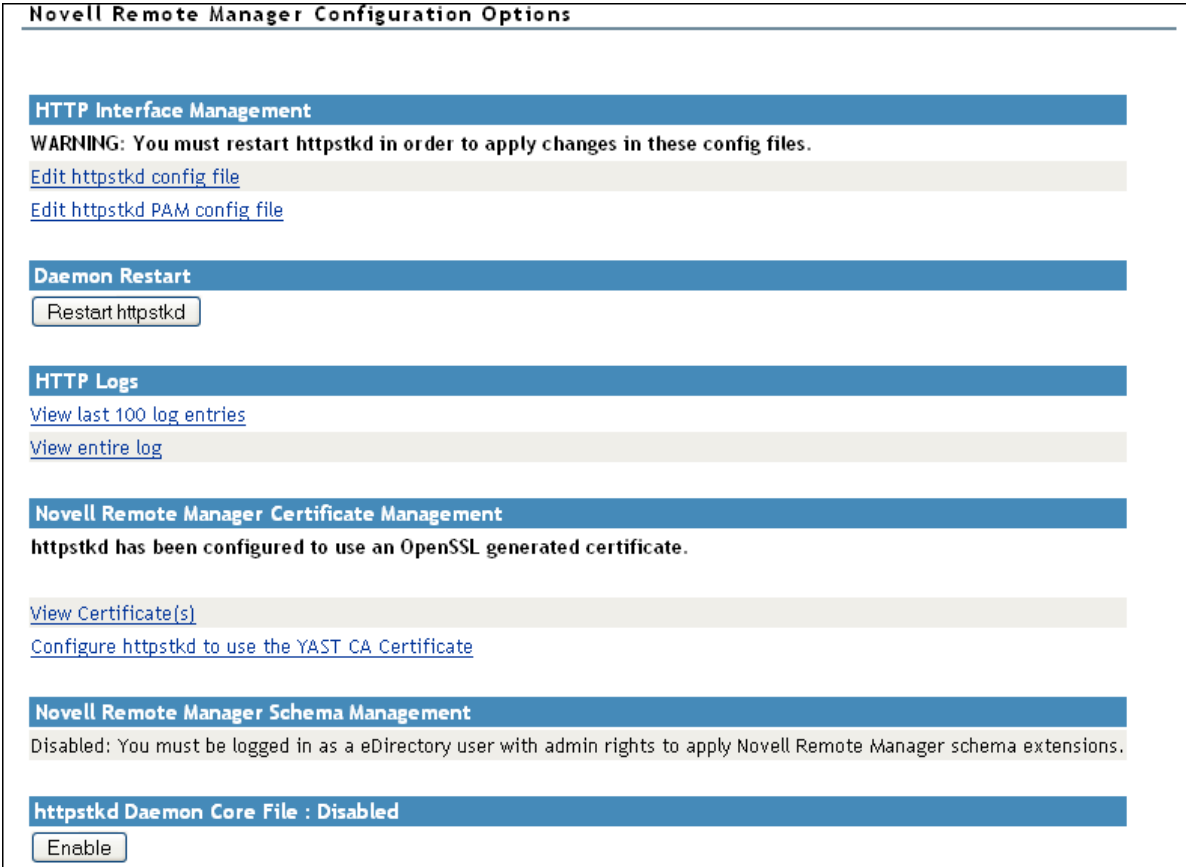
You can perform these tasks using the options on the Novell Remote Manager Configuration Options page. To access this page, click the *Configure* icon in the header frame.

Figure 7-1 *The Novell Remote Manager Configuration Options Page*

On this page you can perform the following tasks:

7.1 Accessing and Editing the HTTPSTKD Configuration File

Anytime you want to change the following interactions with Novell Remote Manager, access the `/etc/opt/novell/httpstkd.conf` file and make the applicable changes:

Table 7-1 *Information for Changing the Functionality of Novell Remote Manager*

Functionality	Information On How to Change
Which network board Novell Remote Manager is bound to or add additional IP address that it is bound to	"Address and Port Commands" on page 111
The certificates Novell Remote Manager is using for authentication	◆ "Viewing and Creating Certificates for Novell Remote Manager" on page 36 ◆ "Address and Port Commands" on page 111
The cipher strength of the SSL key that is used to access Novell Remote Manager	"SSL Key Cipher Strength Command" on page 119
The HttpOnly attribute for cookies in a response header	"HttpOnly Command" on page 115
The `InventoryResolveNonLumOwnerName` option for resolving names of NSS volume file owners if their eDirectory user names are not LUM enabled	"InventoryResolveNonLumOwnerName Command" on page 116
Which plug-ins are loaded	"Load Command" on page 118
Which workstations can access Novell Remote Manager	"Filtering Commands" on page 114
Whether email notification is sent for health monitoring or who receives it	"Email Notification Commands" on page 114
Which users can log in to Novell Remote Manager	◆ "Disable Auto LUM Command" on page 112 ◆ "Supervisor Only Command" on page 119
The language the browser supports	"Language Commands" on page 117

To access and edit this file:

1 Click the *Configure* icon in the navigation frame.

2 Click *Edit Httpstkd Config File*.

3 Make the changes.

4 Click *Save Changes*.

or

With an editor that saves files to a UNIX format, edit the `/etc/opt/novell/httpstkd.conf` file.

After making changes to this file and saving it, restart the HTTPSTKD daemon. See "Restarting the HTTPSTKD Daemon" on page 36.

7.2 Accessing and Editing the HTTPSTKD PAM Configuration File

Linux uses PAM (Pluggable Authentication Modules) in the authentication process as a layer that mediates between user and application. PAM modules are available on a system-wide basis, so they can be requested by any application.

Every program that relies on the PAM mechanism has its own configuration file in the directory `/etc/pam.d/`*program_name*. These files define the PAM modules that are used for authentication. In addition, there are global configuration files for most PAM modules under `/etc/security` directory, which define the exact behavior of these modules (examples are `pam_env.conf`, `pam_pwcheck.conf`, `pam_unix2.conf`, and `time.conf`). Every application that uses a PAM module actually calls a set of PAM functions, which then processes the information in the various configuration files and returns the results to the calling application.

This file controls the authentication to Novell Remote Manager on an OES Linux server. The default configuration should work. If you want to change the way your users authenticate to Novell Remote Manager, you can edit this file.

To access and edit this file:

1 Click the *Configure* icon ▦ in the navigation frame.

2 Click *Edit Httpstkd PAM Config File*.

3 Make the changes.

4 Click *Save Changes*.

or

With an editor that saves files to a UNIX format, edit the `/etc/pam.d/httpstkd` file.

These are the lines that enable Novell Remote Manager integration with user management:

```
auth       sufficient /lib/security/pam_nam.so
account    sufficient /lib/security/pam_nam.sos
password   sufficient /lib/security/pam_nam.so
session    optional /lib/security/pam_nam.so
```

After making changes to this file, restart the HTTPSTKD daemon. See "Restarting the HTTPSTKD Daemon" on page 36.

For more information about the PAM configuration file and the options available, see "Authentication with PAM" in the *SUSE Linux Enterprise Server 10 Installation and Administration Guide* (http://www.novell.com/documentation/sles10/sles_admin/data/cha_pam.html).

7.3 Restarting the HTTPSTKD Daemon

After making changes to the HTTPSTKD configuration file or the HTTPSTKD PAM configuration file, restart the HTTPSTKD daemon.

To restart the HTTPSTKD daemon, click *Restart Httpstkd* on the Novell Remote Manager Configuration Options page.

You can also restart it manually. See "Starting or Stopping HTTPSTKD" on page 29.

7.4 Viewing the HTTP Logs

The Novell Remote Manager Configuration Options page contains a link for all the HTTPSTK-related messages contained in the `var\log\messages` file.

This information is valuable for seeing who logged in through Novell Remote Manager, when they logged in, the pages being viewed, log failures, and so on.

You can view the last 100 entries of the log or the entire log.

To view this log:

1 Click the *Configure* icon ![icon] in the navigation frame.

2 Under the *HTTP Logs* heading, click either *View Last 100 Log Entries* or *View Entire Log*.

The logging to this file is controlled by the Syslog options. To change these default syslog options, edit the `etc/sysconf/syslog` file.

7.5 Viewing and Creating Certificates for Novell Remote Manager

Novell Remote Manager uses the default certificates created during the installation to secure access through it to the server. This certificate is bound to the first network board found in the server configuration.

During the install of eDirectory on a new server installation, there is a check box to have all HTTP services use an eDirectory certificate. HTTPSTKD uses that certificate if this check box is selected or the YAST CA certificate if it is not selected. On upgrades, the check box in eDirectory is not selected, so certificates that were previously used are maintained.

You can create new certificates and modify the `/etc/opt/novell/httpstkd.conf` file to use any certificates other than the default certificate file for any reason. You should create a new certificate in cases such as the following:

- The default certificate does not meet the level of security required by your organization
- The default certificate was bound to a DHCP address
- You have changed the server's IP address
- You want to bind a new certificate to a different network board

To view the certificates being used:

1 Click the *Configure* icon ![icon] in the navigation frame.

2 Under the Novell Remote Manager Certificate Management heading, click *View Certificate(s)*.

To create a new certificate:

1 Click the *Configure* icon ![icon] in the navigation frame.

2 Under the *Novell Remote Manager Certificate Management* heading, click *Create Certificate*.

3 On the Create a Certificate for Novell Remote Manager page, specify the required information in the *Certificate Information* fields.

This creates a new certificate and automatically replaces the current certificate at `/etc/opt/novell/httpstkd/server.pem`.

If you want to create the certificate in a different location or with a different name, change the filename or path in the *Certificate File* field.

4 Click *Create*.

5 (Conditional) If you changed the name of the certificate file or the path to it from the default location, edit the `/etc/opt/novell/httpstkd.conf` before restarting HTTPSTKD.

6 Restart HTTPSTKD by clicking the *Restart Httpstkd* button on the Novell Remote Manager Configuration Options page.

To bind Novell Remote Manager to an additional IP address to or to a different certificate:

1 Click the *Configure* icon ![icon] in the navigation frame.

2 Click *Edit Httpstkd Config File*.

3 In the Address and Port portion of the file, specify the new IP address or certificate path and name.

For example, if you had two network boards that you wanted to bind Novell Remote Manager to, you would create or have two separate certificates and then make these entries in the `/etc/opt/novell/httpstkd.conf` file:

```
addr 192.27.1.123:8008
addr 192.27.1.123:8009 keyfile=/etc/opt/novell/httpstkd/server.key certfile=/
etc/opt/novell/httpstkd/server1.pem

addr 192.27.1.124:8008
addr 192.27.1.124:8009 keyfile=/etc/opt/novell/httpstkd/server.key certfile=/
etc/opt/novell/httpstkd/server2.pem
```

You can put the certificate in any location as long as the entry in the `/etc/opt/novell/httpstkd.conf` points to the correct location and filename.

7.6 Extending the eDirectory Schema for Novell Remote Manager Group Operations

When you use Group Operations and want to save the groups that you have created, Novell Remote Manager requires you to save the file on the server locally or assign it to an eDirectory object.

Before you can save it to an eDirectory object, you must extend the eDirectory schema to access the attributes for Novell Remote Manager group operations at least once in the eDirectory tree that you are saving to.

You can do this easily by clicking either the *Extend the NDS Schema for NRM* link on the Novell Remote Manager Configuration Options page any time before you create a group or the link in the failure error message displayed when saving the group. As with all schema extensions, you must have the necessary rights to extend the schema.

The message `NDS schema extension complete` is displayed on this page when the operation is done. Then you can save the group.

8 Diagnosing Problems

Novell Remote Manager for Linux includes several tools to assist you in monitoring the health and status of your server. When you are familiar with the normal health and status of your server, diagnosing problems with your server becomes easier.

Performing the following tasks can help you to become familiar with the health and status of your servers:

8.1 Monitoring Server Health

Monitoring the health of your server can help prevent it from getting to a state in which your users cannot access the server or the data on it. Monitoring your server's health involves the following tasks:

8.1.1 Monitoring Overall Server Health or the Health of a Specific Item

Using Novell Remote Manager, you can monitor the server's overall health and the health of a specific item.

Health Status

The server's overall health is indicated by the color of the circle displayed next to the *Server* icon in the header frame for Novell Remote Manager. The following table lists and explains each health status that might be displayed.

Table 8-1 *Server Health Status*

Icon	Server Health Status	Explanation
	Good	All parameters included in the server's health configuration list are good.
	Suspect	The status of one or more of the parameters included in the server's health configuration list is suspect or has a minor problem.
	Bad	The status of one or more of the parameters included in the server's health configuration list is bad or has a critical problem.
	Lost connection	The connection to the server from Novell Remote Manager has been lost.

The server's overall health is determined by items that are selected in the *Include* list on the detailed Server Health page as shown in Figure 8-1. By default, all items are selected.

Figure 8-1 *Server Health Page*

If the status of any item that is selected in the *Include* list changes to yellow (suspect) or red (bad), the health status indicator light in the header frame changes to indicate there is a problem. If more than one item changes, the worst status indicates the server's overall status. When the status for all items returns to green (good), then the health light indicator changes back to green (good).

Health Status Refresh Rate

The server's health status, reported by the health status indicator, is updated every five seconds, but the graphic refreshes only if the status changes.

- To modify the refresh rate, select a rate from the *Page Refresh Rate* drop-down menu, then click *Begin Refresh*. The selected refresh rate applies to this page only, and persists until you modify the value.

- To stop refreshing the page, select *Stop Refresh*. The page does not refresh until you click *Begin Refresh*.

- To begin refreshing after stopping, select *Begin Refresh*. The last used refresh rate is applied automatically when it begins.

Operating System Health

The *Operating System* table on the Server Health page shows the health status (green/good, yellow/suspect, or red/bad) for all known components of the operating system, as well as current, peak, and maximum values. When an item is not selected in the *Include* list, it is not included when determining the overall server health and the values for *Status*, *Current*, *Peak*, and *Max* are not displayed.

The following items in the *Operating System* table are key indicators of your server's health:

- CPU Utilization (for each processor, if there is more than one)
- Process Count
- Available Memory
- Physical, Swap, and Virtual Memory
- LAN Collisions

IMPORTANT: You must click the *Apply Settings* button below the *Operating System* table to apply your changes to values in that table. If you leave the page without applying the changes, the settings return to their saved values.

In this release, you cannot change the thresholds for the *Suspect* and *Critical* values of these indicators. See the online help for each parameter to see the set thresholds.

To access the Health Monitoring page, click one of the following links:

- *Overall server health status indicator* icon
- *Health Monitor* icon in the header frame
- *Diagnose > Health Monitor* link in the navigation frame

Services Health

The *Services* table on the Server Health page also shows the health status of the services installed on the server as well as their online or offline status. When a service is offline, the health status of the service is not included in the server's overall health whether or not it is selected in the *Include* list.

The mode indicates that the server is running or stopped. To change the mode of the service, click the mode link for that service. The mode page opens for the service where you can start, stop, or restart the service by clicking the applicable button.

You can modify the *Include* and *Notify* settings in the *Services* table by selecting and deselecting the check boxes in those columns, then clicking *Apply Settings* below the table.

IMPORTANT: You must click the *Apply Settings* button below the *Services* table to apply your changes to values in that table. If you leave the page without applying the changes, the settings return to their saved values.

8.1.2 Configuring the Items to Monitor

As stated in the previous section, the server's overall health is determined by items that are selected in the *Include* list on the detailed Server Health page. By default, all of the items are selected.

Therefore, if you have a server that has specific parameters that you know will cause a suspect or bad status and you want to be notified only when other parameters have changed, you can remove the items with the suspect or bad parameters from the *Include* and *Notify* lists by deselecting them and clicking *Apply Settings*. You need to apply the settings for the Services items separately from the Operating System items.

8.1.3 Configuring Email Notification for Server Health Status

Rather than manually checking the status, you can configure Novell Remote Manager to send an email to notify you when the server's health status changes to any value other than green (good).

1 Select the *Notify* check box for the item on the Server Health page.

2 Specify the required information for email notification in the `/etc/opt/novell/httpstkd.conf` file.

   You can edit this file via the link provided on the Configuration Options page.

3 After changing the `/etc/opt/novell/httpstkd.conf` file, restart HTTPSTKD.

   Click the *Restart HTTPSTKD* button on the Configuration Options page or execute the following command in a console shell on the Linux server:

   `rcnovell-httpstkd restart`

8.2 Troubleshooting a Suspect or Bad Health Status

When the health status of an item changes from good to a suspect or bad state, you can look at the specific item and check the online help for suggested remedies.

1 Access the Server Health page.

2 Look for the specific health item that has changed status.

3 View the information for the item that has changed by clicking the *Info* icon ⓘ for the item.

This information outlines the specific health criteria (thresholds) for green, yellow, or red statuses in that component. It also provides suggestions in some cases for what might be going wrong in that component if a yellow or red indicator is displayed.

4 Perform the recommended or appropriate action for the health item that has changed.

9 Viewing File Systems

The *Home* icon ⌂ and *View File Systems* section in Novell Remote Manager for Linux include the following links to these pages:

Table 9-1 *Links for Viewing File System Information*

Link	Page Displayed
Home icon	File System Management
View File System Listing	Directory Listing of / (`root`) directory
View Partition Information	Partition Information

From these pages you can perform the following tasks:

- Section 9.1, "Viewing Mounted Devices and Performing Actions on Them," on page 46
- Section 9.2, "Browsing File Systems and Performing Actions on Them," on page 47
- Section 9.3, "Viewing Partition Information," on page 51
- Section 9.4, "Browsing NSS Volumes and Performing Actions on Them," on page 51
- Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60
- Section 9.6, "Generating and Viewing NCP Trustee Reports for NSS Volumes," on page 66

9.1 Viewing Mounted Devices and Performing Actions on Them

The File System Management page is the home page for Novell Remote Manager.

Figure 9-1 *File System Management Page with Information Pages*

You can access this page by clicking the *Home* icon ⌂ (*File System*) link in the header frame.

The File System Management page provides a list of the server's mounted devices. The devices that are shown are from the Linux mountable file, which is a list of other file systems mounted on this host's file system.

You can view the percent of free space available on all mounted physical devices or external file systems that have actual disk space. Available disk space on virtual file systems is not shown. For information about how NSS reports space usage for volumes, see "Guidelines for Sizing Volumes" in the *OES 2 SP3: NSS File System Administration Guide for Linux*.

To view specific information about each mounted physical device or external file system that has actual disk space, click the *Info* icon ⓘ on the left. Clicking the *Info* icon ⓘ displays one of the following types of pages:

- **File System Information.** This page shows the mount point, the file system type, the size of the mount point and the space in use. Clicking the *Unmount* button on this page, unmounts the remote file system shown. The *Unmount* button is available only on remotely mounted file systems such as NFS, NCP, and Samba.

- **NCP Share Information.** This page shows the volumes underlying file system type, mount point and status, and cache information.

You can browse any of these file systems by clicking the link in the *Mount Location* column. At this point, you can perform any of the tasks listed for browsing the servers file system. See "Browsing File Systems and Performing Actions on Them" on page 47.

9.2 Browsing File Systems and Performing Actions on Them

On the Directory List page, you can view the Linux POSIX file system and NSS file system from mount points or local partitions; browse directories and files; view and change attributes, directories, and files; and edit, delete, or rename files.

To access this page, click *View File System > View File System Listing* in the navigation frame.

Figure 9-2   *Directory List Page*

/

Upload   Text Search   File Search   Inventory

Folder Listing:

Info	Name	Size	Date and time	Attributes
	.	N/A	Nov 14, 2005, 4:00:26 AM	N/A
	bin	N/A	Aug 29, 2005, 5:03:10 PM	d rwx r.x r.x
	boot	N/A	Aug 29, 2005, 5:09:01 PM	d rwx r.x r.x
	code	N/A	Jan 01, 1986, 12:00:00 AM	d rwx r.x r.x
	data1	N/A	Aug 29, 2005, 4:43:32 PM	d rwx r.x r.x
	dev	N/A	Nov 14, 2005, 11:00:54 AM	d rwx r.x r.x
	etc	N/A	Nov 28, 2005, 3:35:14 PM	d rwx r.x r.x
	home	N/A	Nov 22, 2005, 8:33:25 AM	d rwx r.x r.x
	lib	N/A	Aug 29, 2005, 4:56:27 PM	d rwx r.x r.x
	media	N/A	Jun 30, 2004, 12:43:37 PM	d rwx r.x r.x
	mnt	N/A	Jun 30, 2004, 12:43:37 PM	d rwx r.x r.x
	opt	N/A	Aug 29, 2005, 5:03:56 PM	d rwx r.x r.x
	proc	N/A	Nov 14, 2005, 3:59:45 AM	d r.x r.x r.x
	root	N/A	Nov 28, 2005, 11:01:40 AM	d rwx ... ...

The following table describes the actions necessary to access directories, files, and file and directory attributes from the Directory List page.

Table 9-2   *Directory List Page Tasks and Procedures*

Tasks	Procedures
Browse to a mount point, volume, directory, or local partition	Click the *link_for_the_mount_point*, *volume*, *directory*, or l*ocal partition* under the *Name* column.
Move down the directory tree	Click the *directory_name* link.
Move up the directory tree	Click the *double_dots* (..) link.
Re-sort the list by name, size, or date and time.	Click the *column heading* that has a *Sort* icon ▼ next to it. The default sort for this listing is by the directory or file name.
View or change the attributes of a directory	Click the *Attributes* link.

The *Size* column for a directory lists the size of all files and subdirectories in that directory.

Clicking the *Attributes* link opens the Directory Information page where you can view or change the attributes of the directory. For more information, see "Viewing Details about Directories and Performing Actions on Them" on page 48 and "Viewing the Details of a File and Performing Specific Actions" on page 50.

Viewing attributes on NSS volumes, directories, and files conveys the status of the NSS file system directory and file attributes: Hidden (H), Read Only (Ro), Read/Write (Rw), and Execute (X). You can view these settings in Novell Remote Manager for Linux as a combination of Read, Write, and Execute fields for the User, Group, and Other categories. Although it appears that you can control these attributes using the selections on the Directory Information page, the selections do not actually control the conventional POSIX settings for NSS directories and files.

To set directory and file attributes for NSS, use Novell Client or Novell NetStorage. For more information, see "Viewing Key NSS Directory and File Attributes as Linux POSIX Permissions" in the *OES 2 SP3: File Systems Management Guide*.

From the Directory Listing page, you can perform the following tasks.

9.2.1   Viewing Details about Directories and Performing Actions on Them

1 Click the *View File System* > *View File System Listing* link in the navigation frame or click a *Mount_Location_name* link on the *Home* page.

2 On the Directory list page, browse to the directory you want to search in by clicking the *directory_name* link.

3 From the directory listing, click the *Folder Information* icon 📁 to the left of the directory or subdirectory you want to view information about or change the attributes of.

4 On the Directory Information page that is displayed, view the information or select/deselect the check box for the attributes that you want to change.

5 Click *OK*.

6 When viewing the details of a directory from the Directory Information page, you can also rename the directory, create a subdirectory, create a symbolic link to the selected directory, or delete the directory and its contents by completing the required information and clicking the applicable button.

```
[ Delete Directory and Contents ]

[ Rename Directory ]   /home

[ Create Subdirectory ]

[ Create Symbolic Link ]
```

9.2.2 Uploading a File to the Server

If you have rights to write to the current directory that you are viewing via Novell Remote Manager, you can use the *Upload* link to copy a file from your local machine or any other network directory to the currently selected directory.

You can upload only one file at a time. The file's date and time are changed when performing this task.

To perform this task:

1 Click the *View File System > View File System Listing* link in the navigation frame or click a *Mount_Location_name* link on the *Home* page.

2 On the Directory list page, browse to the directory you want to upload a file to by clicking the *directory_name* link.

3 In the directory listing, click the *Upload* link at the top of the Directory listing page.

4 Browse to and select the file that you want to upload.

5 Click *Upload*.

9.2.3 Downloading a File from the Server to a Local Workstation

When you are browsing the server's file system via Novell Remote Manager, you can download any file to your local machine by clicking the *filename* and then saving the file to your local workstation.

1 Click the *View File System > View File System Listing* link in the navigation frame or click a *Mount_Location_name* link on the *Home* page.

2 On the Directory/File List page, browse to or search for the file that you want to download.

3 Click the *filename* link.

4 When prompted, save the target file to the desired location.

If the file opens rather than prompting you to save it, you can use the browser features to save the file.

9.2.4 Searching for Text in Files

On the Directory Listing page, you can do a GREP-type search (it accepts GREP wildcard characters) through the files in the current directory as well as subdirectories to find text in a file.

1 Click the *View File System > View File System Listing* link in the navigation frame or click a *Mount_Location_name* link on the *Home* page.

2 On the Directory list page, browse to the directory you want to search in by clicking the *directory_name* link.

3 Click the *Text Search* link.

4 Specify the content, filename, or extension you want to search for and select whether you want to match the case.

5 (Optional) If you want to search all subdirectories as well, select *Search Subdirectories*.

6 Click *Search*.

If nothing is found, no files are listed under the search instructions.

If the search instructions are not valid, the page showing the directory you wanted to search is returned.

If the search instructions are valid, the results are displayed on a page with the search instructions.

In the display results, you can

- ◆ Click the filename link to view or download the file.

- ◆ Click the *File Information* icon to view information about the file; change the attributes to it; or edit (conditional), rename, or delete the file.

  If the file is a simple text file or a file with an extension listed in the `/opt/novell/nrm/nrmedit.txt` file, you can also edit the file by clicking the *Edit File* button.

9.2.5 Viewing the Details of a File and Performing Specific Actions

1 Click the *View File System Listing* link in the navigation frame or click a *Mount Location* name link on the Home page.

2 On the Directory list page, browse the directories to the file, then click the *File* icon to the left of the filename.

3 On the File Information page that is displayed, view the information or specify the information required for the applicable task, and then click the applicable button for the task you want to perform.

For Attributes management, click the attributes that you want to select/deselect and then click *OK*.

For file management, use the *Edit*, *Delete*, or *Rename* buttons. The *Edit* button is available only on simple text files or files with the extensions listed in the `/opt/novell/nrm/nrmedit.txt` file.

If you want to save the file with an ANSI or UTF-8 encoding, select the appropriate option and click *OK*.

9.2.6 Viewing Individual Files

If your browser is set up to recognize a certain file extension (for example, `.txt`), you can browse to and click a file of that type to view it directly in Novell Remote Manager. Otherwise, you can download any file to your local machine by clicking the *filename* and then saving it to a local workstation and opening it there.

9.3 Viewing Partition Information

If you need to get information about how a partition is laid out, you can get this information from the Partition Information page. This page shows you the major and minor numbers of the partition, the number of blocks in the partition, and its name.

To view partition information, click *View Partition Information* in the navigation frame.

Figure 9-3 *Example Partition Information Page*

Partition Information

major	minor	#block	name
3	0	39121488	hda
3	1	2096451	hda1
3	2	4096575	hda2
3	3	1	hda3
3	5	1052226	hda5
3	6	31872928	hda6

9.4 Browsing NSS Volumes and Performing Actions on Them

The NCP Server plug-in to Novell Remote Manager appears as "Manage NCP Services" in the left panel. NCP volumes and NSS volumes are listed as NCP Shares.

For detailed information about creating and managing NCP volumes, see the *OES 2 SP3: NCP Server for Linux Administration Guide*.

For detailed information about creating and managing NSS volumes, see the *OES 2 SP3: NSS File System Administration Guide for Linux*.

For detailed information about creating and managing Dynamic Storage Technology shadow volume pairs with NSS volumes, see the *OES 2 SP3: Dynamic Storage Technology Administration Guide*.

- Section 9.4.1, "Viewing Information about an NSS Volume," on page 52
- Section 9.4.2, "Viewing the Linux POSIX Details of an NSS Directory and Performing Specific Actions on It," on page 54
- Section 9.4.3, "Viewing the Linux POSIX Details of a File and Performing Specific Actions on It," on page 54
- Section 9.4.4, "Browsing an NSS Volume and Setting Rights and File System Attributes on Directories and Files," on page 55
- Section 9.4.5, "Salvaging and Purging Deleted Files on an NSS Volume," on page 59

9.4.1 Viewing Information about an NSS Volume

1 In Novell Remote Manager, select *Manage NCP Services* > Manage Shares.

2 In the right pane, view the list of mounted NSS volumes in the *Active Shares* list.

3 Next to the volume name, click the *Information* icon (⬛) to go to the volume's Share Information page.

VOLD Share Information ❓

Information	
Description	**Value**
File system path	/media/nss/VOLD
File system shadow path	n/a
Loaded name spaces	DOS LONG
File system type	NSS
NCP volume ID	2
Status	mounted online salvageable user quotas directory quotas
Sector Size	512
Sectors per Cluster	8
Capacity	496.52 MB
Used space	592 KB
Advanced Information	View

Open File Information

Salvageable File List

Volume tasks
Available Actions
Add Shadow volume
Purge Volume

Perform Inventory

Share Management Home

4 In the *Information* table, view the following information about the NSS volume:

● File system path on Linux, such as /media/nss/VOLD

Click the link to browse the directories and files on the volume.

- File system shadow path, such as /media/nss/SH_VOLD (A path is displayed only when the specified NSS volume is the primary volume of a Dynamic Storage Technology shadow volume pair.)

  Click the link to browse the directories and files on the pair's secondary volume.

- Loaded name spaces, such as DOS, LONG, MAC, and UNIX

- File system type (NSS)

- NCP volume ID

  The NCP volume ID is a value between 0 and 254 that is automatically assigned for standalone volumes, beginning with zero. The SYS volume is by default assigned 0, and _Admin is assigned 1. For shared volumes, the volume ID is specified in the cluster load script for shared volumes. beginning with 254 and down.

- Status

  Identifies whether the volume is mounted/unmounted, online/offline, or in a cluster resource, and lists the NSS volume attributes that are enabled for the volume, such as Salvageable, User Quotas, Directory Quotas, and so on.

- Sector size

- Sectors per cluster

- Capacity

- Used space

- Advanced information (Click *View* to view.)

Local cache	Parameter	Value
	trustee count	0
	cached files	2
	evicted files	0
	cached folders	5
	cache retrieved	19
	cache retrieved locked	0
Pool name	NSS POOL_D	
Pool attributes	NSS 0x13	
GUID	NSS e3b410a4-f2fa-01e1-80-00-0c8f5f6d1d22	
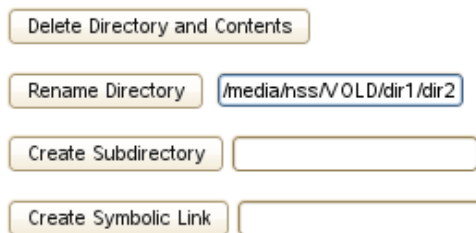
  - Local cache

    - Trustee count

    - Cached files

    - Evicted files

    - Cached folders

    - Cache retrieved

    - Cache retrieved locked

  - Pool name

  - Pool attributes

  - GUID

- Open File Information (Click to view.)

- Salvageable Files (Click to view.)

9.4.2 Viewing the Linux POSIX Details of an NSS Directory and Performing Specific Actions on It

1 Click the *View File System Listing* link in the navigation frame or click a *Mount Location* name link on the Home page.

2 On the Directory list page, browse to the `/media/nss/<volume_name>` and through the subdirectories to the directory, then click the *Directory Information* icon ▮ to the left of the directory name.

3 On the Directory Information page that is displayed, view the information about the file:

- Directory owner
- Group
- Data modified time
- Last accessed time
- Information change time
- Linux POSIX read/write/execute directory attributes.

> **IMPORTANT:** Do not use these settings for NCP and NSS volumes. Use the NCP view of the volume to set the Novell Trustee Model attributes.

4 Perform any of the following tasks:

```
  Delete Directory and Contents

  Rename Directory      /media/nss/VOLD/dir1/dir2

  Create Subdirectory

  Create Symbolic Link
```

- **Delete Directory and Its Contents:** Click this option to delete the selected directory and the subdirectories and files in it.
- **Rename Directory:** Specify the full Linux path to the directory including the new directory name, then click *Rename* Directory.
- **Create Subdirectory:** Specify the name of the new subdirectory, then click *Create Subdirectory*.
- **Create Symbolic Link:** Specify the name for the symbolic link, then click *Create Symbolic Link*.

9.4.3 Viewing the Linux POSIX Details of a File and Performing Specific Actions on It

1 Click the *View File System Listing* link in the navigation frame or click a *Mount Location* name link on the Home page.

2 On the Directory list page, browse to the `/media/nss/<volume_name>` and through the subdirectories to the file, then click the *File Info* icon ▮ to the left of the file name.

3 On the File Information page that is displayed, view the information about the file:

- File owner
- Group
- Data modified time
- Last accessed time
- Information change time
- Linux POSIX read/write/execute file attributes.

> **IMPORTANT:** Do not use these settings for NCP and NSS volumes. Use the NCP view of the volume to set the Novell Trustee Model attributes.

4 Perform any of the following tasks:

- **Edit:** The *Edit* button is available only on simple text files or files with the extensions listed in the `/opt/novell/nrm/nrmedit.txt` file. If you want to save the file with an ANSI or UTF-8 encoding, select the appropriate option and click *OK*.
- **Delete:** Click *Delete* to delete the selected file.
- **Rename:** Specify the full Linux path to the file including the new file name, then click *Rename*.
- **Create Hard Link:** Specify the hard link path, then click *Create Hard Link*.
- **Create Symbolic Link:** Specify the symbolic link path, then click *Create Symbolic Link*.

9.4.4 Browsing an NSS Volume and Setting Rights and File System Attributes on Directories and Files

1 In Novell Remote Manager, select *Manage NCP Services* > Manage Shares.

2 In the right pane, view the list of mounted NSS volumes in the *Active Shares* list.

3 Click the volume *Name* link to view a folder list and to browse the files on the NSS file system.

Click the arrows in the column headings to sort the list by name, type (file extension), size, or last modified date and time.

4 Use the links above the file list to perform the following actions on the volume:

- *Upload*
- *Text Search*
- *File Search*
- *Inventory*

5 Click a directory's *Directory Information* icon ▢ to view information about the directory. You can also create subdirectories.

Figure 9-4

VOLD:/dir1

[Back to directory listing for: /VOLD/dir1]

Directory entry information:

Owner	.avalon.novell
Creation date and time	Mon Nov 14 13:57:12 2011
Effective rights	SRWCEMFA
Inherited rights filter	SRWCEMFA

Salvageable files: None

[Create Subdirectory] **New name** [   ]

- ◆ Owner
- ◆ Creation date and time
- ◆ Effective rights (based on the Novell Trustee Model)
- ◆ Inherited rights filter (based on the Novell Trustee Model). You can click the link to modify the rights inheritance filter settings.
- ◆ Salvageable files

6 Click a directory's *Attributes* link to view or modify the NSS file system attributes that are set for the directory. Click *OK* to save your changes.

VOLD:/dir1

Folder Attributes	Description
☐ System	If checked, this indicates a system file or folder.
☐ Hidden	If checked, this indicates that this file or folder is excluded from normal directory searches.
☐ Archive	If checked, this indicates that the file or folder needs to be archived.
☐ Immediate Purge	If checked, this indicates that when this file or folder or the folder contents are deleted and are unrecoverable.
☐ Don't Compress	If checked, this indicates that this file or the contents of the folder cannot be compressed..
☐ Don't Migrate	If checked, this indicates that this file or folder cannot be migrated to near line storage..
☐ Delete Inhibit:	If checked, this indicates that this file or folder cannot be deleted.
☐ Rename Inhibit:	If checked, this indicates that this file or folder name cannot be renamed.
☐ Immediate Compress	If checked, this indicates that this file or the folder contents will be scheduled for compression..

[OK] [Reset]

- ◆ System
- ◆ Hidden
- ◆ Archive
- ◆ Immediate purge
- ◆ Do not compress
- ◆ Do not migrate

- Delete inhibit
- Rename inhibit
- Immediate compress

For information about the meaning and usage of NSS file system attributes for directories, see "Understanding Directory and File Attributes for NSS Volumes" in the *OES 2 SP3: File Systems Management Guide*.

7 Click a file's *File Information* icon ▮ to view the following file information. You can also delete the file from this page by clicking *Delete File*.

VOLD:/SLES-deployment_en.pdf

[Back to directory listing for: /VOLD]

File information

Owner	.admin.novell
Last modified date and time	Fri Nov 11 18:43:40 2011
Creation date and time	Fri Nov 11 18:43:40 2011
Last archived date and time	Fri Nov 30 00:00:00 1979
Effective rights	SRWCEMFA
Inherited rights filter	SRWCEMFA
Disk space in use	4,845,095 Bytes

[Delete File]

- Owner
- Last modified date and time
- Creation date and time
- Last archived date and time
- Effective rights (based on the Novell Trustee Model)
- Inherited rights filter (based on the Novell Trustee Model). You can click the link to modify the rights inheritance filter settings.
- Disk space in use

8 Click a file's *Attributes* link to view or modify the NSS file system attributes that are set for the file. Click *OK* to save your changes.

VOLD:/SLES-deployment_en.pdf

File Attributes	Description
☐ System	If checked, this indicates a system file or folder.
☐ Hidden	If checked, this indicates that this file or folder is excluded from normal directory searches.
☐ Read Only	If checked, this indicates that this file cannot be deleted or modified..
☑ Archive	If checked, this indicates that the file or folder needs to be archived.
☐ Immediate Purge	If checked, this indicates that when this file or folder or the folder contents are deleted and are unrecoverable.
☐ Don't Compress	If checked, this indicates that this file or the contents of the folder cannot be compressed..
☐ Don't Migrate	If checked, this indicates that this file or folder cannot be migrated to near line storage..
☐ Delete Inhibit:	If checked, this indicates that this file or folder cannot be deleted.
☐ Rename Inhibit:	If checked, this indicates that this file or folder name cannot be renamed.
☐ Immediate Compress	If checked, this indicates that this file or the folder contents will be scheduled for compression..
☐ Shareable	If checked, this indicates that this file may be used by multiple users at the same time..
☐ Don't SubAlloc	If checked, this indicates that this file may not utilize sub-allocation for space saving..
☐ Execute Only	If checked, this indicates that this file may only be excuted as a program, no modifications will be allowed to the file.
☐ Transactional	If checked, this indicates that Transactional tracking of data will enabled.
☐ Copy Inhibit	If checked, this indicates that this file may not be copied.

OK   Reset

- System
- Hidden
- Read only
- Archive
- Immediate purge
- Do not compress
- Do not migrate
- Delete inhibit
- Rename inhibit
- Immediate compress
- Shareable
- Do not suballocate
- Execute only
- Transactional
- Copy inhibit

For information about the meaning and usage of NSS file system attributes for directories, see "Understanding Directory and File Attributes for NSS Volumes" in the *OES 2 SP3: File Systems Management Guide*.

9.4.5   Salvaging and Purging Deleted Files on an NSS Volume

From an NSS volume's Share Information page, the *Salvageable File List* option allows you to view a list of deleted files that are available for salvage or purge on the volume. Deleted files are available only for NSS volumes where the Salvage attribute is enabled. For information about the NSS file salvage feature, see "Volume Salvage versus File Salvage" in the *OES 2 SP3: NSS File System Administration Guide for Linux*.

1 In Novell Remote Manager, select *Manage NCP Services* > Manage Shares.

2 In the right pane, view the list of mounted NSS volumes in the *Active Shares* list.

3 Next to the volume name, click the *Information* icon (I) to go to the volume's Share Information page.

4 Below the *Information* table, click *Salvageable File List* to open the Salvage File Information page.

Salvage File Information

[Back to directory listing for: /VOL0]

[Purge all files]

Salvageable files

Salvage	Purge	Name	Size	Last modified date and time	Deletor
[Salvage]	[Purge]	SLES-installquick_en.pdf	4446726	Fri Nov 11 18:45:06 2011	.admin.novell

5 Salvage or purge files in the list:

If the deleted file resided in a directory that has been deleted, you must first salvage the deleted directories in the path. Salvage each lower directory in turn until you have salvaged the deleted directory that contained the file. You can then search for the deleted file in the salvaged directory.

- ◆ The *Purge all files* option allows you to purge all deleted files on the selected volume.
- ◆ The *Salvage* option allows you to recover a deleted file.
- ◆ The *Purge* option allows you to purge a deleted file.

   You can also select a deleted directory and use this option to purge the deleted directory and all of the deleted subdirectories and files it contains.

9.4.6   Purging a Deleted NSS Volume

For volume salvage, the NSS volumes are automatically retained on deletion. The deleted volume can be salvaged for a period of time that is determined by the server-level Logical Volume Purge Delay setting. Administrators with the Supervisor right can salvage or purge deleted volumes at any time before the purge delay elapses. For information about the NSS volume salvage feature, see "Volume Salvage versus File Salvage" in the *OES 2 SP3: NSS File System Administration Guide for Linux*.

1 In Novell Remote Manager, select *Manage NCP Services* > Manage Shares.

2 In the right pane, view the list of mounted NSS volumes in the *Active Shares* list.

3 Next to the volume name, click the *Information* icon (I) to go to the volume's Share Information page.

4 Scroll down to the *Volume Tasks* table, and click *Purge Volume*.

9.4.7 Viewing Open File Information for an NSS Volume

1 In Novell Remote Manager, select *Manage NCP Services* > Manage Shares.

2 In the right pane, view the list of mounted NSS volumes in the *Active Shares* list.

3 Next to the volume name, click the *Information* icon (I) to go to the volume's Share Information page.

4 Below the *Information* table, click *Open File Information* to open the Open File Information page.

5 View the following information about files on the NSS volume:

   ◆ Connection

   For information, see "Managing Connections for NCP Volumes and NSS Volumes" in the *OES 2 SP3: NCP Server for Linux Administration Guide*.

   ◆ User name

   ◆ Open file list

9.5 Generating Inventories for Directories or NCP Volumes

With this feature, you can inventory NCP mounted volumes, or general file system directories or subdirectories as well as view graphs, profiles, reports, and key statistics about each of these items, including space usage trends.

IMPORTANT: To view the graphical displays in the inventory report, the Sun Java plug-in must be installed on the browser you use to access Novell Remote Manager, and the browser must have Java and Javascript enabled.

Generating this report can take a while, depending on the number of files and folders in the specified directory path. There is no facility to view previous inventory scans as there was on NetWare.

With a few clicks, you get available space trend graphs; profiles for file types, file owner, last accessed, last modified, creation time, and file size; and links to specific reports for each of these. You can also customize the scan to look for specific file information.

The *File Owner Profile* gathers the ownership statistics as follows:

   ◆ For OES 2 SP3 plus the latest patches, the file inventory gathers information from the NSS management interface. If the eDirectory user name is available from the NSS management interface, the file owner is reported as the eDirectory user name such as `jsmith`. Otherwise, the owner is reported as the `nobody` user. It is not required to enable the users with Linux User Management (LUM) to get the file owner's name.

   ◆ For OES 2 SP2 and earlier, the file inventory gathers file ownership information from the POSIX ownership field that the file system reports to be the file owner. If an eDirectory user name is LUM-enabled, the NSS and NCP volumes report the real user name to Linux, such as `jsmith`, and the POSIX ownership field reports the actual user. For non-LUM-enabled users, the file system reports the user name as either `root` or `nobody`, depending on the user's permissions when accessing the file system. In order to effectively use the *File Owner Profile* feature to retrieve the eDirectory user name, you must LUM-enable the users.

This section includes the following tasks:

   ◆ Section 9.5.1, "Generating an File Inventory Report," on page 61
   ◆ Section 9.5.2, "Generating a Volume Inventory Report," on page 62
   ◆ Section 9.5.3, "Viewing a Saved NCP Volume Report," on page 63

9.5.1 Generating an File Inventory Report

To generate an inventory report for a the entire server or any subdirectory including mounted NCP volumes:

1 Click *View File System Listing > Inventory*.

This opens the General File Inventory page. By default the / (root) directory is selected.

General File Inventory

Choose Subdirectory to Inventory:

[Select] [/]

Browse Subdirectories:

.
..
bin
dev
etc
lib
mnt
opt
srv
tmp
sys
var
usr
boot
code
home
proc
sbin
root
data1
media
windows

2 From this point you can do the following:

Click the *Start Scan* button to generate an inventory of the entire server (the default selection is the / [root] subdirectory).

or

Select a subdirectory to generate a report from by clicking the *subdirectory_name* links until the desired subdirectory appears in the *Scan* field, then clicking the *Scan* button.

General File Inventory

Choose Subdirectory to Inventory:

[Select] [/etc/xinetd.d]

Browse Subdirectories:

.
..

If you are viewing the File System Listing page for the desired directory, you can generate the same reports by clicking the *Inventory* link on this page.

A report similar to the following is generated.

General File Inventory
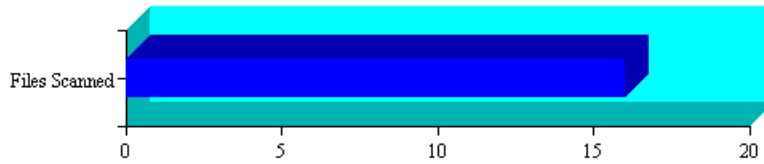
Inventory Report for: /home/test

	Key Statistics	Totals
File type profiles	Total Subdirectories:	6
File owner profiles	Total Files:	16
Last modified profiles	Space In Use:	0 MB
Last accessed profiles	File Types:	4
Change time profiles	Soft Link Files:	0
File size profiles	Soft Link Subdirectories:	0
Links to specific reports		
Custom Directory Tree Scan		

File type profiles:
Data Tables:

File Types (By Bytes In Use)

At this point, you can click any of the links to the left of the *Key Statistics* table to move quickly to the generated information or you can create a custom report. See "Generating a Customized Report" on page 64.

9.5.2 Generating a Volume Inventory Report

To quickly generate a inventory report for a mounted NCP volume:

1 Click *View File System > NCP Volume Inventory*.

This opens the Volume Inventory page that shows all mounted volumes available for inventory.

Volume Inventory

NCP Volumes available for Inventory	
Volume	**Mount Point**
SYS	(/usr/novell/sys)
NCPVOL	(/home)

2 Click the *volume_name* link to generate an inventory of the volume selected.

A report similar to the following is generated.

Volume Inventory
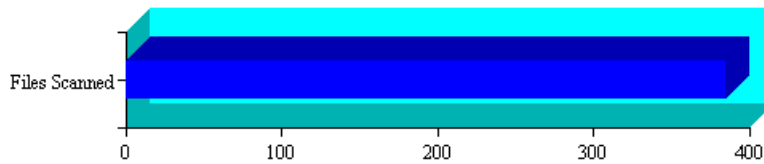
Inventory Report for: /usr/novell/sys

File type profiles
File owner profiles
Last modified profiles
Last accessed profiles
Change time profiles
File size profiles
Links to specific reports
Custom Directory Tree Scan

Key Statistics	Totals
Total Subdirectories:	35
Total Files:	385
Space In Use:	21 MB
File Types:	12
Soft Link Files:	0
Soft Link Subdirectories:	0

File type profiles:
Data Tables:
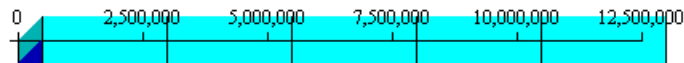
File Types (By Bytes In Use)

At this point, you can click any of the links to the left of the *Key Statistics* table to move quickly to the generated information or you can create a custom report. See "Generating a Customized Report" on page 64.

9.5.3   Viewing a Saved NCP Volume Report

An inventory report is saved when you run an inventory on an NCP volume. You can view the last saved report by going to the *Manage NCP Services > Volume Inventory Reports* page and clicking the *View Last Report > Display* option for the volume. The saved report provides the same statistics as running *View File Systems > NCP Volumes Inventory*. Graphics are not available in a saved report.

9.5.4   Emailing a Saved NCP Volume Report

You can email a saved NCP volume inventory report to addresses that are configured in the `/etc/opt/novell/httpstkd.conf` file. To send the report, go to the *Manage NCP Services > Volume Inventory Reports* page and click the *Email Report > Send* option for the volume.

9.5.5 Generating a Customized Report

After generating an inventory report for a volume or directory, you can create a customized scan to report more specific information and perform additional actions on the files such as move, copy, or delete files selected in the report.

1 Create the initial report as specified in "Generating an File Inventory Report" on page 61 or

2 In the generated report, click the *Custom Directory Tree Scan* link.

A page similar to the following is returned.

Custom Directory Tree Scan

Search Pattern: `*.*`

File Owner Restriction: None ▾

Time Stamp Restrictions:
   Time Stamp:
      ☐ Last Modified Time
      ☐ Last Accessed Time
      ☐ Last Changed Time
   Range:
      ☐ Within Last Day
      ☐ 1 Day - 1 Week
      ☐ 1 Week - 2 Weeks
      ☐ 2 Weeks - 1 Month
      ☐ 1 Month - 2 Months
      ☐ 2 Months - 4 Months
      ☐ 4 Months - 6 Months
      ☐ 6 Months - 1 Year
      ☐ 1 Year - 2 Years
      ☐ More than 2 Years
File Size Restriction:
      ☐ Less than 1KB
      ☐ 1 KB - 4 KB
      ☐ 4 KB - 16 KB
      ☐ 16 KB - 64 KB
      ☐ 64 KB - 256 KB
      ☐ 256 KB - 1 MB
      ☐ 1 MB - 4 MB
      ☐ 4 MB - 16 MB
      ☐ 16 MB - 64 MB
      ☐ 64 MB - 256 MB
      ☐ More than 256 MB

[Start Scan]
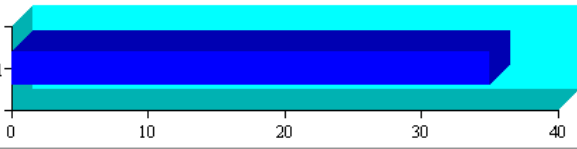
3 Type the specific search criteria in the *Search Pattern* field.

. is the default entry.

4 Select the desired settings in the *File Owner Restriction* drop-down box.

None is the default selection.

5 Select the check boxes desired to customize the report by *Time Stamp* or *File Size* restrictions.

No restrictions is the default setting.

6 Click *Start Scan*.

A page similar to the following is returned.

Volume Inventory

Directories Searched

Inventory Detail Report for: /usr/novell/sys
All files matching selected filter:

[Check All] [Uncheck All] [Delete Checked Files]

[Move Checked Files To:] [   ]

[Copy Checked Files To:] [   ]

☐ /usr/novell/sys/LOGIN/NLS/1257_UNI.001
   OWNER: root,
   Size: 727, **Modified:** 03-20-1998 13:02:34, **Accessed:** 03-20-1998 13:02:34, **Changed:** 12-06-2005 08:22:29,
☐ /usr/novell/sys/LOGIN/NLS/1250_UNI.001
   OWNER: root,
   Size: 727, **Modified:** 03-20-1998 13:02:26, **Accessed:** 03-20-1998 13:02:26, **Changed:** 12-06-2005 08:22:29,
☐ /usr/novell/sys/LOGIN/NLS/FRANCAIS/MAP.MSG
   OWNER: root,
   Size: 9,183, **Modified:** 08-21-1996 18:12:08, **Accessed:** 08-21-1996 18:12:08, **Changed:** 12-06-2005 08:22:29,

Performing Actions on Files from Custom Reports

After a custom report is generated, you can perform the following actions on the files listed in the report.

Moving Selected Files

1 From the generated report, select the check box to the left of each file that you want to move. If you want to move all the files in the list, click the *Check All* button.

2 Specify the path where you want to move the selected files to in the field to the right of the *Move Checked File To* button.

3 Click the *Move Checked File To* button.

Copying Selected Files

1 From the generated report, select the check box to the left of each file that you want to copy. If you want to copy all the files in the list, click the *Check All* button.

2 Specify the path where you want to copy the selected files to in the field to the right of the *Copy Checked File To* button.

3 Click the *Copy Checked File To* button.

Deleting Selected Files

1 From the generated report, select the check box to the left of each file that you want to delete. If you want to delete all the files in the list, click the *Check All* button.

2 Click the *Delete Checked Files* button.

Opening or Downloading a File

1 From the generated report, select the *filename* link for the file you want to open or download.

2 From the resulting dialog box, select *Open With* or *Save to Disk*, then click *OK*.

Managing Individual Files

1 From the generated report, click the *File Information* icon.

2 Perform the desired actions by entering the required information in the applicable field and clicking the applicable button.

9.6 Generating and Viewing NCP Trustee Reports for NSS Volumes

Under *Manage NCP Services*, the new *NCP Trustee Report* option allows you to generate a trustee report for a specified NSS volume. This includes Dynamic Storage Technology shadow volumes that are comprised of two NSS volumes. You can display the last trustee report in the Web browser, or send the report to the e-mail addresses that you have pre-configured for Novell Remote Manager. A trustee report shows the rights settings by folder for each user or group that is a trustee on the NSS volume.

- Section 9.6.1, "Generating an NCP Trustee Report," on page 66
- Section 9.6.2, "Viewing a Saved NCP Trustee Report," on page 67
- Section 9.6.3, "Emailing a Saved NCP Trustee Report," on page 67

9.6.1 Generating an NCP Trustee Report

1 Log in to Novell Remote Manager as the `root` user.

2 In the left navigation panel, select *Manage NCP Services > NCP Trustee Report*.

3 On the NCP Trustee Reports page, locate the NSS volume in the list, then click its *Create* link in the *Generate Report* column.

4 View the NCP Trustee Report.

A volume's trustee report shows the rights settings by folder for each user or group that is a trustee on the NSS volume. For example, the following trustee report shows the rights for a folder in a Dynamic Storage Technology shadow volume.

9.6.2 Viewing a Saved NCP Trustee Report

You can view the last saved trustee report for an NSS volume. The saved report provides the same trustee rights information that was available when the report was created.

1 Log in to Novell Remote Manager as the `root` user.

2 In the left navigation panel, select *Manage NCP Services > NCP Trustee Report*.

3 Locate the NSS volume of interest in the list, then click its *Display* link in the *View Last Report* column.

9.6.3 Emailing a Saved NCP Trustee Report

You can email an NCP volume's trustee report to addresses that are configured in the `/etc/opt/novell/httpstkd.conf` file. For information about setting up email addresses for Novell Remote Manager, see Section A.3, "Email Notification Commands," on page 114.

1 Log in to Novell Remote Manager as the `root` user.

2 In the left navigation panel, select *Manage NCP Services > NCP Trustee Report*.

3 Locate the NSS volume of interest in the list, then click its *Send* link in the *Email Report* column.

10 Managing Linux

The Manage Linux section in Novell Remote Manager (NRM) for Linux includes the following links to these pages from which you can perform the following tasks:

Table 10-1 *Manage Linux Section Tasks, Links, and Pages*

Task	Link	Page Displayed	For More Info, See
Access VNC Console screens	*VNC Consoles*	VNC Consoles Screens	"Accessing VNC Consoles" on page 69
View Kernel Modules Information	*View Kernel Modules*	Kernel Module Listing	"Viewing Kernel Modules" on page 71
View Memory Information and turn swapping on and off.	*View Memory Information*	View Memory Config	"Viewing Memory Information" on page 72
Shut down and restart the host	*Down/Restart*	Down/Reset Options	"Shutting Down and Restarting the Host" on page 73
Manage packages	*View Package Information*	Package Information	"Managing Packages" on page 74
Manage processes	*View Process Information*	Process Information	"Managing Processes" on page 75
Schedule cron jobs to run	Schedule Task	Schedule Task	"Scheduling cron Jobs to Run on the Server" on page 77

10.1 Accessing VNC Consoles

If VNC services are configured on the server, you can access the VNC consoles screens by clicking the *VNC Consoles* link under the *Manage Linux* heading in the navigation frame. Then click the *1024 X 728* button on the VNC Console Screens page.

IMPORTANT: The accessibility to the VNC consoles via Novell Remote Manager for Linux is limited to user root; it is not available to user Admin.

You must disable the HttpOnly setting in the /etc/opt/novell/httpstkd.conf file in order to enable the VNC console display.

If VNC services are not configured, you can configure them as follows:

1 In *YaST2*, log in as the `root` user, then click *Network Services > Remote Administration*.

2 On the Remote Administration page, select the following options:

  ◆ *Allow Remote Administration*

  ◆ *Open Port in Firewall*

3 Click *Finish*.

4 Restart the display manager by entering the following command at the command line:

```
rcxdm restart
```

This form of remote administration is less secure that SSH; therefore, we recommend using this feature only in a secure environment (behind a firewall).

Clicking the *VNC Consoles* link opens a Java applet in a secondary browser window. The following table explains what you can do from this window.

Table 10-2   *VNC Console Page Tasks and Procedures*

Task	Procedure
Use any of the screens listed as though you were at the server console.	Use the keyboard or mouse as though you were at the server console.
Disconnect from the console.	Click the *Disconnect* button on this page.
Change any of the VNC client options currently selected.	Click the *Options* button.
Access the VNC client clipboard and cut or paste any commands that you might want to execute in a active terminal shell.	Click the *Clipboard* button.
Restart the server.	Click the *Send Ctrl+Alt+Del* button.
Refresh the current screen you are viewing.	Click the *Refresh* button.

Figure 10-1illustrates a user accessing YaST on a remote server from the user's desktop browser. To access YaST on the remote server, the user did the following:

1 Clicked the *VNC Consoles* link in the navigation frame.

2 Clicked the *1024 X 728* button on the VNC Consoles Screens page.

3 Logged into Linux.

4 Clicked *N > System > YaST*.

Figure 10-1 *Example Access of YaST through NRM VNC Console Screens Linux on a KDE Desktop.*
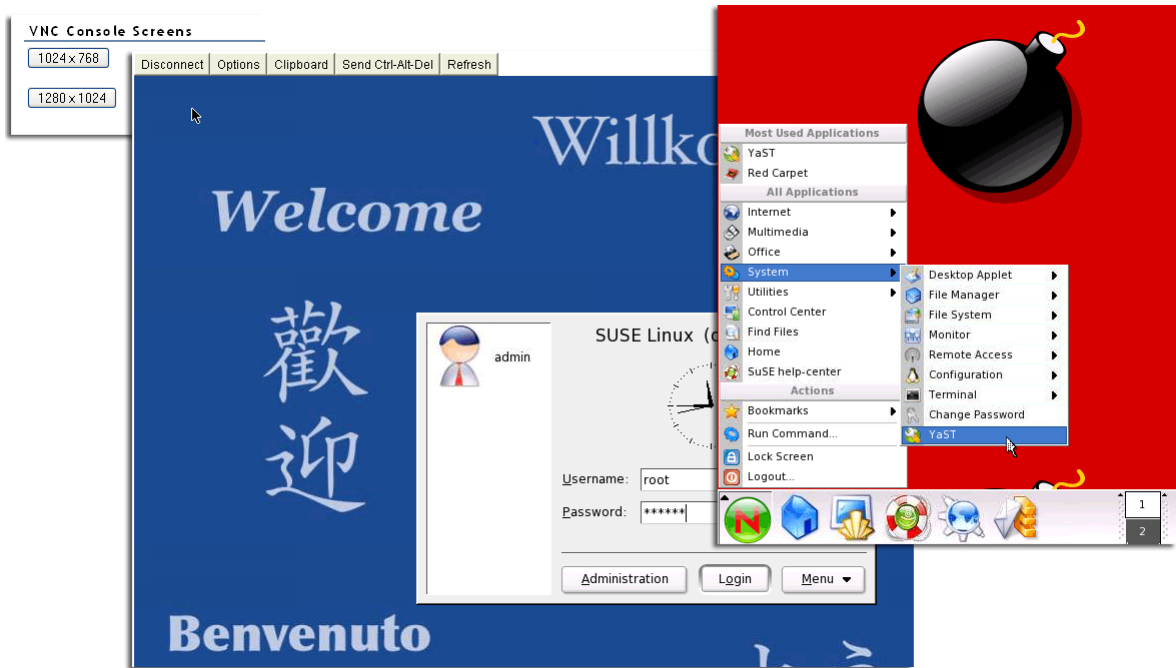
10.2   Viewing Kernel Modules

Clicking the *View Kernel Modules* link in the navigation frame displays the Kernel Module Listing page. On this page you can view the status of the modules that have been compiled into the Linux kernel on this system. Printing this page can be useful to document your system as you make changes or upgrades to it in the future.

The information shown on this page is equivalent to the information in the `lsmod` shell command plus the Live information or equivalent to viewing the `proc\modules` file.

Figure 10-2   *Example Kernel Module Listing Page*

Kernel Module Listing   ⁇

Name	Memory	Use Count	Module Users/Configuration Info	Live
ncpfs	57760	1		0xfad76000
edd	9368	0		0xfacc5000
joydev	10304	0		0xfacc1000
sg	35744	0		0xfad5b000
st	39452	0		0xfad50000
sr_mod	16292	0		0xfacbc000
ide_cd	36740	0		0xfad46000
cdrom	37148	2	sr_mod ide_cd	0xfad3b000
nvram	8456	0		0xfac84000
snd_seq_oss	31360	0		0xfacee000
snd_seq_midi_event	7680	1	snd_seq_oss	0xfac6a000
snd_seq	55312	4	snd_seq_oss snd_seq_midi_event	0xfacdf000

10.3   Viewing Memory Information

Clicking the *View Memory Information* link in the navigation frame displays the View Memory Config page. On this page you can view the following information about the memory in the server. The amount values are shown in bytes.

- Used and unused amounts of physical memory
- Amount of memory in buffer cache
- Amount of memory used by the file system cache

  This value is determined by subtracting the SwapCache from the PageCache (disk cache) amounts.

- Amount of total memory that can be used by the system.

  This value is determined by subtracting the physical RAM from the kernel binary code.

- Amount of swap space in use and available.
- The *Total Swap File Size* link goes to a Swap File Information page that provides a very quick snapshot of every swap filename, type of swap space, and total and used sizes (in kilobytes) on the server including the following information:

  - The Priority column is useful when multiple swap files are in use and some of them are preferred over others, such as if they are on faster hard disks. The lower the priority, the more likely the swap file will be used.
  - The Active column shows a *Yes* or *No* status, indicating whether the Swap file is active or not. Clicking the link toggles swapping on or off for the listed device.
  - Two additional links turn swapping on or off for all devices.

    If you add a swap file to a device, you need to add an entry to the /etc/fstab file to make the swapon or swapoff links work correctly.

  This information is also in the /proc/swaps file.

Figure 10-3 *Example View Memory Config Page*

View Memory Config   [?]

Physical Server Memory		
In Use	95,830,016	RAM that is being used
Unused	689,270,784	RAM that is unused and available
Temporary Disk Block Buffers	43,847,680	Temporary storage for disk buffers
File System Cache	231,133,184	Temporary storage for files read from disk
Total System Memory	1,060,081,664	Total usable RAM
Swap Space In Use	0	Memory that has been temporarily moved to disk
Total Swap File Size	1,077,469,184	Total available swap space

Swap File Info

Swap Information					
FileName	Type	Size	Used	Priority	Active
/dev/hda5	partition	1052216	0	42	YES

Turn swapping on, on all swap devices with Swapon
Turn swapping off on all swap devices with Swapoff

File System Cache 22%
Temporary Disk Buffers 4%
In Use 9%
Free 65%

10.4 Shutting Down and Restarting the Host

Clicking the *Down/Restart* link in the navigation frame displays the Down/Reset Options page. You can use these options to shut down or reset the host.

The following table describes the specific actions of each option.

Table 10-3 *Down/Reset Options Page Options and Actions*

Option	Action
Down	Forces the host to shut down immediately.
Reset	Forces the host to shut down immediately, then warm boots the computer.

Using either of the options additionally forces the host to perform the following actions:

- Update the cache buffers to disks
- Close all open files

WARNING: If files are open and changes have not been saved to the host, some data loss might occur. Users might need to save changes locally until the host is started again.

- ◆ Update the appropriate file system tables
- ◆ Exit the host from the network
- ◆ Unmount all file systems

10.5 Managing Packages

Clicking the *View Package Information* link displays the Packing Information page. On this page you can view the following information about each package that is installed on the system:

- ◆ *Name*
- ◆ *Group*
- ◆ *Version*
- ◆ *Release*
- ◆ *Vendor*

Figure 10-4 *Example Package Information Page*

On the View Package Information page and subsequent pages, you can perform these tasks using the following procedures:

Table 10-4 *View Package Information Page Tasks and Procedures*

Tasks	Procedures
Sort the listed packages by name, group, or vendor	Click the *Sort* icon ▼ at the top of the applicable column. The default sort is by name.
View more detailed information about an installed package	Click the link for the applicable package under the *Name* column.
Remove an installed package	1. Click the *link for the package* under the Name column. 2. Click *Remove*.

Tasks	Procedures
Install a new package that you have downloaded to the host	1. Click *Install*. 2. Browse to the location where you uploaded the package to. The browse starts at the root of the host. 3. Click *Install*. The selected package's file path is transferred to the *RPM File Path* field on the Package Installation page. When the *Install* button is clicked on the View Package Information page, Novell Remote Manager attempts to install the specified RPM file using the Linux RPM utility.

The following figure shows a sample of the details you see when you click the *package_name* link.

Figure 10-5 *Detailed Information Page for the 3ddiag Example Package*

```
3ddiag

Name      : 3ddiag              Relocations: (not relocatable)
Version   : 0.716                   Vendor: SuSE Linux AG, Nuernberg, Germany
Release   : 116.1               Build Date: Thu Jul  1 06:46:41 2004
Install date: Wed Jan 26 08:59:05 2005     Build Host: millikan.suse.de
Group     : System/Base          Source RPM: 3ddiag-0.716-116.1.src.rpm
Size      : 47076               License: GPL
Signature : DSA/SHA1, Thu Jul  1 06:47:54 2004, Key ID a84edae89c800aca
Packager  : http://www.suse.de/feedback
Summary   : A Tool to Verify the 3D Configuration
Description :
With 3Ddiag you can verify the 3D configuration.




Authors:
--------
   Stefan Dirsch
Distribution: SuSE SLES-9 (i586)
```

Remove

10.6 Managing Processes

Clicking the *View Process Information* link in the navigation frame displays the Process Information page. On this page, you can view a list of all the processes as well as their state in the host and perform the actions listed in the following table.

Table 10-5   *Process Information Page Tasks and Procedures*

Tasks	Procedures
Sort the process by name (in alphabetical order by default), by process ID, by CPU Usage, or by Memory Usage	Click the *Sort* icon ▼ at the top of the applicable column.
View more specific information about a listed process	Click the *link for t*he applicable process under the *Name* column.
Kill a process	1. Click the link for the applicable process under the *Name* column. 2. Click *Kill.*

The process information is obtained from the `stat` file that is available for each process ID in the `/proc` directory. Process information can also be retrieved at the command line by using the Linux `top` command.

Table 10-6 on page 76 describes the parameters reported for each process.

Table 10-6   *Process Information*

Parameter	Description
Name	The process name.
Owner	The process owner; the user who started the process.
ID (Status)	The process ID of the task, and the current state of the task. The states are Sleep (S), Running (R), Traced (T), or Zombied (Z). These states are modified by a trailing < for a process with a negative nice value, N for a process with positive nice value, and W for a swapped-out process (this does not work correctly for kernel processes).
CPU Usage %	The task's share of the CPU time since the last screen update, expressed as a percentage of total CPU time per processor.
Priority	The priority of the task.
Run Time	The total CPU time the task has used since it started.
Physical Memory	The physical memory value is the amount of physical memory in bytes that the task is using. The value in parentheses (%) is the percentage of RAM memory that this represents. The Linux `top` command reports this information in kilobytes.
Virtual Memory	The virtual memory is the amount of memory in bytes that the task is using to hold the code, data, and stack space memory. The Linux `top` command reports this information in kilobytes. Virtual Memory is the value reported by the `RSS` switch for the top command.

Figure 10-6 *Example Process Information Page*

Process Information   ?

[Stop Refresh]

Name	Owner	ID ▼ (Status)	CPU Usage % ▼	Priority ▼	Run Time ▼	Physical Memory (%) ▼	Virtual Memory ▼
ⓘ aio/0	root	10 (Sleep)	0.0%	9	0:00.00	0 (0.0%)	0
ⓘ cron	root	4429 (Sleep)	0.0%	16	0:00.00	708608 (0.0%)	1617920
ⓘ events/0	root	3 (Sleep)	0.0%	5	0:00.11	0 (0.0%)	0
ⓘ httpstkd	root	2612 (Sleep)	0.0%	16	0:10.87	6807552 (0.0%)	135266304
ⓘ hwscand	root	3140 (Sleep)	0.0%	15	0:00.00	430080 (0.0%)	1441792
ⓘ init	root	1 (Sleep)	0.0%	16	0:05.01	249856 (0.0%)	602112
ⓘ kacpid	root	4 (Sleep)	0.0%	13	0:00.00	0 (0.0%)	0
ⓘ kblockd/0	root	5 (Sleep)	0.0%	5	0:00.00	0 (0.0%)	0
ⓘ khelper	root	6 (Sleep)	0.0%	5	0:00.00	0 (0.0%)	0
ⓘ khubd	root	2290 (Sleep)	0.0%	15	0:00.00	0 (0.0%)	0
ⓘ klogd	root	2541 (Sleep)	0.0%	16	0:00.00	606208 (0.0%)	1544192
ⓘ kseriod	root	678 (Sleep)	0.0%	25	0:00.00	0 (0.0%)	0
ⓘ ksoftirqd/0	root	2 (Sleep)	0.0%	34	0:00.00	0 (0.0%)	0
ⓘ kswapd0	root	9 (Sleep)	0.0%	25	0:00.00	0 (0.0%)	0
ⓘ master	root	4264 (Sleep)	0.0%	17	0:00.00	1478656 (0.0%)	4276224

10.7 Scheduling cron Jobs to Run on the Server

Rather than entering commands on the command line to run a cron job at a specific time, you can use a form on the Schedule Task page to schedule cron jobs—that is, to execute commands or scripts (groups of commands) automatically at a specified time/date—that you want to run at this server. Any cron job is valid.

Scheduling a task creates a cron job and stores it in the `/etc/cron.d` directory. The command is specified to run with the name of whatever user name you are logged in with when you add the command. The user name must have the necessary permissions to perform the command you add.

IMPORTANT: When you set up cron commands, ensure that you log into Novell Remote Manager as the root user, or with a user name that has the necessary permissions to execute the command.

If no mail service is configured, you might find the output of your commands in the local mailbox directory as a plain text file. By default, this is `/var/spool/mail/root`.

Figure 10-7 *Schedule Task Page for Scheduling Cron Jobs*

To create a new scheduled command:

1 Complete the required information on the Schedule Task page.

Field	Information to Provide
Description	Enter a brief description of the command you want to run.
	64 character limit
	Example:
	Send message to log out daily at 10 p.m.
	This description is displayed as the name of the scheduled job in the *Currently Scheduled CRON Jobs* list.
Command to Execute	Type the command exactly as you would at a command line.
	All cron job entry types are valid except for lists and step values.
Start Time	Type the time you want the command to run.
Start Day	If you want to run the command once a week, specify the day of the week, then place an asterisk * in the *Month* and *Day* fields.
	If you want to run the command only once or monthly, specify a *Month* and *Day* setting, then place an asterisk * in the *Day of the Week* field.
	If you want to run the command monthly, specify a Day setting, then place an asterisk * in the *Start Day* and *Month* fields.
	If you do not want to specify a value for a field, place an asterisk * in the field.

2 Click *Submit*.

After you schedule a job, it is displayed at the top of the page under the *Currently Scheduled CRON Jobs* heading. Jobs that your create manually also display in the list.

To change the schedule of a job that you have already scheduled:

1 Click the link for the job you want to change.

2 Change the schedule.

3 Click *Submit*.

To delete the schedule of a job that you have already scheduled:

1 Click the link for the job you want to delete.

2 Click *Delete*.

To return the settings in the fields to the default settings of the current day and time, click *Reset*.

11 Managing Hardware

The *Manage Hardware* section in Novell Remote Manager (NRM) for Linux includes the following links to pages from which you can perform the following tasks:

Table 11-1   *Manage Hardware Section Tasks, Links, and Pages*

Task	Link	Page Displayed	For More Info, See
View Processor information	*View Processors*	Processor Information	"Viewing Processors" on page 81
View Interrupt information	*Interrupt Information*	Interrupts	"Viewing Interrupt Information" on page 82
View memory I/O information	*IO Memory Information*	I/O Memory Information	"Viewing I/O Memory Information" on page 83
View port I/O information	*IO Port Information*	IO Port Information	"Viewing I/O Port Information" on page 84
View SMBIOS information	*SMBIOS Information*	SMBIOS Information	"Viewing SMBIOS Information" on page 85

11.1 Viewing Processors

Clicking the *View Processors* link under the *Manage Hardware* heading in the navigation frame displays the Processor Information page. On this page you can view information about each processor on this host.

Information about the processor speed as well as the local cache sizes is useful in determining how much work a processor can do.

This information is equivalent to the information you would see in the `/proc/cpuinfo` file.

Figure 11-1   *Example Processor Information Page*

Processor Information   [?]

processor : 0	
vendor_id	GenuineIntel
cpu family	15
model	3
model name	Intel(R)
Pentium(R)	134555524
4 CPU 3.00GHz stepping	3.000000.3
cpu MHz	2993 .171
flags	fpu vme de pse tsc msr pae mce cx8 sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe pni monitor ds

In a virtualized environment, the processor information is reported from the perspective of the server where you connected.

- **Host Server:** When you connect to Novell Remote Manager by using the host server IP address, the report contains information about all processors on the system.

- **Guest Server:** When you connect to Novell Remote Manager by using the guest server IP address, the report contains information about the physical hardware in use, but only for the number of processors you assign to the virtual machine.

  The guest server reports the same information about a processor as if it owned the actual hardware on the server. The Virtual Machine Monitor component of the virtualization software emulates a complete hardware environment in the virtual machine for the guest server. The guest server OS is unaware that it shares the hardware resources with other virtual machines and the host.

The actual usage statistics of the physical processors are not known by Novell Remote Manager. You could use the Virtual Machine Manager to see that type of information.

11.2   Viewing Interrupt Information

Clicking the *Interrupt Information* link under the *Manage Hardware* heading in the navigation frame displays the Interrupts page, which includes the following:

Table 11-2   *Interrupts Page*

Category	Information Displayed
Interrupt	Interrupt number or name of an interrupt that might be generated.
CPU *number*	Number of interrupts that have occurred on a given processor.
Route-Trigger Method	How the interrupt is being delivered to the processor and the method of interrupting the processor.
Device	Name of the device driver that is generating the interrupt.

Figure 11-2 *Example Interrupt Information Page*

Interrupts

Interrupt Information			
Interrupt	**CPU0**	**Route-Trigger Method**	**Device**
0:	4,084,188	XT-PIC	timer
1:	1,132	XT-PIC	i8042
2:	0	XT-PIC	cascade
5:	0	XT-PIC	ehci_hcd
8:	2	XT-PIC	rtc
9:	93,026	XT-PIC	acpi, libata, eth0, uhci_hcd
10:	0	XT-PIC	uhci_hcd, Intel ICH5
11:	0	XT-PIC	uhci_hcd, uhci_hcd
12:	4,630	XT-PIC	i8042
14:	16,200	XT-PIC	ide0
15:	77	XT-PIC	ide1
NMI:	0		
LOC:	0		
ERR:	0		
MIS:	0		

11.3   Viewing I/O Memory Information

Clicking the *IO Memory Information* link under the *Manage Hardware* heading in the navigation frame displays the I/O Memory Information page, which includes the following:

Table 11-3 *I/O Memory Information Page*

Category	Information Displayed
Memory Address	I/O memory range that a given device is using.
Device Description	A description of the device that is using a given I/O memory range.

Figure 11-3 *Example I/O Memory Information Page*

I/O Memory Information

I/O Memory Information	
Memory Address	**Device Description**
00000000-0009ffff	System RAM
000a0000-000bffff	Video RAM area
000d1000-000d3fff	Extension ROM
000f0000-000fffff	System ROM
00100000-3ff73fff	System RAM
00100000-002ffe16	Kernel code
002ffe17-003afdff	Kernel data
3ff74000-3ff75fff	ACPI Non-volatile Storage
3ff76000-3ff96fff	ACPI Tables
3ff97000-3fffffff	reserved
e8000000-efffffff	0000:00:00.0
f0000000-f7ffffff	PCI Bus #01
f0000000-f7ffffff	0000:01:00.0
f0000000-f1ffffff	vesafb
fcfe0000-fcffffff	0000:02:0c.0

11.4 Viewing I/O Port Information

Clicking the *IO Port Information* link under the *Manage Hardware* heading in the navigation frame displays the I/O Port Information page, which includes the following:

Table 11-4 *IO Port Information Page*

Category	Information Displayed
IO Address	Shows the I/O port range that a given device is using.
Device Description	Shows the name of the device that is using a given I/O port range.

Figure 11-4   *Example I/O Port Information Page*

I/O Port Information

I/O Port Information	
IO Address	**Device Description**
0000-001f	dma1
0020-0021	pic1
0040-005f	timer
0060-006f	keyboard
0070-0077	rtc
0080-008f	dma page reg
00a0-00a1	pic2
00c0-00df	dma2
00f0-00ff	fpu
0170-0177	ide1
01f0-01f7	ide0
02f8-02ff	serial
0376-0376	ide1
03c0-03df	vesafb
03f6-03f6	ide0

11.5   Viewing SMBIOS Information

Clicking the *SMBIOS Information* link under the *Manage Hardware* heading in the navigation frame displays the SMBIOS Information page. On this page, you can view details about the BIOS hardware in each host without physically removing the hardware cover. You also have access to information that is available only through the management system.

Each link shows the type of device that is available in the BIOS of the host computer.

You might see information types such as the following. The types displayed vary depending on the hardware in your system.

- BIOS
- System
- Base Board
- System Enclosure or Chassis
- Processor
- Cache
- Port Connector
- System Slots
- On Board Device

- ◆ OEM Strings
- ◆ BIOS Language
- ◆ System Event Log
- ◆ Physical Memory Array
- ◆ Memory Device
- ◆ Memory Array Mapped Address
- ◆ Memory Device Mapped Address
- ◆ Hardware Security
- ◆ System Boot

Selecting an information type displays information contained within SMBIOS for the type selected. For example, to see all the BIOS information, click the *BIOS Information* link. See Figure 11-5.

Figure 11-5   *Example SMBIOS and BIOS Information Pages*

12 Using Group Operations

The *Use Group Operations* section in Novell Remote Manager (NRM) for Linux includes the following links to pages from which you can perform the following tasks:

Table 12-1 *Use Group Operations Tasks, Links, and Pages*

Task	Link	Page Displayed	For More Information
Access an existing group	*Select Group*	Select Group	"Accessing an Existing Group" on page 93
Build and configure a new monitoring group	*Configure New Group*	Group Monitoring Operations	"Building and Configuring a Monitoring Group" on page 88
Change an existing group	*Select Group*	Select Group	"Changing an Existing Group" on page 93
Define or edit Group Monitoring types	*NRM Health Types*	Novell Remote Manager Health Monitoring Engine (NRM Health Types)	"Defining or Editing Group Monitoring Types" on page 98
Delete an existing group	*Select Group*	Select Group	"Deleting an Existing Group" on page 94
Scan the network for items to monitor on the network.	*Configure New Group > right-click > click Network Discovery*	Network Discovery	"Discovering Items on the Network to Monitor" on page 98
Generate and view server reports	*Configure New Group > right-click > click Save Group*	Group Monitoring Operations	"Generating and Viewing Server Reports" on page 94
Save a new group	*Configure New Group > right-click > click Save Group*	Save Group	"Saving a Group" on page 92
View group operations monitored items	*View Monitored Items*	Novell Remote Manager Health Monitoring Engine - Monitored Items	"Viewing Monitored Items" on page 95
View group operations defined NRM health types	*NRM Heath Types*	Novell Remote Manager Health Monitoring Engine - NRM Health Types	"Viewing Group Monitoring Types" on page 96

Using the group features involves performing one or more of the following tasks:

1. Building and Configuring a Monitoring Group (page 88).
2. (Optional) Saving a Group (page 92).

   You only need to perform this step if you want to use the group at a later time.

3. Generating and Viewing Server Reports (page 94).

   The monitoring operations start immediately. Other tasks, such as running reports require additional steps.

4. (Conditional) Accessing an Existing Group (page 93).

12.1 Building and Configuring a Monitoring Group

Novell Remote Manager lets you build and configure groups of items for monitoring Linux server or NetWare server health, as well as providing various statistics for servers running other operating systems. A few of the preconfigured monitoring item types are NRM Health Status for a single server or a group of servers, Ping to a specific port, IP connectivity, LDAP Directory Root Search, and status of connectivity to a Web page.

Monitoring items can be defined and represented by an icons on a page as shown in the following figure. The icons can represent a single item or a group of items.

Figure 12-1 *NRM Server Health Example Group*
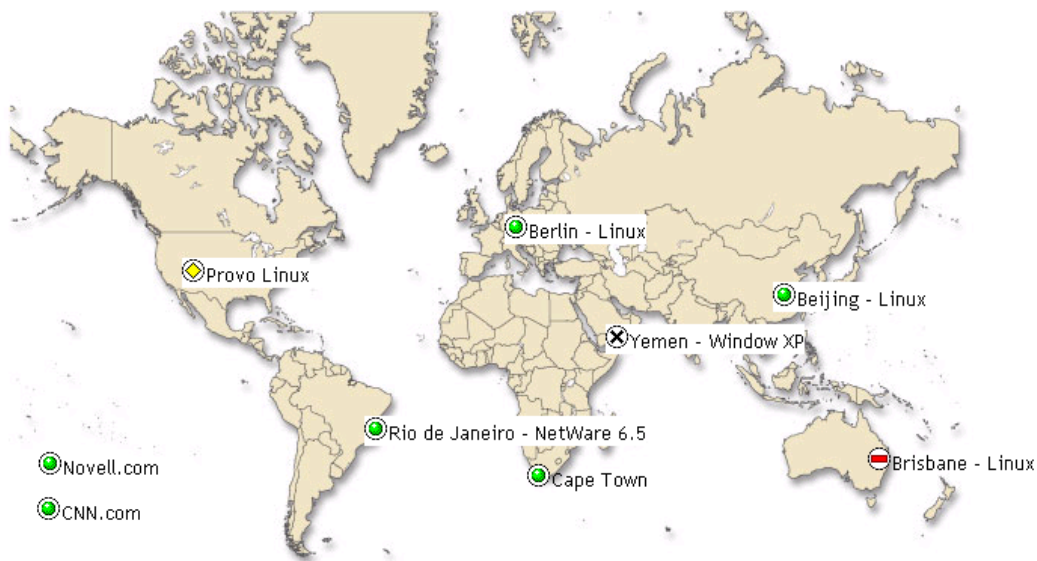
To build and configure a new monitor group:

1 Click the *Configure New Group* link in the navigation frame.

2 Right-click the Group Monitoring Operations page.

TIP: If your browser does not support right-click functionality, try double-clicking the Reports icon in the upper right corner of the page.

You should see a pop-up similar to the following:

Add Item
Configure New Group
Full Screen
Group Configuration
Network Discovery
Refresh
Save Group
Select Group
Show Hidden Items
NRM Reports & Operations

3 Click *Add Item*, and do the following:

   3a Complete the Monitoring Item Configuration form.

Add New Monitor Item

Monitoring Item Configuration

Name		Monitoring Type	NRM Health Monitor
Item Address/URL		Port	8008
Hide Normal Status	☐		
Text Color	Default	Text Background Color	Default
Use single sign on NRM credentials		☐	
User Name		Password	*

[Add]　　　　　[Cancel]

For each item you add to a group or want to change from the default setting (health monitor), complete the following options on the Monitoring Item Configuration form.

Option	Details
Monitoring Type	Specify one of the following types:
	◆ **Label:** Text information to use as a label on the group monitor display. Lets you identify each group specifically as needed.
	◆ **LDAP Directory Root Search:** Shows the response when trying to ping port 389 of the specified LDAP server. Credentials are not used. This is useful to monitor the status of your LDAP servers in your network.
	◆ **NRM Group:** Shows the health status of a group of servers. Lets you access the specific health page for each server in the group.
	◆ **NRM Health Monitor:** Shows the health status of each server in the group. Lets you access the specific health page for each server in the group.
	◆ **Ping (ICMP):** Shows the response when sending ping requests to the specified DNS name or IP address.
	◆ **TCP/IP Port Query:** Shows response activity of a designated TCP/IP service. This query attempts to make a TCP connection to the specified address and port. Returns green (good) health if any services is listening. For example, you could set up a health monitoring item to tell you whether your GroupWise server is still listening for logins from clients. The only states that are returned are green (good), which means the connection was successful, and red (bad), which means the connection was not successful.
	◆ **Web page:** Shows the response when trying to determine if the communication is working to a server that hosts a Web site. It does not monitor specific Web sites on the server. It does not monitor whether the Web service is running. Specify only the portion of the Web address (URL) that a DNS server can resolve to an IP address; do not include a subdirectory. For example, specify `www.novell.com`, but not `www.novell.com/support`. If you specify a subdirectory, the DNS name cannot be resolved, and a Can't Connect health status is reported.
Name	Provide a descriptive name for the item.
Item Address/URL	Specify the IP address for the server that you want to monitor or ping, or specify the DNS name of the server that hosts the Web page.
	The address can be an IP address or DNS name.
	Do not specify the HTTP:// portion of a URL.
Hide Normal Status	When selected, only items that are in an abnormal state are displayed.
	If you want to monitor all statuses, leave the check box deselected.
Text Color	Black is the default. You can select any other color from the drop-down list.
Port	The default is provided. You can type a different port to use.

Option	Details
Use Single Sign on NRM Credentials	When selected (default), the credentials used to access this items' data are the same as the credentials that the user logged into Novell Remote Manager with.
	When deselected, enter the credential necessary to access the item in the User Name and Password fields.
Text Background Color	Clear is the default. You can select any other color in the drop-down list.

You can also define your own monitoring types or edit the default defined health types by editing the XML data in `/opt/novell/nrm/NRMGroupHealthInfo` file. For more information, see "Defining or Editing Group Monitoring Types" on page 98.

3b Click *Add*.

3c Drag the monitor items to the desired location.

3d Repeat Step 3a through Step 3c for each item that you add.

4 (Optional) If you want to change any of the following, change the configuration of the group:

- ◆ The label for the group
- ◆ The graphic displayed
- ◆ The refresh rate
- ◆ The suspect and critical email notification for the group

4a Right-click the customized Group page, then click *Group Configuration*.

4b Complete the fields as desired on the Group Operations Configuration form.

Option	Description
Display	The display options let you control the following: ◆ **Monitor Page Title:** Specify a title to be shown at the top of the monitor page in the header area when the page is built. ◆ **Refresh Rate:** Specify the number of seconds between status queries to the server. ◆ **Background Graphic:** Select a graphic from the drop-down list for the monitor items to be displayed on. This option can be helpful if you want to show specific locations of the item being monitored. If you want to add a customized graphic, add it to the `/opt/novell/nrm/NRMGroupMaps` directory.
Email	The email notification options control how and when email notifications are sent when the server health changes. Email notifications are sent to the addresses in the mail notification list using the mail servers set in the `/etc/opt/novell/httpstkd.conf` file.

    4c Click *Apply*.

5 Perform the desired task, or save the group and perform the task later.

In this release, the only task you can perform on Linux servers is to compare the server up times.

6 (Optional) If you want to reuse the group, save the group.

    6a Right-click the *customized Group page*, then click *Save Group*.

    We recommend using a name that represents the group you built.

    6b (Conditional) If you haven't saved any groups, you might need to extend the schema for NRM group operations before you can save the group.

    Extending the schema is required only once per eDirectory tree. If the host is connected to a pre-existing NetWare 6.5 or later network, then extending the schema is not necessary.

    6c Click *Save Group* and perform the required steps to save the group to a local server or save it and associate it with an eDirectory object.

    See "Saving a Group" on page 92.

12.2   Saving a Group

You can save the configuration of the group so you can access this page again without completing the configuration options. You can save a group to the local server or associate with an eDirectory object and save it.

12.2.1   Saving the Group to the Local Server

1 While viewing the group you just created or edited, right-click the *customized Group* page, then click *Save Group*.

2 In the *Group Name* field, specify a name for the group or select a group name that you want to replace from the group list.

We recommend using a name that represents the group you built.

3 Click *Save Group*.

This saves the group to a file with that name in the `/opt/novell/nrm/NRMGroups` directory.

12.2.2 Saving the Group and Associating It with an eDirectory Object

You can save a group and associate it with a User or Group eDirectory object. This is helpful when you want to access the configuration and you don't want to save the configuration to a specific server (for example, if the server is down but you want it to be part of the operation or if you want to run the operation while one of the servers is not functioning properly).

Only one group can be associated to an object.

1 While viewing the group you just created or edited, right-click the *customized Group* page, then click *Save Group*.

2 In the *Make This the Group Monitor for This Object* field, specify a User or Group object that you want to associate this group with.

You can browse to the user or group by clicking the *Browse* link icon or by typing the full content name of the object.

3 Click *Save Group*.

12.3 Accessing an Existing Group

After a group has been saved to the server, you can access the group again to run reports or change the attributes of the group.

1 Click the *Select Group* link in the navigation frame.

2 On the Server Group page, select the desired group from the drop-down list.

3 Click *Build Group*.

12.4 Changing an Existing Group

After accessing an existing group (see "Accessing an Existing Group" on page 93), you might want to change it using one of the following procedures.

Table 12-2 *Changing an Existing Group Tasks and Procedures*

If you want to	Then
Change the configuration of an existing group.	1. Select the group. 2. Right-click the page, then click *Group Configuration*. 3. Make the desired changes in the Group Operations Configuration form. 4. Click *Apply*. 5. Save the group. (See "Saving a Group" on page 92.)
See the details of the server health or the monitoring type.	1. Select the group. 2. Select the item you want to see the details for. 3. Double-click the *Health Status* icon.

If you want to	Then
Edit an existing item in the group.	1. Select the group. 2. Select the item you want to edit. 3. Right-click the selected item. 4. Click *Edit*.
Delete a server or monitor item from a group.	1. Select the group. 2. Select the item you want to delete. 3. Right-click the selected item. 4. Click *Delete*.
Change the display to a full screen in your browser window.	1. Select the group. 2. Right-click the page. 3. Click *Full Screen* 4. When you are finished viewing the group, close the browser window.

12.5 Deleting an Existing Group

To delete a group:

1 Click the *Select Group* link in the navigation frame.

2 On the Server Group page, select the desired group from the drop-down list.

3 Click *Delete Group*.

12.6 Generating and Viewing Server Reports

Running Server Comparison reports on a group of servers can help you in determine which servers need to be updated or have configurations changed, why operations on that server might be sluggish, or which servers are receiving the most action.

In this release, you can run only one report, the "Compare Server Up Time Report" on page 94.

12.6.1 Compare Server Up Time Report

Run this report to see which servers might need replacing or tuning to keep them running longer. This report gives you an idea how long each server in the group has been running without being restarted.

1 Build the monitor group or select a group previously saved.

See "Building and Configuring a Monitoring Group" on page 88 or "Accessing an Existing Group" on page 93.

2 Right-click the customized Group page.

3 Click *NRM Reports & Operation*.

NRM Group Operations and Reports ?

Novell Remote Manager Server Information
        Reports   **Operations**

Compare Server Up Times

NRM Servers

OES-Linux-s2
OES-Linux-s1

4 Click *Compare Server Up Times*.

A report similar to the following is returned.

Server Up Time Report

	Server	Up Time
⊙	OES-Linux-s2	16 days 06 hours 05 minutes 46 seconds
⊙	OES-Linux-s1	14 days 22 hours 58 minutes 08 seconds

⊟   Server has been up less than one hour.
◈   Server has been up less than one day.

12.7 Viewing Monitored Items

If you have several groups defined and you want to see which items are being monitored from this server without opening each group, click *View Monitored Items*.

This page lists of all of the items currently being monitored by the Novell Remote Manager health monitoring engine on this server.

If an item has not been monitored for more than 3 minutes, it is removed from the list.

Table 12-3   *Health Monitoring Engine Monitored Items*

Column	Description
Status	Shows the health indicator icon for the item
Item Name	The name assigned to the item when it was defined in a Novell Remote Manager health monitoring group.
Type	The type of item being monitored, such as NRM health, ping status, web download.
Address	The third column is the address that Novell Remote Manager uses to check the items health status.
Last Check Time	The last time that a Novell Remote Manager group requested the health status of this item.
Monitoring Start Time	The that health monitoring was started for this item.

If this server's utilization is high due to the monitoring occurring on this server, you might consider moving some of the monitoring to another location.

12.8 Viewing Group Monitoring Types

Clicking the *NRM Health Types* link in the navigation frame displays the Novell Remote Manager Health Monitoring Engine - NRM Health Types content. This page gives you an overview of the Group Monitoring types that are defined on the current host. The legend shows the statuses you might see when you are monitoring groups of hosts with various monitored items and is a graphical view of the items defined in the `/opt/novell/nrm/NRMGroupHealthInfo` file.

Figure 12-2 *The Default NRM Health Monitoring Engine - NRM Health Types Content Definitions*

Novell Remote Manager Health Monitoring Engine

Health type defines used for Group Operations health monitoring on this machine.

NRM Health Types				
Health Type	**Type String**	**Platform**	**Health Test**	**Default Port**
NRM Health Monitor	NRM	All	NRM Health State	8008

NRM Item Health States	**Icon**	**Value**	**Return Value**	**Item Click**
	🟢	1	HEALTH_STATUS_GREEN	NRM Health Page
	🔶	3	HEALTH_STATUS_YELLOW	NRM Health Page
	❓	4	HEALTH_STATUS_UNKNOWN	NRM Health Page
	⛔	5	HEALTH_STATUS_RED	NRM Health Page
	✖	7	HEALTH_STATUS_CANT_CONNECT	NRM Health Page

Health Type	**Type String**	**Platform**	**Health Test**	**Default Port**
Label	LABEL	All	n/a	

Health Type	**Type String**	**Platform**	**Health Test**	**Default Port**
NRM Group	GROUP	All	Group Items Health	

NRM Group Health States	**Icon**	**Value**	**Return Value**	**Item Click**
	🟢	1	HEALTH_STATUS_GREEN	Expand Group
	🔶	3	HEALTH_STATUS_YELLOW	Expand Group
	❓	4	HEALTH_STATUS_UNKNOWN	Expand Group
	⛔	5	HEALTH_STATUS_RED	Expand Group
	✖	7	HEALTH_STATUS_CANT_CONNECT	Expand Group

Health Type	**Type String**	**Platform**	**Health Test**	**Default Port**
Ping(ICMP)	PING	Linux	ping -c1 -W1 %ITEM_ADDR	grep "bytes from" 1>/dev/null	

PING Health States	**Icon**	**Value**	**Return Value**	**Item Click**
	🖥	0	HEALTH_STATUS_UP	ping -c4 %ITEM_ADDR
	✖	Not 0	HEALTH_STATUS_CANT_CONNECT	ping -c4 -W1 %ITEM_ADDR

Health Type	**Type String**	**Platform**	**Health Test**	**Default Port**
Web Page	WEB_PAGE	Linux	wget --tries=1 --spider %ITEM_ADDR:%ITEM_PORT 2>/dev/null	80

WEB_PAGE Health States	**Icon**	**Value**	**Return Value**	**Item Click**
	🟢	0	HEALTH_STATUS_UP	http://%ITEM_ADDR:%ITEM_PORT
	✖	Not 0	HEALTH_STATUS_CANT_CONNECT	wget --tries=1 --spider %ITEM_ADDR:%ITEM_PORT

12.9 Defining or Editing Group Monitoring Types

If you want to add a Group Monitoring type to the group monitoring that is not defined or change the label of any of the predefined types, you can access the `/opt/novell/nrm/NRMGroupHealthInfo` file and make changes to it.

Each item is defined between the beginning and ending NRM_Health_Item_Definition XML tags as shown below.

```
<NRM_Health_Item_Definition>
    <Type_Name>PING</Type_Name>
    <Display_Name>Ping(ICMP)</Display_Name>
    <Platform>Linux</Platform>
    <Health_Test>
        <Command_Line>
            ping -c1 -W1 %ITEM_ADDR | grep "bytes from" 1>/dev/null
        </Command_Line>
        <Result>
            <Value>0</Value>
            <Result_Icon>/sys/login/NRMcanping.gif</Result_Icon>
            <Return_Value>HEALTH_STATUS_UP</Return_Value>
            <Click_Command>ping -c4 %ITEM_ADDR</Click_Command>
        </Result>
        <Result>
            <!Value>0</!Value>
            <Return_Value>HEALTH_STATUS_CANT_CONNECT</Return_Value>
            <Click_Command>ping -c4 -W1 %ITEM_ADDR</Click_Command>
        </Result>
    </Health_Test>
</NRM_Health_Item_Definition>
```

12.10 Discovering Items on the Network to Monitor

If you want to scan the network for specific services, you can access the Network Discovery page and specify the host and ports that should be scanned for. After discovering the items on the network, you can click the item and add it to the current group for future monitoring.

Using this feature can help you to quickly gather the information you need to create monitoring groups.

To access this page, do the following:

1 In the navigation frame, click *Use Group Operations > Configure New Group* or *Select Group*.

2 Right-click the applicable group page displayed.

3 Ensure that the browser you are using will accept pop-ups.

4 Click *Network Discovery*.

The Network Discovery page is displayed:

NetWork Discovery

Network Scan Parameters

DNS Name/IP Address `137.65.59.103`   Subnet Mask `255.255.255.0`

Select a Network Discovery Method

Scan available Hosts(ping/ICMP Echo)	[Subnet Scan]
Scan for Web Servers(port 80)	[Web Server Scan]
Scan for LDAP Servers(port 389)	[LDAP Server Scan]
Scan for Novell Remote Manager Servers(port 8008/8009)	[NRM Agent Scan]
Scan for Services(user supplied port)	[Service Scan] port:

To perform the scan, do the following:

1 Access the Network Discovery page.

2 Do the tasks specified in the following table:

The *Network Scan Parameter* fields determine which hosts or ports should be scanned.

The *DNS Name / IP Address* field is an IP address is used with the subnet mask to determine the range of IP addresses to be scanned. These fields default to the IP address of the current Novell Remote Manager host and a class C subnet mask. For example, if you wanted to scan for all the active hosts in the class B range of 137.65 subnet, you might set the IP address to 137.65.1.1 and the subnet mask to 255.255.0.0.

Instead of scanning for all hosts that respond on the network, you can scan for hosts with specific services available.

Task	Procedure
Scan the network for hosts that are responding to ICMP Echo Requests in the network within a specified subnet.	1. Accept the default IP address or DNS name and subnet mask information or change it. 2. Click *Subnet Scan*.
Scan the network for hosts with port 80 open and listening for connections (Web Servers) within a specified subnet.	1. Accept the default IP address or DNS name and subnet mask information or change it. 2. Click *Web Server Scan*.
Scan the network for hosts with port 389 open and listening for connections (LDAP Servers) within a specified subnet.	1. Accept the default IP address or DNS name and subnet mask information or change it. 2. Click *LDAP Server Scan*.
Scan the network for hosts with port 8009 open and listening for connections (Hosts with Novell Remote Manager configured for the default ports) within a specified subnet.	1. Accept the default IP address or DNS name and subnet mask information or change it. 2. Click *NRM Agent Scan*.
Scan the network for hosts with *user_defined_port* open and listening within a specified subnet.	1. Accept the default IP address or DNS name and subnet mask information or change it. 2. Click *Service Scan*.

After scanning for a desired service, a Network Discovery page is displayed showing results for all hosts with the ports.

You can do the following task with the information returned:

Task	Procedure
See more information about the scanned host.	1. Click the *Web Service More Info* icon for the applicable host on the Network Discovery page. 2. View information on the page returned.
Add the host to the current group.	1. Click the *Add Item to Group* icon for the applicable host on the Network Discovery page. 2. Complete the required information on the Add New Monitor Item page, then click *Add*. Most of the information is completed by default.

13 Tasks Quick Reference

The following table provides information about specific tasks you can perform using Novell Remote Manager. These references also link to more specific information in this guide.

Table 13-1   *Task Quick Reference List*

Tasks	Link in Navigation frame or Other Location	For More Information
Build a group for monitoring	*Use Group Operations > Configure New Group*	Building and Configuring a Monitoring Group (page 88)
Cron job, schedule	Manage Linux > Schedule Task	"Scheduling cron Jobs to Run on the Server" on page 77
Directory, change attributes of	*View File System > View File System Listing*	Viewing Details about Directories and Performing Actions on Them (page 48)
Directory, edit	*View File System > View File System Listing*	Viewing Details about Directories and Performing Actions on Them (page 48)
Directory, delete	*View File System > View File System Listing*	Viewing Details about Directories and Performing Actions on Them (page 48)
Directory, rename	*View File System > View File System Listing*	Viewing Details about Directories and Performing Actions on Them (page 48)
Directory, view detailed information about	*View File System > View File System Listing*	Viewing Details about Directories and Performing Actions on Them (page 48)
File, change attributes of	*View File System > View File System Listing*	Viewing the Details of a File and Performing Specific Actions (page 50)
File, download	*View File System > View File System Listing*	Downloading a File from the Server to a Local Workstation (page 49)
File, edit	*View File System > View File System Listing*	Viewing the Details of a File and Performing Specific Actions (page 50)
File, delete	*View File System > View File System Listing*	Viewing the Details of a File and Performing Specific Actions (page 50)

Tasks	Link in Navigation frame or Other Location	For More Information
File, rename	*View File System > View File System Listing*	Viewing the Details of a File and Performing Specific Actions (page 50)
Files, search for text in	*View File System > View File System Listing*	Searching for Text in Files (page 50)
File, upload	*View File System > View File System Listing*	Uploading a File to the Server (page 49)
File, view	*View File System > View File System Listing*	Viewing Individual Files (page 51)
File system, browse	*View File System > View File System Listing*	Browsing File Systems and Performing Actions on Them (page 47)
File system, perform action on	*View File System > View File System Listing*	Browsing File Systems and Performing Actions on Them (page 47)
Files, viewing details about	*View File System > View File System Listing*	Viewing the Details of a File and Performing Specific Actions (page 50)
Group operations, access an existing group	*Use Group Operations > Select Group*	Accessing an Existing Group (page 93)
Group operations, build and configure a new monitoring group	*Use Group Operations > Configure New Group*	Building and Configuring a Monitoring Group (page 88)
Group operations, change an existing group	*Use Group Operations > Select Group*	Changing an Existing Group (page 93)
Group operations, define or edit Group Monitoring types	*Use Group Operations > NRM Health Types*	Defining or Editing Group Monitoring Types (page 98)
Group operations, delete an existing group	*Use Group Operations > Select Group*	Deleting an Existing Group (page 94)
Group operations, discover items to monitor on the network.	*Use Group Operations > Configure New Group > right-click menu > Network Discovery*	Discovering Items on the Network to Monitor (page 98)
Group operations, generate and view server reports	*Use Group Operations > Configure New Group > right-click menu > Save Group*	Generating and Viewing Server Reports (page 94)
Group operations, save a new group	*Use Group Operations > Configure New Group > right-click menu > Save Group*	Saving a Group (page 92)
Group operations, view defined health types	*Use Group Operations > NRM Health Types*	Viewing Group Monitoring Types (page 96)
Group operations, view monitored items	*View Monitored Items*	Viewing Monitored Items (page 95)
Host, shut down	*Manage Linux > Down/Reset Options*	Shutting Down and Restarting the Host (page 73)

Tasks	Link in Navigation frame or Other Location	For More Information
Host, restart	*Manage Linux > Down/Reset Options*	Shutting Down and Restarting the Host (page 73)
Interrupt information, view	*Manage Hardware > Interrupt Information*	Viewing Interrupt Information (page 82)
I/O Memory information, view	*Manage Hardware > IO Memory Information*	Viewing I/O Memory Information (page 83)
IO Port information, view	*Manage Hardware > IO Port Information*	Viewing I/O Port Information (page 84)
Kernel modules, view	*Manage Linux > Kernel Module Listing*	Viewing Kernel Modules (page 71)
Memory information, view	*Manage Linux > View Memory Information*	Viewing Memory Information (page 72)
Mounted devices, perform actions on them	*Home* icon > *Info* icon	Viewing Mounted Devices and Performing Actions on Them (page 46)
Mounted devices, view	*Home* icon > *Info* icon	Viewing Mounted Devices and Performing Actions on Them (page 46)
Packages, install	*Manage Linux > Package Information*	Managing Packages (page 74)
Packages, remove	*Manage Linux > Package Information*	Managing Packages (page 74)
Packages, view information about	*Manage Linux > Package Information*	Managing Packages (page 74)
Partition information, view	*View File System > View Partition Information*	Viewing Partition Information (page 51)
Process, kill	*Manage Linux > Process Information*	Managing Processes (page 75)
Process, view information about	*Manage Linux > Process Information*	Managing Processes (page 75)
Processors, view information about	Manage Hardware > *View Processors*	Viewing Processors (page 81)
Server health, configure email notification about status	*Health Monitor and Configuration Icon*	Configuring Email Notification for Server Health Status (page 42)
Server health, configure item to monitor	*Diagnose > Health Monitor*	Configuring the Items to Monitor (page 42)
Server health, monitor health of a specific item	*Diagnose > Health Monitor*	Monitoring Overall Server Health or the Health of a Specific Item (page 39)
Server health, monitor overall health	*Diagnose > Health Monitor*	Monitoring Overall Server Health or the Health of a Specific Item (page 39)

Tasks	Link in Navigation frame or Other Location	For More Information
Server health, troubleshooting suspect or bad health status	*Diagnose > Health Monitor*	Troubleshooting a Suspect or Bad Health Status (page 42)
Server Group, monitor overall server health	*Use Group Operation > Configure New Group* or *Select Group*	Building and Configuring a Monitoring Group (page 88)
SMBIOS information, view	*Manage Hardware > SMBIOS Information*	Viewing SMBIOS Information (page 85)
Swap information, view	*Manage Linux > View Memory Information*	Viewing Memory Information (page 72)

14 Security Considerations

This section contains information that helps you know whether you can use this utility in a secure environment and points you to information to help you set up access to your server so you can be certain that its contents are not compromised through the use of this utility.

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

The default settings for Novell Remote Manager for OES Linux are set so your network and information cannot be compromised.If you change settings from the default, please be aware of the consequences of your actions.

- Section 14.1, "Security Features," on page 105
- Section 14.2, "Security Characteristics," on page 107
- Section 14.3, "Security Configuration," on page 107

14.1 Security Features

The following table contains the security features of Novell Remote Manager on OES Linux.

Table 14-1 *Security Features of Novell Remote Manager on OES Linux*

Feature	Yes/No	Details
Users are authenticated	Yes	Users must log in to Novell Remote Manager.
		Log in as user `root`, a local Linux user, or as a Novell eDirectory user that is Linux User Management enabled.
		The `root` user is authenticated locally, not through eDirectory. This allows the `root` user to manage server resources even if the eDirectory services are not available.
		For more information, see "Accessing Novell Remote Manager" on page 27 and "Changing the Configuration" on page 33.

Feature	Yes/No	Details
Limited root user privileges for the Admin user	Yes	User `root` can restrict all users from logging in, so the Admin user or Admin-equivalent user is not granted unlimited root privileges for security reasons. If the server is LUM enabled, the Admin user and users with rights equivalent to the Admin user have the limited `root` user privileges that are needed to modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying . The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.
		The Admin user or equivalent user needs `root` privileges to modify the following files in order to configure and manage NRM. The privileges are temporary and only for the task to be performed.
		`/etc/opt/novell/httpstkd.conf` `/etc/pam.d/httpstkd`
		The following file names are the names that are used as the description for a specified task:
		`/etc/cron.d/[task file name]`
		The following files may be the actual file or a symbolic link to the YAST or eDirectory certificates:
		`/etc/opt/novell/httpstkd/server.pem` `/etc/opt/novell/httpstkd/server.key`
		The following files are already modifiable by the Admin user:

		The first category has names that are whatever the user names the group that they create.
		 `/opt/novell/nrm/NRMGroups/[nrm group names]`
		 `/etc/opt/novell/nrmhconfig.conf`
		 `/etc/opt/novell/nrmsvchlthcfg.conf`

Servers, devices, and services are authenticated	Yes	When gathering information with group operations, Novell Remote Manager authenticates to other servers.
Access to information is controlled	Yes	Access to information is restricted to valid users who have rights to access the server through eDirectory or access rights to the local file system.
		The port for accessing the login dialog box must be open through a firewall if you want the server to be accessible outside the firewall. You can restrict access to specific workstations or a range of IP addresses.
		For more information, see "Accessing Novell Remote Manager" on page 27 and "Changing the Configuration" on page 33.
Roles are used to control access	No	Novell Remote Manager does not have role-based management.
Logging and security auditing is done	Yes	

Feature	Yes/No	Details
Data on the wire are encrypted by default	Yes	The following data are encrypted on the wire: ◆ Administration via browser UI ◆ When logging in the administration is switching to the HTTPS protocol.
Data is stored encrypted	No	
Passwords, keys, and any other authentication materials are stored encrypted	Yes	
Security is on by default	Yes	

14.2 Security Characteristics

Novell Remote Manager communicates using port 8008 and 8009. Port 8008 access the Login page, then all other communications take place through secure HTTP ports 8009. These default settings can be changed using options in the `/etc/opt/novell/httpstkd.conf` file.

The HTTPS communication uses SSL encryption. It uses the server certificate by default; however, you can reconfigure this setting if desired.

You can set the SSL key cipher strength by setting the `cipher strength` command in the `/etc/opt/novell/httpstkd.conf` file. We recommend that you set the cipher strength to high, which allows only 112-bit or greater encryption. By default it is set ALL, which allows any cipher strength. For information, see Section A.9, "SSL Key Cipher Strength Command," on page 119.

By default, Novell Remote Manager sets an HttpOnly cookie attribute that specifies that the cookie is not accessible through a script. This helps mitigate the risk of cross-site scripting. For information, see Section A.5, "HttpOnly Command," on page 115.

The Admin user and users with rights equivalent to user Admin have limited `root` user privileges that are needed to modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying . For a list of these files, see Section 14.1, "Security Features," on page 105. The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.

14.3 Security Configuration

The following table provides a summary of the options you can change to allow or limit access to the server through Novell Remote Manager.

Table 14-2 *Options for Changing or Limiting Access to a Server Through Novell Remote Manager*

Issue/Feature	Recommendation	For More Information
SSL key cipher strength	High (112-bit or greater encryption) The default setting is ALL, which allows any encryption level.	Section A.9, "SSL Key Cipher Strength Command," on page 119

Issue/Feature	Recommendation	For More Information
Let the root user access Novell Remote Manager with full management rights.	This is the default setting. The root user is the only user with full management rights in Novell Remote Manager.	"Accessing Novell Remote Manager" on page 27.
Let all LUM-enabled eDirectory users access file system information in Novell Remote Manager. Deny access to all non-LUM-enabled eDirectory users.	All non-local user access is controlled by eDirectory and LUM. LUM-enabled eDirectory users can log in and view the file systems that they have the eDirectory rights and file system rights to see. These users (including Admin users and Admin-equivalent users) do not have management rights in Novell Remote Manager. The eDirectory users that are not LUM enabled cannot access the server through Novell Remote Manager. We recommend that the `root` user be the only local user created on the system. However, if local users log in to Novell Remote Manager, their access is limited to viewing the file systems that they have the local rights to see. The management features are not available to non-`root` local users.	
Let the root user access Novell Remote Manager with full management rights. Deny access to all LUM-enabled eDirectory users, including the Admin user and Admin-equivalent users. Deny access to all non-LUM-enabled eDirectory users.	By default, only the root user and LUM-enabled eDirectory users can log in to Novell Remote Manager. Non-LUM-enabled eDirectory users cannot access the server through Novell Remote Manager. Set the `nolum` option in the `/etc/opt/novell/httpstkd.conf` file and edit the `/etc/pam.d/httpstkd` file. Remove these lines: `auth sufficient /lib/security/pam_nam.so` `account sufficient /lib/security/pam_nam.so` `password sufficient /lib/security/pam_nam.so` `session optional /lib/security/pam_nam.so` When the `nolum` option is set, no LUM-enabled eDirectory user can access the server via Novell Remote Manager, including the Admin user and Admin-equivalent user. By default, non-LUM-enabled eDirectory users continue to be denied access. Only the `root` user has full management access to Novell Remote Manager.	♦ "Changing the Configuration" on page 33. ♦ "Accessing and Editing the HTTPSTKD Configuration File" on page 34.

Issue/Feature	Recommendation	For More Information
Let the root user access Novell Remote Manager with full management rights. Restrict access for all LUM-enabled eDirectory users, except the Admin user and users with rights equivalent to Admin. Deny access to all non-LUM-enabled eDirectory users.	By default, only the root user and LUM-enabled eDirectory users can log in to Novell Remote Manager. Non-LUM-enabled eDirectory users cannot access the server through Novell Remote Manager. Set the supervisoronly option in the /etc/opt/novell/httpstkd.conf file. When the supervisoronly option is set, the Admin user and Admin-equivalent users are the only LUM-enabled eDirectory users that can log in to Novell Remote Manager. They can view the file systems that they have the eDirectory rights and file system rights to see. By default, non-LUM-enabled eDirectory users continue to be denied access. Only the root user has full management access to Novell Remote Manager.	◆ "Changing the Configuration" on page 33. ◆ "Accessing and Editing the HTTPSTKD Configuration File" on page 34.
Restrict access to specific workstations or a range of IP address	Set the filteraddr and filtersubnet options in the /etc/opt/novell/httpstkd.conf file.	◆ "Changing the Configuration" on page 33. ◆ "Accessing and Editing the HTTPSTKD Configuration File" on page 34.
Remove access to the utility for all users	Stop the HTTPSTKD daemon.	"Starting or Stopping HTTPSTKD" on page 29.

A HTTPSTKD Configuration File Options

To control the behavior of Novell Remote Manager on Linux, you can specify the options listed in the HTTPSTKD configuration file in `/etc/opt/novell/httpstkd.conf`. This information is in the default configuration file when installing a new server.

If you are upgrading your server, you might need to update or add the information and settings noted if you want the applicable functionality.

To edit the file, click the ☷ *Configure* icon in the header frame.

The following options are available for controlling the behavior of Novell Remote Manager on Linux:

A.1 Address and Port Commands

Purpose

Specifies each address and port that HTTPSTKD opens and listens on.

Optionally, you can enable SSL on the port using the `keyfile` and `certfile` parameters.

Syntax

```
addr ip_address:port_number

addr ip_address:port_number keyfile:key_file_path/name certfile:certificate_file_path/name
```

Option	Use
IP_address	One of the following: ◆ 0.0.0.0 ◆ The assigned static IP address of the node A DNS name is not allowed.
port/	One of the following for public or secure: ◆ 8008 is the default public port ◆ 8009 is the default secure port ◆ any port not in use on the server If you are accessing Novell Remote Manager outside a firewall, these ports must be open.
keyfile_path/name	`keyfile=/etc/opt/novell/httpstkd/server.key` is the default path and filename on a new OES server installation.
certificate_path/name	`certfile=/etc/opt/novell/httpstkd/server.pem` is the default path and filename on a new OES server installation.

Examples

```
addr 0.0.0.0:8008
```

```
addr 0.0.0.0:8009 keyfile=/etc/opt/novell/httpstkd/server.key certfile=/etc/opt/
novell/httpstkd/server.pem
```

A.2   Disable Auto LUM Command

Purpose

Only the `root` user has full management rights in Novell Remote Manager. The root user is a local superuser, and is not an eDirectory user. This allows the server to be managed even if the eDirectory authentication service is down.

Auto LUM lets eDirectory users that are enabled with Linux User Management (LUM) log in to Novell Remote Manager by using their eDirectory user names and passwords. For example, you can log in as user Admin or as a user with rights equivalent to Admin rather than logging in as user `root`. When LUM-enabled eDirectory users access Novell Remote Manager, they are allowed to view only the file systems that they have the eDirectory rights and file system rights to see.

NOTE: You can use the `supervisoronly` option to restrict access for LUM-enabled eDirectory users to only the Admin user and users with rights equivalent to the Admin user.

By default, the eDirectory users that are not LUM-enabled cannot access the server with Novell Remote Manager. They can view their files via NCP, CIFS, or AFP.

We recommend against creating local users other than the `root` user. However, if non-`root` local users access Novell Remote Manager, they must log in using the user name and password created on the local system. Only limited functionality is available.They can view only those file systems that they have the local access rights to see. The `nolum` option does not prevent the local-only users from logging in to Novell Remote Manager.

Use the `nolum` command to deny access to all LUM-enabled eDirectory users. By default, non-LUM-enabled eDirectory users continue to be denied access. Only the `root` user has full management access to Novell Remote Manager.

Syntax

`nolum`

Option	Use
no setting	This is the default setting.
	To perform all management functions, users must be logged in as user `root`.
	To view file system information, LUM-enabled eDirectory users can log in with their eDirectory user name and password. Non-LUM-enabled eDirectory users are denied access.
	To view local file system information only, non-root local users can log in with their locally created user names and passwords. We recommend against creating non-root local users.
	When the `nolum` command is not specified, HTTPSTKD checks its PAM configuration file at load time and adds the LUM configuration to it if LUM is installed but not already in its configuration.
nolum	To perform all management functions, users must be logged in as user `root`.
	LUM-enabled eDirectory users are denied access. Non-LUM-enabled eDirectory users are denied access.
	To view local file system information only, non-root local users can log in with their locally created user names and passwords. We recommend against creating non-`root` local users.
	IMPORTANT: Setting this option does not disable LUM if it is already part of HTTPSTKD configuration.
	You can remove the auto LUM functionality by manually by editing `/etc/pam.d/httpstkd` and removing these lines:

	`auth sufficient /lib/security/pam_nam.so`
	`account sufficient /lib/security/pam_nam.so`
	`password sufficient /lib/security/pam_nam.so`
	`session optional /lib/security/pam_nam.so`

Example

`nolum`

A.3 Email Notification Commands

Purpose

Sets up email notification service in Novell Remote Manager.

You can specify up to two mail servers and up to eight recipients to receive email when a notification is specified in the Novell Remote Manager server health area. Use a separate command line for each server or email address.

Syntax

```
mailserver IP_address
mailto email_address
```

Command	Use
no setting	Email notification is not configured. This is the default setting.
mailserver	Sends email notification to the specified mail server. You can specify up to two mail servers.
mailto	Sends email notification to the specified user. You can specify up to eight users.

Example

The following commands send email notifications to mail servers `mail.bobs1bank.com` and `smtp.bobs1bank.com`:

```
mailserver mail.bobs1bank.com
mailserver smtp.bobs1bank.com
```

The following commands send email notifications to users Bob, George, and Mary from mailserver `bobs1bank.com`:

```
mailto bob@bobs1bank.com
mailto george@bobs1bank.com
mailto mary@bobs1bank.com
```

A.4 Filtering Commands

Purpose

Blocks access to Novell Remote Manager from all addresses except those specified by these filteraddr and filtersubnet commands.

Syntax

```
filteraddr IP_address
filtersubnet IP_address subnet_mask
```

Command	Use
not specified	Allows access from any address. This is the default setting.
filteraddr	Allows access from specific addresses only.
filtersubnet	Allows access from any address on the specified network or subnet.

Examples

The following command allows access only from address 192.168.20.1:

```
filteraddr 192.168.20.1
```

The following command allows access from only addresses 192.56.56.0 thru 192.56.59.255:

```
filteraddr 192.56.56.0 255.255.252.0
```

A.5 HttpOnly Command

Purpose

Novell Remote Manager sets an `HttpOnly` cookie attribute that specifies that the cookie is not accessible through a script. This helps mitigate the risk of cross-site scripting.

Syntax

If the `HttpOnly` flag is included in the HTTP response header, the cookie cannot be accessed through client side script.

If you modify the setting, you must restart Novell Remote Manager.

```
HttpOnly <true|false>
```

Option	Use
true	Include `HttpOnly` as an attribute in the response header. This is the default setting.
false	Do not include `HttpOnly` in the response header.

To disable the `HttpOnly` attribute:

1 Log in to the server as the `root` user, then open a terminal console.

2 Stop the `httpstkd` daemon by entering

```
rcnovell-httpstkd stop
```

3 Open the `/etc/opt/novell/httpstkd.conf` file in a text editor.

4 Review the potential security concerns for changing `HttpOnly` to `false`.

5 Change the setting from

```
HttpOnly true
```

to

```
HttpOnly false
```

6 Save the file and exit the text editor.

7 Start the `httpstkd` daemon by entering

```
rcnovell-httpstkd start
```

Examples

```
HttpOnly true
HttpOnly false
```

A.6 InventoryResolveNonLumOwnerName Command

Purpose

The `InventoryResolveNonLumOwnerName` command is used when you perform an inventory of NSS volumes and the file owner UID is set to the Nobody user. The Nobody user is reported when a file is owned by a Novell eDirectory user that is not enabled with Linux User Management (LUM).

Syntax

If you modify the setting, you must restart Novell Remote Manager.

```
InventoryResolveNonLumOwnerName <false|true>
```

Option	Use
false	The inventory does not resolve the user IDs of non-LUM-enabled file owners. The owner is reported as the Nobody user.
	This is the default setting. This provides faster performance for an inventory of files on an NSS volume when eDirectory users are not LUM enabled.
true	The inventory tries to resolve the user IDs of non-LUM-enabled file owners by using NSS APIs. This can result in a major performance impact for the inventory. The more non-LUM-enabled file owners the inventory encounters, the longer it takes to complete the inventory.

Examples

The following example does not resolve the user IDs of file owners that are not LUM enabled. This is the default setting. The non-LUM-enabled owners are reported as the Nobody user.

```
InventoryResolveNonLumOwnerName false
```

The following example resolves the user IDs of file owners that are not LUM enabled to the user name. The more non-LUM-enabled owners encountered, the longer the inventory can take.

```
InventoryResolveNonLumOwnerName true
```

A.7 Language Commands

Purpose

Sets up a mapping of HTTP Accept-Language header tags for Linux locales. These locales determine the languages in which the browser can view content through the Novell Remote Manager utility.

To see a list of possible locales on your Linux server, enter the following at a shell prompt:

```
locale -a
```

Syntax

```
lang HTTP_language_string locale_string
```

Command	Use

lang	Use the following settings:
	
	    ◆ English: en en_US.UTF8
	    ◆ US English: en-us en_US.UTF8
	    ◆ Chinese Simplified: zh-cn zh_CN.UTF8
	    ◆ Chinese Traditional: zh-tw zh_TW.UTF8
	    ◆ Czech: cs cs_CZ.UTF8
	    ◆ French: fr fr_FR.UTF
	    ◆ German: de de_DE.UTF8
	    ◆ Hungarian: hu hu_HU.UTF8
	    ◆ Italian: it it_IT.UTF8
	    ◆ Japanese: ja ja_JP.UTF8
	    ◆ Polish: pl pl_PL.UTF8
	    ◆ Portuguese-Brazil: pt pt_BR.UTF8
	    ◆ Russian: ru ru_RU.UTF8
	    ◆ Spanish: es es_ES.UTF8
	    ◆ Slovak: sk sk_SK.UTF8
	
	These are the default settings for this release.
	
	In this release, Novell Remote Manager supports English, Chinese Simplified, Chinese Traditional, Czech, French, German, Hungarian, Italian, Japanese, Polish, Portuguese-Brazil, Russian, Spanish, and Slovak.

Examples

The following commands set the browser languages for various languages such as English, French, Japanese, and Portuguese:

```
lang en     en_US.UTF8
lang en-us  en_US.UTF8
lang zh-cn  zh_CN.UTF8
lang zh-tw  zh_TW.UTF8
lang cs     cs_CZ.UTF8
lang cs-cz  cs_CZ.UTF8
lang fr     fr_FR.UTF8
lang fr-fr  fr_FR.UTF8
lang de     de_DE.UTF8
lang de-de  de_DE.UTF8
lang hu     hu_HU.UTF8
lang hu-hu  hu_HU.UTF8
lang it     it_IT.UTF8
lang it-it  it_IT.UTF8
lang ja     ja_JP.UTF8
lang ja-jp  ja_JP.UTF8
lang pl     pl_PL.UTF8
lang pl-pl  pl_PL.UTF8
lang pt     pt_BR.UTF8
lang pt-BR  pt_BR.UTF8
lang ru     ru_RU.UTF8
lang ru-ru  ru_RU.UTF8
lang es     es_ES.UTF8
lang es-es  es_ES.UTF8
lang sk     sk_SK.UTF8
lang sk-sk  sk_SK.UTF8
```

More Information

If you are upgrading this server and you want to use this option, you need to add these parameters to the /etc/opt/novell/httpstkd.conf file for this server.

A.8 Load Command

Purpose

Loads plug-in files used by Novell Remote Manager.

Syntax

```
load plug-in_file_path/name
```

Option	Use
plug-in_file_path	/opt/novell/lib/ is the default path for Novell Remote Manager plug-in files.
plug-in_filename	libnrm.so is a default plug-in for Novell Remote Manager.

Examples

```
load nrm.so
```

```
load /opt/novell/lib/libnrm.so
```

A.9   SSL Key Cipher Strength Command

Purpose

The Cipher command sets the bit strength for the SSL key that is required to access Novell Remote Manager. If you modify the setting, you must restart NRM.

Syntax

```
cipher strength
```

Option	Use
all	Allows any negotiated encryption level. This is the default setting.
low	Allows less than 56-bit encryption.
medium	Allows 56-bit up to 112-bit encryption.
high	Allows 112-bit or greater encryption

Example

The following example allows access to Novell Remote Manager only with encryption that is 112-bit or greater:

```
cipher high
```

You must restart Novell Remote Manager to apply the change.

A.10   Supervisor Only Command

Purpose

Disables access to the server through Novell Remote Manager for all users except `root`. If Linux User Management is enabled for Novell Remote Manager, eDirectory user Admin and eDirectory users with rights equivalent to user Admin also have access to the server through Novell Remote Manager and can perform the same tasks as user `root`.

Syntax

```
supervisoronly
```

Option	Use
no setting	This is the default setting. Local users and all LUM-enabled eDirectory users can log in to Novell Remote Manager. The non-root and non-admin users have limited access to the server through Novell Remote Manager. They can access only the server's file systems that they have rights to and can perform very limited tasks such as file upload and text search.
supervisoronly	Lets only user root and eDirectory user Admin and users with rights equivalent to Admin have access to the server through Novell Remote Manager. LUM must be set for eDirectory user access.

Example

```
supervisoronly
```

More Information

If you are upgrading this server and you want to use this option, you need to add these parameters to the /etc/opt/novell/httpstkd.conf file for this server.

B Novell Remote Manager Packages

The following table lists the packages that are installed when the Novell Remote Manage pattern is installed on an OES 2 Linux server.

Table B-1 *Packages Contained in the Novell Remote Manager Pattern*

Package (RPM)	Description	Notes
novell-lum-providers	A set of CIM providers to facilitate the management of Linux User Management, which is a plug-in to PAM.	
novell-nrm	Novell Remote Manager, Web-based Linux machine management, and control interface.	Contains all the binaries and necessary components for Novell Remote Manager.
openwbem-xml-serviceproviders	A set of CIM providers that allow system services to be instrumented through a service description XML document.	The XML service provider is essentially an XML framework that provides CIM instrumentation for system services. The providers that provide this framework run within the OpenWBEM CIMOM environment. This XML Service provider is a CIM provider that runs within the OpenWBEM CIMOM environment. It provides objects that represent services through the CIM interface, based on XML documents that describe the service. It also provides health information for the services by consuming the output of a command line that is specified in the service description XML document.

The Novell Remote Manager pattern is selected for installation whenever any other OES 2 Linux pattern is selected for Linux installation. It is required only by packages installed with the Novell NCP Server/Dynamic Storage Technology.

C   Documentation Updates

To help you keep current on updates to the documentation, this section contains information on content changes that have been made in this *OES 2: Novell Remote Manager for Linux Administration Guide* since the initial release of Open Enterprise Server 2.

This document was updated on the following dates:

C.1   May 3, 2013

Updates were made to the following sections. The changes are explained below.

C.1.1 Viewing File Systems

Location	Change
Section 9.4.5, "Salvaging and Purging Deleted Files on an NSS Volume," on page 59	If the deleted file resided in a directory that has been deleted, you must first salvage the deleted directories in the path. Salvage each lower directory in turn until you have salvaged the deleted directory that contained the file. You can then search for the deleted file in the salvaged directory. You can also select a deleted directory and use the Purge option to purge the deleted directory and all of the deleted subdirectories and files it contains.

C.1.2 What's New or Changed in Novell Remote Manager

Location	Change
Section 2.1, "What's New (April 2013 Patches)," on page 13	This section is new.

C.2 January 31, 2013

Updates were made to the following sections. The changes are explained below.

- Section C.2.1, "Accessing Novell Remote Manager for Linux," on page 124
- Section C.2.2, "Using Group Operations," on page 125
- Section C.2.3, "What's New or Changed in Novell Remote Manager," on page 125

C.2.1 Accessing Novell Remote Manager for Linux

Location	Change
Section 6.1, "System Requirements," on page 27	Support was added for the following Web browsers: ◆ Internet Explorer 10 in the desktop user interface view on Windows 7 clients and Windows 8 clients ◆ Safari 6.0 on Mac OS X Mountain Lion (version 10.8) clients

C.2.2 Using Group Operations

Location	Change
Section 12.1, "Building and Configuring a Monitoring Group," on page 88	The Web Page monitoring option shows the response when trying to determine if the communication is working to a server that hosts a Web site.

C.2.3 What's New or Changed in Novell Remote Manager

Location	Change
Section 2.2, "What's New (January 2013 Patches)," on page 13	This section is new.

C.3 August 6, 2012

Updates were made to the following section. The changes are explained below.

C.3.1 HTTPSTKD Configuration File Options

Location	Change
Section A.5, "HttpOnly Command," on page 115	The configuration file name is /etc/opt/novell/httpstkd.conf.
	The command name HttpOnly is case sensitive.

C.4 June 21, 2012

Updates were made to the following sections. The changes are explained below.

C.4.1 Viewing File Systems

Location	Change
Section 9.6, "Generating and Viewing NCP Trustee Reports for NSS Volumes," on page 66	The NCP Trustee Report feature is for NSS volumes only, including DST shadow volumes comprised of two NSS volumes.

C.4.2 What's New

Location	Change
Section 2.3, "What's New (May 2012 Patches)," on page 14	The NCP Trustee Report feature is for NSS volumes only, including DST shadow volumes comprised of two NSS volumes.

C.5 May 31, 2012

Updates were made to the following sections. The changes are explained below.

- Section C.5.1, "Viewing File Systems," on page 126
- Section C.5.2, "What's New for Novell Remote Manager," on page 126

C.5.1 Viewing File Systems

Location	Change
Section 9.6, "Generating and Viewing NCP Trustee Reports for NSS Volumes," on page 66	This section is new.

C.5.2 What's New for Novell Remote Manager

Location	Change
Section 2.3, "What's New (May 2012 Patches)," on page 14	This section is new.

C.6 November 30, 2011

Updates were made to the following sections. The changes are explained below.

- Section C.6.1, "Changing the Configuration," on page 127
- Section C.6.2, "HTTPSTKD Configuration File Options," on page 127
- Section C.6.3, "Security Considerations," on page 127
- Section C.6.4, "Managing Linux," on page 127
- Section C.6.5, "Viewing File Systems," on page 127
- Section C.6.6, "What's New for Novell Remote Manager," on page 128

C.6.1 Changing the Configuration

Location	Change
Table 7-1 on page 34	Added an entry for the HttpOnly command.
	Added an entry for the `InventoryResolveNonLumOwnerName` command.

C.6.2 HTTPSTKD Configuration File Options

Location	Change
Section A.2, "Disable Auto LUM Command," on page 112	This section has been revised for clarity.
Section A.5, "HttpOnly Command," on page 115	This section is new.
Section A.6, "InventoryResolveNonLumOwnerName Command," on page 116	This section is new.

C.6.3 Security Considerations

Location	Change
Section 14.2, "Security Characteristics," on page 107	Added information about the HttpOnly command.
Section 14.3, "Security Configuration," on page 107	The entries for `nolum` and `supervisoronly` have been revised for clarity.

C.6.4 Managing Linux

Location	Change
Section 10.1, "Accessing VNC Consoles," on page 69	You must disable the `HttpOnly` setting in the `/etc/opt/novell/httpstkd.conf` file in order to enable the VNC console display.

C.6.5 Viewing File Systems

Location	Change
Section 9.5.3, "Viewing a Saved NCP Volume Report," on page 63	This section is new.

Location	Change
Section 9.5.4, "Emailing a Saved NCP Volume Report," on page 63	This section is new.

C.6.6 What's New for Novell Remote Manager

Location	Change
Section 2.4, "What's New (November 2011 Patches)," on page 14	This section is new.

C.7 April 8, 2011

Updates were made to the following sections. The changes are explained below.

C.7.1 Changing the Configuration

Location	Change
Table 7-1 on page 34	Added an entry for cipher strength.

C.7.2 HTTPSTKD Configuration File Options

Location	Change
Section A.9, "SSL Key Cipher Strength Command," on page 119	This section is new.

C.7.3 Security Considerations

Location	Change
Section 14.2, "Security Characteristics," on page 107	Added information about the Cipher command.

C.7.4 Viewing File Systems

Location	Change
Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60	File ownership information can now be retrieved for files on NSS volumes without needing to enable users with Linux User Management.

C.7.5 What's New for Novell Remote Manager

Location	Change
Section 2.6, "What's New (April 2011 Patches)," on page 15	This section is new.

C.8 February 11, 2011

Changes were made for the fixes mentioned in Section 2.6, "What's New (April 2011 Patches)," on page 15.

C.9 December 2010 (OES2 SP3)

This guide was updated to the Novell documentation standards for OES 2 SP3.

C.10 January 29, 2010

Updates were made to the following sections. The changes are explained below.

- Section C.10.1, "Accessing Novell Remote Manager for Linux," on page 129
- Section C.10.2, "Viewing File Systems," on page 130

C.10.1 Accessing Novell Remote Manager for Linux

Location	Change
Section 6.1, "System Requirements," on page 27	To view the graphical displays in the inventory report, Sun Java must be installed on the machine you use to to access Novell Remote Manager, and the browser must have Java and Javascript enabled.

C.10.2 Viewing File Systems

Location	Change
Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60	Generating this report can take a while, depending on the number of files and folders in the specified directory path. There is no facility to view previous inventory scans as there was on NetWare.
Section 9.5, "Generating Inventories for Directories or NCP Volumes," on page 60	**IMPORTANT:** To view the graphical displays in the inventory report, Sun Java must be installed on the machine you use to to access Novell Remote Manager, and the browser must have Java and Javascript enabled.

C.11 November 9, 2009 (OES 2 SP2)

This guide was updated to the Novell documentation standards for OES 2 SP2.

C.12 March 3, 2009

Updates were made to the following section. The changes are explained below.

C.12.1 Managing Linux

Location	Change
Section 10.7, "Scheduling cron Jobs to Run on the Server," on page 77	**IMPORTANT:** When you set up cron commands, ensure that you log into Novell Remote Manager as the root user, or with a user name that has the necessary permissions to execute the command.

C.13 December 2008

Updates were made to the following sections:

- Section C.13.1, "Accessing Novell Remote Manager for Linux," on page 131
- Section C.13.2, "Managing Linux," on page 131
- Section C.13.3, "Security Considerations," on page 131
- Section C.13.4, "Viewing File Systems," on page 131

C.13.1 Accessing Novell Remote Manager for Linux

Location	Change
Section 6.2, "Accessing Novell Remote Manager," on page 27	The Admin user has limited file system rights equivalent to root that are needed to modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying. The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.
"Navigation Frame" on page 31	**IMPORTANT:** When working in Novell Remote Manager, using the browser's Back button can result in unintended actions being re-sent to the server. Ensure that you use the navigation links provided in the tool.

C.13.2 Managing Linux

Location	Change
Section 10.1, "Accessing VNC Consoles," on page 69	**IMPORTANT:** The accessibility to the VNC consoles via Novell Remote Manager for Linux is limited to user root; it is not available to user Admin.

C.13.3 Security Considerations

Location	Change
Section 14.1, "Security Features," on page 105	The Admin user has limited file system rights equivalent to root that are needed to modify only the configuration files necessary for configuring NRM or any other files that NRM has been assigned rights to allow modifying. The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.
Section 14.2, "Security Characteristics," on page 107	Same change as above.

C.13.4 Viewing File Systems

Location	Change
Section 9.1, "Viewing Mounted Devices and Performing Actions on Them," on page 46	For information about how NSS reports space usage for volumes, see "Guidelines for Sizing Volumes" in the *OES 2 SP3: NSS File System Administration Guide for Linux*.

C.14   March 21, 2008

Edits were made to repair broken links. In addition, updates were made to the following sections:

- Section C.14.1, "Diagnosing Problems," on page 132
- Section C.14.2, "Managing Linux," on page 132

C.14.1   Diagnosing Problems

Location	Change
Section 8.1, "Monitoring Server Health," on page 39	Information was added applying settings for the different tables, and for using the Refresh Rate feature. Information was reorganized for clarity.

C.14.2   Managing Linux

Location	Change
Section 10.6, "Managing Processes," on page 75	Table 10-6 on page 76 describes the parameters that are reported on the Process Information page.

C.15   February 7, 2008

Edits were made to repair broken links. In addition, updates were made to the following section:

- Section C.15.1, "Managing Hardware," on page 132

C.15.1   Managing Hardware

Location	Change
Section 11.1, "Viewing Processors," on page 81	Added information about processor information that is reported in a virtualized environment.