

Novell Remote Manager Administration Guide

Open Enterprise Server 11

August 6, 2012

Novell.

Legal Notices

Novell, Inc., makes no representations or warranties with respect to the contents or use of this documentation, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.

Further, Novell, Inc., makes no representations or warranties with respect to any software, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, Novell, Inc., reserves the right to make changes to any and all parts of Novell software, at any time, without any obligation to notify any person or entity of such changes.

Any products or technical information provided under this Agreement may be subject to U.S. export controls and the trade laws of other countries. You agree to comply with all export control regulations and to obtain any required licenses or classification to export, re-export or import deliverables. You agree not to export or re-export to entities on the current U.S. export exclusion lists or to any embargoed or terrorist countries as specified in the U.S. export laws. You agree to not use deliverables for prohibited nuclear, missile, or chemical biological weaponry end uses. See the [Novell International Trade Services Web page \(http://www.novell.com/info/exports/\)](http://www.novell.com/info/exports/) for more information on exporting Novell software. Novell assumes no responsibility for your failure to obtain any necessary export approvals.

Copyright © 2004–2012 Novell, Inc. All rights reserved. No part of this publication may be reproduced, photocopied, stored on a retrieval system, or transmitted without the express written consent of the publisher.

Novell, Inc.
1800 South Novell Place
Provo, UT 84606
U.S.A.
www.novell.com

Online Documentation: To access the latest online documentation for this and other Novell products, see the [Novell Documentation Web page \(http://www.novell.com/documentation\)](http://www.novell.com/documentation).

Novell Trademarks

For Novell trademarks, see [the Novell Trademark and Service Mark list \(http://www.novell.com/company/legal/trademarks/tmlist.html\)](http://www.novell.com/company/legal/trademarks/tmlist.html).

Third-Party Materials

All third-party trademarks are the property of their respective owners.

This product includes code licensed from RSA Security, Inc. Some portions licensed from IBM are available at <http://oss.software.ibm.com/icu4j/>.

This product includes materials licensed under the Apache license, including Apache and Tomcat.

Contents

About This Guide	7
1 Overview of Novell Remote Manager for Linux	9
1.1 Benefits of Using Novell Remote Manager	9
1.2 Other Management Utilities	10
1.3 What's Next	10
2 What's New or Changed in Novell Remote Manager	13
2.1 What's New Manager (May 2012 Patches)	13
2.2 What's New (OES 11)	13
3 Migrating Novell Remote Manager from NetWare to OES 11	17
3.1 Coexistence	17
3.1.1 Compatibility	17
3.1.2 Coexistence Issues	17
3.2 Migration	17
4 Managing a Virtualized Linux Server with Novell Remote Manager	19
5 Setting Up Novell Remote Manager for Linux	21
5.1 Installing Novell Remote Manager During the Initial Server Installation	21
5.2 Installing Novell Remote Manager After the Initial Server Installation	21
6 Accessing Novell Remote Manager for Linux	23
6.1 System Requirements	23
6.2 Accessing Novell Remote Manager	23
6.3 Starting or Stopping HTTPSTKD	25
6.4 Understanding the Layout of Novell Remote Manager	26
6.5 Accessing Online Help	28
6.6 Accessing Novell Web Pages	28
7 Changing the Configuration	29
7.1 Accessing and Editing the HTTPSTKD Configuration File	30
7.2 Accessing and Editing the HTTPSTKD PAM Configuration File	31
7.3 Restarting the HTTPSTKD Daemon	32
7.4 Viewing the HTTP Logs	32
7.5 Viewing and Creating Certificates for Novell Remote Manager	32
7.6 Extending the eDirectory Schema for Novell Remote Manager Group Operations	33
8 Diagnosing Problems	35
8.1 Monitoring Server Health	35

8.1.1	Monitoring Overall Server Health or the Health of a Specific Item	35
8.1.2	Configuring the Items to Monitor	39
8.1.3	Configuring Email Notification for Server Health Status	39
8.2	Troubleshooting a Suspect or Bad Health Status	39
9	Viewing File Systems	41
9.1	Viewing Mounted Devices and Performing Actions on Them	42
9.2	Browsing File Systems and Performing Actions on Them	43
9.2.1	Viewing or Changing File or Directory Attributes	44
9.2.2	Viewing Details about Directories and Performing Actions on Them	45
9.2.3	Uploading a File to the Server	45
9.2.4	Downloading a File from the Server to a Local Workstation	46
9.2.5	Searching for Text in Files	46
9.2.6	Viewing the Details of a File and Performing Specific Actions	46
9.2.7	Viewing Individual Files	47
9.3	Viewing Partition Information	47
9.4	Browsing NSS Volumes and Performing Actions on Them	48
9.4.1	Viewing Information about an NSS Volume	48
9.4.2	Viewing the Linux POSIX Details of an NSS Directory and Performing Specific Actions on It	50
9.4.3	Viewing the Linux POSIX Details of a File and Performing Specific Actions on It	51
9.4.4	Browsing an NSS Volume and Setting Rights and File System Attributes on Directories and Files	51
9.4.5	Salvaging and Purging Deleted Files on an NSS Volume	55
9.4.6	Purging a Deleted NSS Volume	55
9.4.7	Viewing Open File Information for an NSS Volume	55
9.5	Inventorying Directories or NCP Volumes	56
9.5.1	Generating an File Inventory Report	57
9.5.2	Generating an NCP Volume Inventory Report	58
9.5.3	Viewing a Saved NCP Volume Report	59
9.5.4	Emailing a Saved NCP Volume Report	59
9.5.5	Generating a Customized Report	60
9.6	Generating and Viewing NCP Trustee Reports for NSS Volumes	62
9.6.1	Generating an NCP Trustee Report	63
9.6.2	Viewing a Saved NCP Trustee Report	63
9.6.3	Emailing a Saved NCP Trustee Report	64
10	Managing Linux	65
10.1	Accessing VNC Consoles	65
10.2	Viewing Kernel Modules	68
10.3	Viewing Memory Information	68
10.4	Shutting Down and Restarting the Host	70
10.5	Managing Packages	70
10.6	Managing Processes	72
10.7	Scheduling cron Jobs to Run on the Server	74
11	Managing Hardware	77
11.1	Viewing Processors	77
11.2	Viewing Interrupt Information	78
11.3	Viewing I/O Memory Information	79
11.4	Viewing I/O Port Information	80
11.5	Viewing SMBIOS Information	81

12 Using Group Operations	83
12.1 Building and Configuring a Monitoring Group	84
12.2 Saving a Group	88
12.2.1 Saving the Group to the Local Server	88
12.2.2 Saving the Group and Associating It with an eDirectory Object	88
12.3 Accessing an Existing Group	88
12.4 Changing an Existing Group	89
12.5 Deleting an Existing Group	89
12.6 Generating and Viewing Server Reports	90
12.6.1 Compare Server Up Time Report	90
12.7 Viewing Monitored Items	90
12.8 Viewing Group Monitoring Types	91
12.9 Defining or Editing Group Monitoring Types	93
12.10 Discovering Items on the Network to Monitor	93
13 Tasks Quick Reference	97
14 Troubleshooting	101
14.1 Daemon httpstkd Is Unable to Start	101
15 Security Considerations	103
15.1 Security Features	103
15.2 Security Characteristics	105
15.3 Security Configuration	105
A HTTPSTKD Configuration File Options	109
A.1 Address and Port Commands	109
A.2 Disable Auto LUM Command	110
A.3 Email Notification Commands	112
A.4 Filtering Commands	112
A.5 HttpOnly Command	113
A.6 InventoryResolveNonLumOwnerName Command	114
A.7 Language Commands	115
A.8 Load Command	116
A.9 SSL Key Cipher Strength Command	117
A.10 Supervisor Only Command	117
B Novell Remote Manager Packages	119
C Documentation Updates	121
C.1 August 6, 2012	121
C.1.1 HTTPSTKD Configuration File Options	121
C.2 June 21, 2012	121
C.2.1 Viewing File Systems	122
C.2.2 What's New	122
C.3 May 30, 2012	122
C.3.1 Viewing File Systems	122
C.3.2 What's New for Novell Remote Manager	122

About This Guide

This guide describes how to access and use Novell Remote Manager on a host that is running Novell Open Enterprise Server (OES) 11 on the SUSE Linux Enterprise Server (SLES) 11 Support Pack 1 (SP1) operating system. This guide includes the following information:

- ♦ Chapter 1, “Overview of Novell Remote Manager for Linux,” on page 9
- ♦ Chapter 2, “What’s New or Changed in Novell Remote Manager,” on page 13
- ♦ Chapter 3, “Migrating Novell Remote Manager from NetWare to OES 11,” on page 17
- ♦ Chapter 4, “Managing a Virtualized Linux Server with Novell Remote Manager,” on page 19
- ♦ Chapter 5, “Setting Up Novell Remote Manager for Linux,” on page 21
- ♦ Chapter 6, “Accessing Novell Remote Manager for Linux,” on page 23
- ♦ Chapter 7, “Changing the Configuration,” on page 29
- ♦ Chapter 8, “Diagnosing Problems,” on page 35
- ♦ Chapter 9, “Viewing File Systems,” on page 41
- ♦ Chapter 10, “Managing Linux,” on page 65
- ♦ Chapter 11, “Managing Hardware,” on page 77
- ♦ Chapter 12, “Using Group Operations,” on page 83
- ♦ Chapter 13, “Tasks Quick Reference,” on page 97
- ♦ Chapter 14, “Troubleshooting,” on page 101
- ♦ Chapter 15, “Security Considerations,” on page 103
- ♦ Appendix A, “HTTPSTKD Configuration File Options,” on page 109
- ♦ Appendix B, “Novell Remote Manager Packages,” on page 119
- ♦ Appendix C, “Documentation Updates,” on page 121

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 [Novell Documentation Feedback \(http://www.novell.com/documentation/feedback.html\)](http://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*, visit the [OES 11 documentation Web site \(http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html\)](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

Additional Documentation

For information about other OES 11 services and file systems, see the [OES 11 documentation Web site](http://www.novell.com/documentation/oes11/) (<http://www.novell.com/documentation/oes11/>).

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:

- ♦ [Section 1.1, "Benefits of Using Novell Remote Manager," on page 9](#)
- ♦ [Section 1.2, "Other Management Utilities," on page 10](#)
- ♦ [Section 1.3, "What's Next," on page 10](#)

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 OES 11. For an understanding of which utilities are best for the task you need to perform, see “[OES Utilities and Tools](#)” in the *OES 11: 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 23
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 NetWare to OES 11” on page 17
Managing a virtualized OES 11 server with Novell Remote Manager.	“Setting Up Novell Remote Manager for Linux” on page 21
Installing Novell Remote Manager for Linux	“Setting Up Novell Remote Manager for Linux” on page 21
Changing the configuration of Novell Remote Manager	“Changing the Configuration” on page 29
Using Novell Remote Manager to monitor and manage your OES Linux and NetWare servers	<ul style="list-style-type: none">♦ “Diagnosing Problems” on page 35♦ “Viewing File Systems” on page 41♦ “Managing Linux” on page 65♦ “Managing Hardware” on page 77♦ “Using Group Operations” on page 83
Things to consider for setting up your system in a secure environment.	“Security Considerations” on page 103

2 What's New or Changed in Novell Remote Manager

This section describes changes and enhancements for Novell Remote Manager since the initial release of Novell Open Enterprise Server (OES) 11.

- ♦ [Section 2.1, “What's New Manager \(May 2012 Patches\),” on page 13](#)
- ♦ [Section 2.2, “What's New \(OES 11\),” on page 13](#)

2.1 What's New Manager (May 2012 Patches)

In addition to bug fixes, the following enhancements are available in the May 2012 Scheduled Maintenance patches for OES 11:

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 that are comprised with 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 [“Generating and Viewing NCP Trustee Reports for NSS Volumes”](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/trustee_reports.html) (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/trustee_reports.html) in the *OES 11 SP1: Novell Remote Manager Administration Guide*. (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

2.2 What's New (OES 11)

Novell Remote Manager has been modified to run on Novell Open Enterprise Server 11. In addition to bug fixes, the following changes and enhancements are available:

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 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 [“HttpOnly Command”](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/httponly.html) (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/httponly.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

InventoryResolveNonLumOwnerName Command

The `InventoryResolveNonLumOwnerName` configuration option is available in the Novell Remote Manager `/etc/opt/novell/httpstk.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 usernames 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 “[InventoryResolveNonLumOwnerName Command](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/bwv2pua.html)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/bwv2pua.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

SSL Key Cipher Strength Command

You can set the cipher strength for the SSL key in the `/etc/opt/novell/httpstk.conf` file. The default allows any encryption level. A setting of High is recommended. For information, see “[SSL Key Cipher Strength Command](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/budlpt0.html)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/budlpt0.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

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/httpstk.conf` file. For information, see “[HttpOnly Command](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/httponly.html)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/httponly.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

General File Inventory

On the File System Listing page, the *Inventory* link generates a *General File Inventory* report with statistics about the files stored on a selected volume. For information, see “[Inventorying Directories or NCP Volumes](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/b2kl4kn.html)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/b2kl4kn.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

NCP Volumes Inventory

- 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 e-mail a saved NCP volume inventory report to addresses that are configured in the `/etc/opt/novell/httpstd.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 “[Inventorying Directories or NCP Volumes](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/b2kl4kn.html)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/b2kl4kn.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

Open Connections for NCP Volumes and NSS Volumes

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 a connection. For information, see “[Viewing Connections for NCP Server](http://www.novell.com/documentation/oes11/file_ncp_lx/data/ba47cgt.html)” (http://www.novell.com/documentation/oes11/file_ncp_lx/data/ba47cgt.html) in the *OES 11: NCP Server for Linux Administration Guide* (http://www.novell.com/documentation/oes11/file_ncp_lx/data/h9izvdye.html).

Salvage and Purge Deleted Files for NSS Volumes

On the *Share Information* page, 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 permanently remove a deleted file from the file system.
- ♦ The *Salvage* option allows you to recover a deleted file.
- ♦ The *Purge all files* option allows you to permanently remove all deleted files on a selected volume.

For information, see “[Salvaging and Purging Deleted Files on an NSS Volume](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/nssactions.html#nsssalvage)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/nssactions.html#nsssalvage) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

Create, Rename, and Delete Directories

On the *Directory Information* page, the following capabilities were added:

- ♦ 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.

For information, see “[Viewing Details about Directories and Performing Actions on Them](http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/butlqph.html#butltrr)” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/butlqph.html#butltrr) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

NSS Volume Share Information

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

- ♦ Additional details about the volume are displayed, such as the sector size and loaded name spaces.
- ♦ For NSS volumes, the *Compression* option shows whether the Compression attribute is enabled for the volume.

NSS Volume Directory and File Listing

On an NSS volume's Directory and File Listing page, 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 an *NCP Volume Inventory* report with statistics about the files stored on a selected volume.
- ♦ The *Upload* option allows you to upload a file to the selected volume.

For information, see “Browsing Files and Performing Actions on NSS Volumes” (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/nssactions.html) in the *OES 11: Novell Remote Manager Administration Guide* (http://www.novell.com/documentation/oes11/mgmt_remotemgr_lx/data/front.html).

3 Migrating Novell Remote Manager from NetWare to OES 11

Novell Remote Manager for Novell Open Enterprise Server (OES) 11 runs on servers with OES 11 services installed. This section contains information about the following:

- ♦ [Section 3.1, “Coexistence,” on page 17](#)
- ♦ [Section 3.2, “Migration,” on page 17](#)

3.1 Coexistence

- ♦ [Section 3.1.1, “Compatibility,” on page 17](#)
- ♦ [Section 3.1.2, “Coexistence Issues,” on page 17](#)

This section provides information regarding the compatibility and coexistence of Novell Remote Manager for OES 11 with existing networks containing NetWare or OES 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 an OES Linux server running OES 1 or later.

3.1.2 Coexistence Issues

Monitoring on Linux servers that are not running the `owcimond` 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 NetWare and OES servers. You can save the group file locally or to an eDirectory object. See [“Saving a Group” on page 88](#) and [“Accessing an Existing Group” on page 88](#).

Configuring Novell Remote Manager is somewhat different on an OES server than a NetWare server. See [“Changing the Configuration” on page 29](#).

Some tasks that are available in Novell Remote Manager for NetWare are not available on Novell Remote Manager for Linux, such as IP Address Management. 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.

The following features are available for Novell Remote Manager for Linux that are not available for NetWare:

- ♦ Dynamic File Services. For information, see [OES 11: Dynamic Storage Technology Administration Guide](#).
- ♦ NCP (NetWare Control Protocol) server and NCP volumes (shares) on Linux POSIX file systems. For information, see [OES 11: NCP Server for Linux Administration Guide](#).

4 Managing a Virtualized Linux Server with Novell Remote Manager

Using Novell Remote Manager for Linux to access and manage a virtualized Novell Open Enterprise Server (OES) 11 server is the same in every way as accessing and managing a physical OES 11 server and requires no special configuration or other changes.

To get started with virtualization, see “[Introduction to Xen Virtualization](http://www.suse.com/documentation/sles11/book_xen/data/cha_xen_basics.html)” (http://www.suse.com/documentation/sles11/book_xen/data/cha_xen_basics.html) in the *Virtualization with Xen* (http://www.suse.com/documentation/sles11/book_xen/data/book_xen.html) guide.

For information about setting up virtualized OES 11, see “[Installing, Upgrading, or Updating OES on a VM](#)” in the *OES 11: Installation Guide* guide.

5 Setting Up Novell Remote Manager for Linux

This section contains the following information:

- ♦ [Section 5.1, “Installing Novell Remote Manager During the Initial Server Installation,” on page 21](#)
- ♦ [Section 5.2, “Installing Novell Remote Manager After the Initial Server Installation,” on page 21](#)

5.1 Installing Novell Remote Manager During the Initial Server Installation

To install Novell Remote Manager during the OES 11 installation or while adding OES 11 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 about changing the configuration after the installation is complete, see [Chapter 7, “Changing the Configuration,” on page 29](#)

For a list of RPMs that it installs, see [Appendix B, “Novell Remote Manager Packages,” on page 119](#).

5.2 Installing Novell Remote Manager After the Initial Server Installation

If you did not install Novell Remote Manager when you first installed OES 11 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 about changing the configuration after the installation is complete, see [Chapter 7, “Changing the Configuration,”](#) on page 29.

For a list of RPMs that it installs, see [Appendix B, “Novell Remote Manager Packages,”](#) on page 119.

6 Accessing Novell Remote Manager for Linux

This section includes information about the following:

- ♦ [Section 6.1, “System Requirements,” on page 23](#)
- ♦ [Section 6.2, “Accessing Novell Remote Manager,” on page 23](#)
- ♦ [Section 6.3, “Starting or Stopping HTTPSTKD,” on page 25](#)
- ♦ [Section 6.4, “Understanding the Layout of Novell Remote Manager,” on page 26](#)
- ♦ [Section 6.5, “Accessing Online Help,” on page 28](#)
- ♦ [Section 6.6, “Accessing Novell Web Pages,” on page 28](#)

6.1 System Requirements

- ☐ Mozilla Firefox 1.0, Microsoft Internet Explorer 8, KDE 3.2 Konqueror (limited functionality), or Safari 1.2 (limited functionality)
- ☐ 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 OES Services patterns on Linux unless you deselect it.

For information about installing Novell Remote Manager, see [Chapter 5, “Setting Up Novell Remote Manager for Linux,” on page 21](#).

For package details, see [“Novell Remote Manager Packages” on page 119](#).

- ☐ To view the graphical displays in the file system inventory report, Sun Java must be installed on the machine you use to access Novell Remote Manager, and the browser must have Java and Javascript enabled. For example, you should view the inventory by accessing Novell Remote Manager via a Web browser running on a Windows computer or on a Linux computer where the Sun Java 1.4.2 plug-in has been installed.

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 11: 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 11: 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 15.1, “Security Features,” on page 103](#). 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) 11 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:

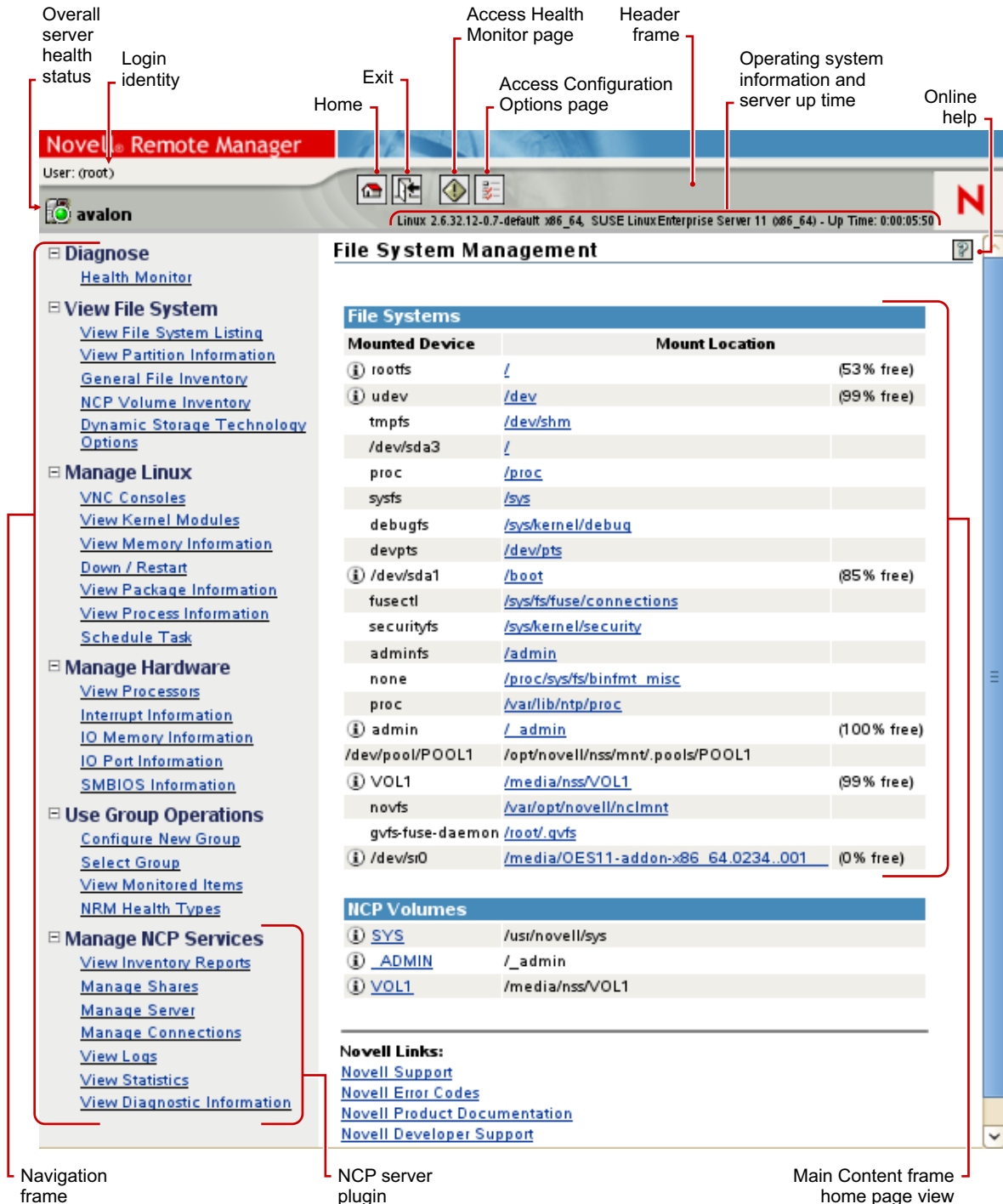
Table 6-1 *Commands for Starting, Stopping, or Checking the Status of Novell Remote Manager*

Task	Command
To see whether the module is running	<code>rcnovell-httpstkd status</code>
	or
	<code>/etc/init.d/novell-httpstkd status</code>
To restart HTTPSTKD	<code>rcnovell-httpstkd restart</code>
	or
	<code>/etc/init.d/novell-httpstkd restart</code>
To start HTTPSTKD	<code>rcnovell-httpstkd start</code>
	or
	<code>/etc/init.d/novell-httpstkd start</code>
To stop HTTPSTKD	<code>rcnovell-httpstkd stop</code>
	or
	<code>/etc/init.d/novell-httpstkd stop</code>

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 don't.


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. You must 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/>) 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://www.novell.com/developer/>) 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

Novell Remote Manager Configuration Options

HTTP Interface Management
WARNING: You must restart httpstkd in order to apply changes in these config files.
[Edit httpstkd config file](#)
[Edit httpstkd PAM config file](#)

Daemon Restart

HTTP Logs
[View last 100 log entries](#)
[View entire log](#)

Novell Remote Manager Certificate Management
httpstkd has been configured to use an OpenSSL generated certificate.
[View Certificate\(s\)](#)
[Configure httpstkd to use the YAST CA Certificate](#)

Novell Remote Manager Schema Management
Disabled: You must be logged in as a eDirectory user with admin rights to apply Novell Remote Manager schema extensions.

httpstkd Daemon Core File : Disabled

On this page you can perform the following tasks:

- ♦ [Section 7.1, “Accessing and Editing the HTTPSTKD Configuration File,” on page 30](#)
- ♦ [Section 7.2, “Accessing and Editing the HTTPSTKD PAM Configuration File,” on page 31](#)
- ♦ [Section 7.3, “Restarting the HTTPSTKD Daemon,” on page 32](#)
- ♦ [Section 7.4, “Viewing the HTTP Logs,” on page 32](#)
- ♦ [Section 7.5, “Viewing and Creating Certificates for Novell Remote Manager,” on page 32](#)
- ♦ [Section 7.6, “Extending the eDirectory Schema for Novell Remote Manager Group Operations,” on page 33](#)

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/httpstk.conf` file and make the applicable changes:

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

Functionality	Information about 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 109
The certificates Novell Remote Manager is using for authentication	<ul style="list-style-type: none">♦ “Viewing and Creating Certificates for Novell Remote Manager” on page 32♦ “Address and Port Commands” on page 109
The cipher strength of the SSL key that is used to access Novell Remote Manager	“SSL Key Cipher Strength Command” on page 117
The <code>HttpOnly</code> attribute for cookies in a response header	“HttpOnly Command” on page 113
The <code>InventoryResolveNonLumOwnerName</code> option for resolving names of NSS volume file owners if their eDirectory user names are not LUM enabled	“InventoryResolveNonLumOwnerName Command” on page 114
Which plug-ins are loaded	“Load Command” on page 116
Which workstations can access Novell Remote Manager	“Filtering Commands” on page 112
Whether email notification is sent for health monitoring or who receives it	“Email Notification Commands” on page 112
Which users can log in to Novell Remote Manager	<ul style="list-style-type: none">♦ “Disable Auto LUM Command” on page 110♦ “Supervisor Only Command” on page 117
The language the browser supports	“Language Commands” on page 115

To access and edit this file:

- 1 Click the *Configure* icon  in the navigation frame.
- 2 Click *Edit Httpstk.conf 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 32](#).


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 32](#).

For more information about the PAM configuration file and the options available, see [“Authentication with PAM”](#) (http://www.suse.com/documentation/sles11/book_security/data/cha_pam.html) in the *SUSE Linux Enterprise Server 10 Installation and Administration Guide* (http://www.suse.com/documentation/sles11/book_security/data/book_security.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 25](#).


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  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  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  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/httpstkcd/server.pem`.

If you want to create the certificate in a different location or with a different name, change the file name 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/httpstkcd.conf` before restarting HTTPSTKD.
- 6 Restart HTTPSTKD by clicking the *Restart Httpstkcd* 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  in the navigation frame.
- 2 Click *Edit Httpstkcd 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/httpstkcd.conf` file:

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

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

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

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:

- ♦ [Section 8.1, “Monitoring Server Health,” on page 35](#)
- ♦ [Section 8.2, “Troubleshooting a Suspect or Bad Health Status,” on page 39](#)

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:

- ♦ [Section 8.1.1, “Monitoring Overall Server Health or the Health of a Specific Item,” on page 35](#)
- ♦ [Section 8.1.2, “Configuring the Items to Monitor,” on page 39](#)
- ♦ [Section 8.1.3, “Configuring Email Notification for Server Health Status,” on page 39](#)

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” on page 36](#)
- ♦ [“Health Status Refresh Rate” on page 38](#)
- ♦ [“Operating System Health” on page 38](#)
- ♦ [“Services Health” on page 39](#)

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

Health Monitor

Page Refresh Rate

Operating System							
Status	Description	Current	Peak	Max	Info	Include	Notify
	CPU Utilization	0	0	100		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Process Count	113	123	N/A		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Physical Memory	346 MB	* 346 MB	1,011 MB		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Swap Memory	2,055 MB	* 2,055 MB	2,055 MB		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Virtual Memory	2 MB	* 2 MB	2 MB		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	LAN Collisions	0	0	N/A		<input checked="" type="checkbox"/>	<input type="checkbox"/>

*Low Value

Services					
Status	Description	Mode	Info	Include	Notify
	network	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-tomcat5	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	apache2	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-xregd	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	postfix	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	dhcpcd	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-smrdr	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	syslog	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	smb	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-ipssmd	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	nfsserver	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	portmap	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-idsd	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	smbfs	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	nmb	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-nss	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	sshd	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	tomcat5	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	slpd	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	novell-xsrvd	Running		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	named	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>
	vsftpd	Stopped		<input checked="" type="checkbox"/>	<input type="checkbox"/>

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
<i>Home</i> icon	File System Management
<i>View File System Listing</i>	Directory Listing of / (root) directory
<i>View Partition Information</i>	Partition Information
<i>Manage NCP Services > Manage Shares</i>	NCP Volume and NSS Volume Information

From these pages you can perform the following tasks:

- ♦ [Section 9.1, “Viewing Mounted Devices and Performing Actions on Them,” on page 42](#)
- ♦ [Section 9.2, “Browsing File Systems and Performing Actions on Them,” on page 43](#)
- ♦ [Section 9.3, “Viewing Partition Information,” on page 47](#)
- ♦ [Section 9.4, “Browsing NSS Volumes and Performing Actions on Them,” on page 48](#)
- ♦ [Section 9.5, “Inventorying Directories or NCP Volumes,” on page 56](#)
- ♦ [Section 9.6, “Generating and Viewing NCP Trustee Reports for NSS Volumes,” on page 62](#)

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

The screenshot displays the 'File System Management' page. On the left, three panels provide detailed information about specific file systems, each with a red box highlighting its details:

- File System Information (Top):** File System: /dev/hda2, Mount Point: /, Type: ext3, Size: 31GB, In Use: 3.3GB, Free Space: 88% (26G Free).
- File System Information (Middle):** File System: AP/.CORE_OS.DEV.NOVELL, Mount Point: /mnt/users, Type: ncpfs, Size: 228GB, In Use: 71GB, Free Space: 69% (157G Free), Unmount button.
- SYS Share Information (Bottom):** Information table with Description and Value columns.

The main 'File System Management' table on the right lists mounted devices and their locations:


Mounted Device	Mount Location
rootfs	/ (88% free)
/dev/root	/
proc	/proc
sysfs	/sys
devpts	/dev/pts
tmpfs	/dev/shm
/dev/dvd	/media/dvd
/dev/fd0	/media/floppy
usbfs	/proc/bus/usb
AP/.CORE_OS.DEV.NOVELL	/mnt/code (18% free)
AP/.CORE_OS.DEV.NOVELL	/mnt/users (69% free)
DR/.CORE_OS.DEV.NOVELL	/mnt/data (63% free)

Below the table is the 'NCP Volumes' section:

NCP Volumes	Mount Location
SYS	/usr/novell/sys

The 'SYS Share Information' panel details are as follows:

Information															
Description	Value														
File system path	/usr/novell/sys														
File system type	EXT3														
NCP volume ID	0														
Status	mounted online														
Local cache	<table border="1"><thead><tr><th>Parameter</th><th>Value</th></tr></thead><tbody><tr><td>trustee count</td><td>2</td></tr><tr><td>cached files</td><td>2</td></tr><tr><td>evicted files</td><td>0</td></tr><tr><td>cached folders</td><td>35</td></tr><tr><td>cache retrieved</td><td>122</td></tr><tr><td>cache retrieved locked</td><td>2</td></tr></tbody></table>	Parameter	Value	trustee count	2	cached files	2	evicted files	0	cached folders	35	cache retrieved	122	cache retrieved locked	2
Parameter	Value														
trustee count	2														
cached files	2														
evicted files	0														
cached folders	35														
cache retrieved	122														
cache retrieved locked	2														

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 11: 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.

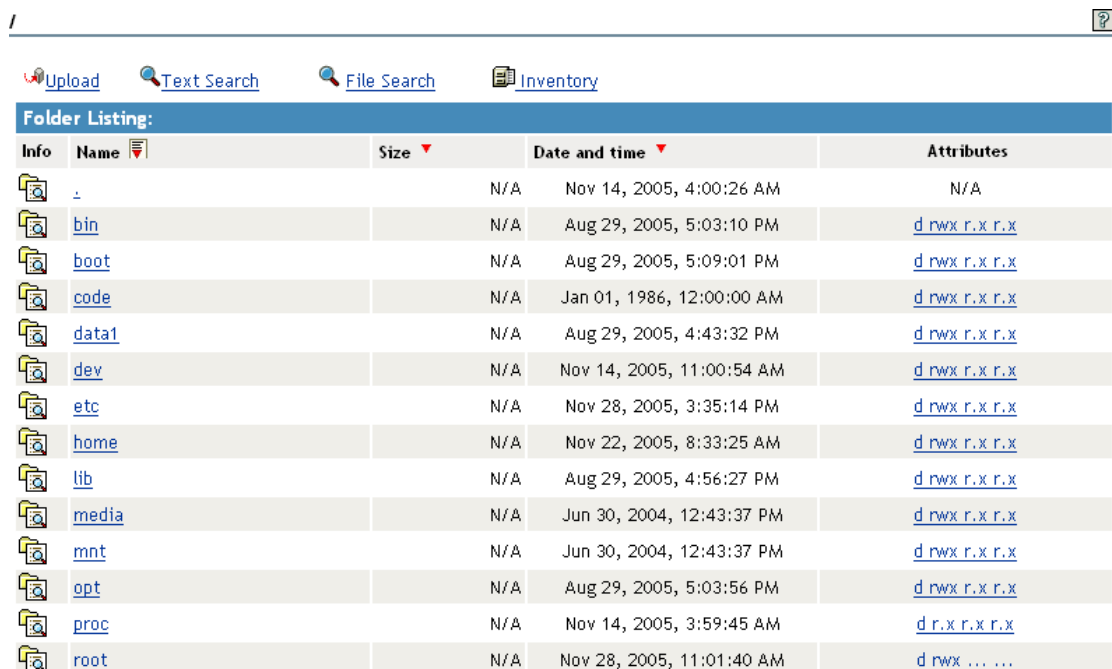
You can browse any of these file systems by clicking the link in the *Mount Location* column. At this point, you can perform any of the tasks listed for browsing the servers file system. See [“Browsing File Systems and Performing Actions on Them” on page 43](#).

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



The screenshot shows a web interface for a Directory List Page. At the top, there are navigation links: Upload, Text Search, File Search, and Inventory. Below these is a 'Folder Listing:' section with a table. The table has five columns: Info, Name, Size, Date and time, and Attributes. The rows list various file systems, including bin, boot, code, data1, dev, etc, home, lib, media, mnt, opt, proc, and root. Each row includes an Info icon, a Name link, a Size value (mostly N/A), a Date and time value, and a link to view attributes (e.g., d rwx r.x r.x).

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 <i>link_for_the_mount_point</i> , <i>volume</i> , <i>directory</i> , or <i>local partition</i> under the <i>Name</i> column.
Move down the directory tree	Click the <i>directory_name</i> link.
Move up the directory tree	Click the <i>double_dots</i> (..) link.
Re-sort the list by name, size, or date and time.	Click the <i>column heading</i> that has a <i>Sort</i> 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 <i>Attributes</i> link. For information, see Section 9.2.1, “Viewing or Changing File or Directory Attributes,” on page 44 .
View the size of a directory for file.	The <i>Size</i> column for a directory lists the size of all files and subdirectories in that directory.

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

- ♦ [Section 9.2.1, “Viewing or Changing File or Directory Attributes,” on page 44](#)
- ♦ [Section 9.2.2, “Viewing Details about Directories and Performing Actions on Them,” on page 45](#)
- ♦ [Section 9.2.3, “Uploading a File to the Server,” on page 45](#)
- ♦ [Section 9.2.4, “Downloading a File from the Server to a Local Workstation,” on page 46](#)
- ♦ [Section 9.2.5, “Searching for Text in Files,” on page 46](#)
- ♦ [Section 9.2.6, “Viewing the Details of a File and Performing Specific Actions,” on page 46](#)
- ♦ [Section 9.2.7, “Viewing Individual Files,” on page 47](#)

9.2.1 Viewing or Changing File or Directory Attributes


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 45](#) and [“Viewing the Details of a File and Performing Specific Actions” on page 46](#).

IMPORTANT: To set directory and file attributes for files on the NSS file system, go to *Manage NCP Services > Manage Shares*, then browse to locate the file and set its attributes. You can also use Novell iManager, the Novell Client, or Novell NetStorage.

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. For more information, see “[Viewing Key NSS Directory and File Attributes as Linux POSIX Permissions](#)” in the *OES 11: File Systems Management Guide*.

9.2.2 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	<input type="text" value="/home"/>
Create Subdirectory	<input type="text"/>
Create Symbolic Link	<input type="text"/>

9.2.3 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*.

9.2.4 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 file name, 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 *file_name* 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.

9.2.5 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, file name, 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 file name 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.

9.2.6 Viewing the Details of a File and Performing Specific Actions

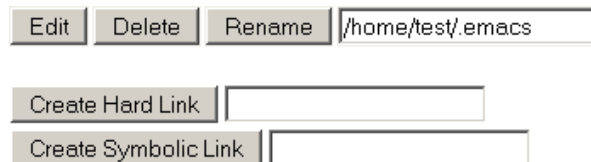
- 1 Click the *View File System Listing* link in the navigation frame or click a *Mount Location* name link on the *Home* page.
- 2 On the Directory list page, browse the directories to the file, then click the *File* icon  to the left of the file name.

- 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.



The image shows a set of buttons and input fields for file management. At the top, there are three buttons: 'Edit', 'Delete', and 'Rename', followed by a text input field containing the path '/home/test/.emacs'. Below these, there are two more buttons: 'Create Hard Link' and 'Create Symbolic Link', each followed by an empty text input field.

9.2.7 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 file name, and then saving it to a local workstation and opening it there. See [Section 9.2.4, “Downloading a File from the Server to a Local Workstation,” on page 46](#).

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 11: NCP Server for Linux Administration Guide](#).

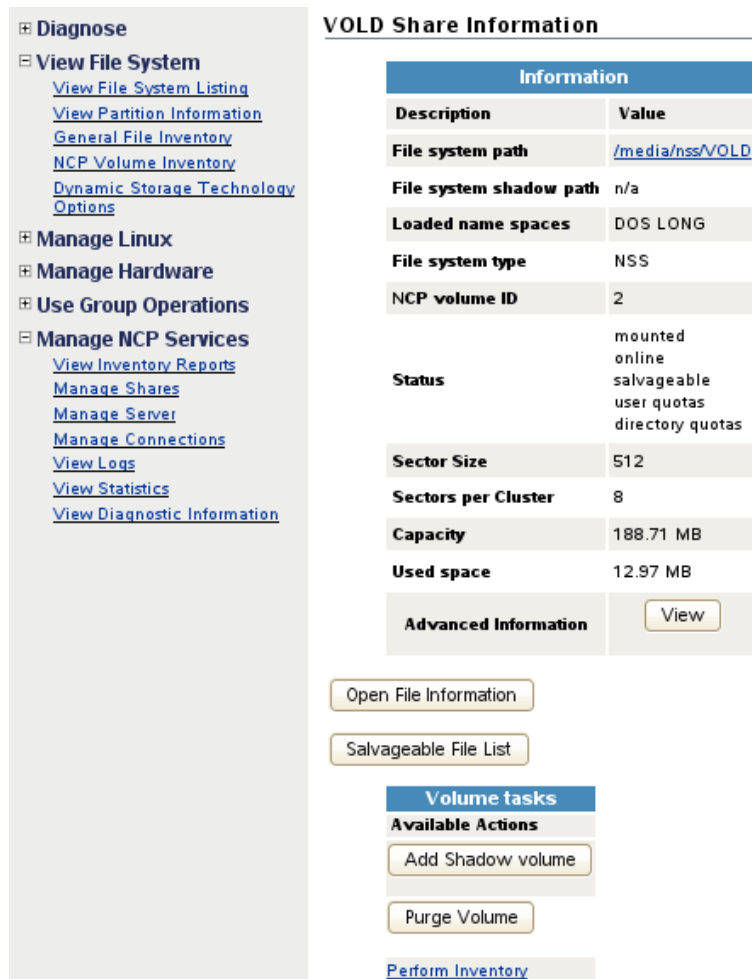
For detailed information about creating and managing NSS volumes, see the [OES 11: NSS File System Administration Guide for Linux](#).

- ♦ [Section 9.4.1, “Viewing Information about an NSS Volume,” on page 48](#)
- ♦ [Section 9.4.2, “Viewing the Linux POSIX Details of an NSS Directory and Performing Specific Actions on It,” on page 50](#)
- ♦ [Section 9.4.3, “Viewing the Linux POSIX Details of a File and Performing Specific Actions on It,” on page 51](#)
- ♦ [Section 9.4.4, “Browsing an NSS Volume and Setting Rights and File System Attributes on Directories and Files,” on page 51](#)
- ♦ [Section 9.4.5, “Salvaging and Purging Deleted Files on an NSS Volume,” on page 55](#)
- ♦ [Section 9.4.6, “Purging a Deleted NSS Volume,” on page 55](#)
- ♦ [Section 9.4.7, “Viewing Open File Information for an NSS Volume,” on page 55](#)

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 (I) to go to the volume's Share Information page.



Diagnose

- View File System**
 - [View File System Listing](#)
 - [View Partition Information](#)
 - [General File Inventory](#)
 - [NCP Volume Inventory](#)
 - [Dynamic Storage Technology Options](#)
- Manage Linux**
- Manage Hardware**
- Use Group Operations**
- Manage NCP Services**
 - [View Inventory Reports](#)
 - [Manage Shares](#)
 - [Manage Server](#)
 - [Manage Connections](#)
 - [View Logs](#)
 - [View Statistics](#)
 - [View Diagnostic Information](#)

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	188.71 MB
Used space	12.97 MB
Advanced Information	View

[Open File Information](#)

[Salvageable File List](#)

Volume tasks

Available Actions

[Add Shadow volume](#)


[Purge Volume](#)

[Perform Inventory](#)

- 4 In the *Information* table, view the following information about the NSS volume:
- ♦ File system path on Linux, such as `/media/nss/VOLD`
 - ♦ File system shadow path (used when an NSS volume is the primary volume of a Dynamic Storage Technology shadow 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
 - ♦ Sector size
 - ♦ Sectors per cluster
 - ♦ Capacity

- ♦ Advanced information
 - ♦ Trustee count
 - ♦ Cached files
 - ♦ Evicted files
 - ♦ Cached folders
 - ♦ Cache retrieved
 - ♦ Cache retrieved locked

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:

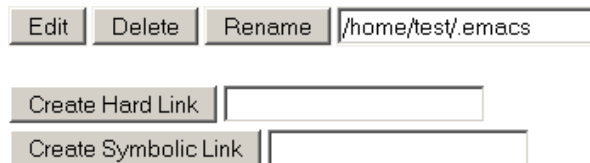
- ♦ **Delete Directory and Its Contents:** Click this option to delete the selected directory and the subdirectories and files in it.
- ♦ **Rename Directory:** Specify the full Linux path to the directory including the new directory name, then click *Rename Directory*.
- ♦ **Create Subdirectory:** Specify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



The screenshot shows a file management interface with several buttons and input fields. The top row contains buttons for 'Edit', 'Delete', and 'Rename', followed by a text input field containing the path '/home/test/emacs'. Below this, there are two more rows. The first row has a 'Create Hard Link' button followed by an empty text input field. The second row has a 'Create Symbolic Link' button followed by an empty text input field.

- ♦ **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*

For information, see [Section 9.5, “Inventorying Directories or NCP Volumes,”](#) on page 56.

- 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

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

- ♦ 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 “[Directory and File Attributes for NSS Volumes](#)” in the *OES 11: 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
<input type="checkbox"/> System	If checked, this indicates a system file or folder.
<input type="checkbox"/> Hidden	If checked, this indicates that this file or folder is excluded from normal directory searches.
<input type="checkbox"/> Read Only	If checked, this indicates that this file cannot be deleted or modified..
<input checked="" type="checkbox"/> Archive	If checked, this indicates that the file or folder needs to be archived.
<input type="checkbox"/> Immediate Purge	If checked, this indicates that when this file or folder or the folder contents are deleted and are unrecoverable.
<input type="checkbox"/> Don't Compress	If checked, this indicates that this file or the contents of the folder cannot be compressed..
<input type="checkbox"/> Don't Migrate	If checked, this indicates that this file or folder cannot be migrated to near line storage..
<input type="checkbox"/> Delete Inhibit:	If checked, this indicates that this file or folder cannot be deleted.
<input type="checkbox"/> Rename Inhibit:	If checked, this indicates that this file or folder name cannot be renamed.
<input type="checkbox"/> Immediate Compress	If checked, this indicates that this file or the folder contents will be scheduled for compression..
<input type="checkbox"/> Shareable	If checked, this indicates that this file may be used by multiple users at the same time..
<input type="checkbox"/> Don't SubAlloc	If checked, this indicates that this file may not utilize sub-allocation for space saving..
<input type="checkbox"/> Execute Only	If checked, this indicates that this file may only be excuted as a program, no modifications will be allowed to the file.
<input type="checkbox"/> Transactional	If checked, this indicates that Transactional tracking of data will enabled.
<input type="checkbox"/> Copy Inhibit	If checked, this indicates that this file may not be copied.
OK Reset	

- ◆ System
- ◆ Hiden
- ◆ 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 [“Directory and File Attributes for NSS Volumes”](#) in the *OES 11: 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 11: 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

[\[Back to directory listing for: /VOLD\]](#)

Purge all files

Salvageable files

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

- 5 Salvage or purge files in the list:
 - ♦ 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.

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 11: 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 11: NCP Server for Linux Administration Guide*.
 - ♦ User name
 - ♦ Open file list

9.5 Inventorying 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, Sun Java must be installed on the computer 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.

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 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.

This section includes the following tasks:

- ♦ [Section 9.5.1, “Generating an File Inventory Report,” on page 57](#)
- ♦ [Section 9.5.2, “Generating an NCP Volume Inventory Report,” on page 58](#)
- ♦ [Section 9.5.3, “Viewing a Saved NCP Volume Report,” on page 59](#)
- ♦ [Section 9.5.4, “Emailing a Saved NCP Volume Report,” on page 59](#)
- ♦ [Section 9.5.5, “Generating a Customized Report,” on page 60](#)

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:

 /

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:

 /etc/xinetd.d

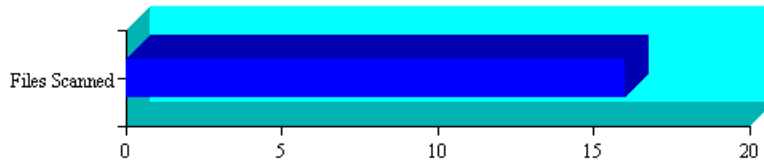
Browse Subdirectories:

[.](#)
[..](#)

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

[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:	6
Total Files:	16
Space In Use:	0 MB
File Types:	4
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 60.

9.5.2 Generating an NCP Volume Inventory Report

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

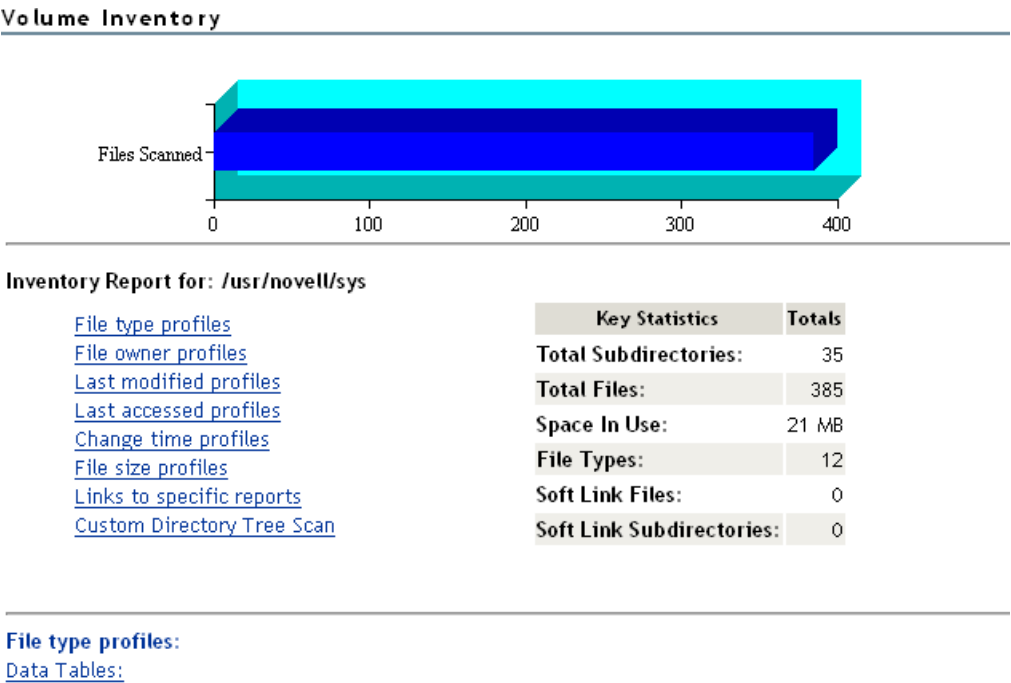
- 1 Click *View File System > Volume Inventory*.

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

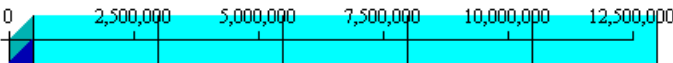
Volume Inventory

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.



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 60.

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 57](#) 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:

Time Stamp Restrictions:

Time Stamp:

- ☐ Last Modified Time
- ☐ Last Accessed Time
- ☐ Last Changed Time

Range:

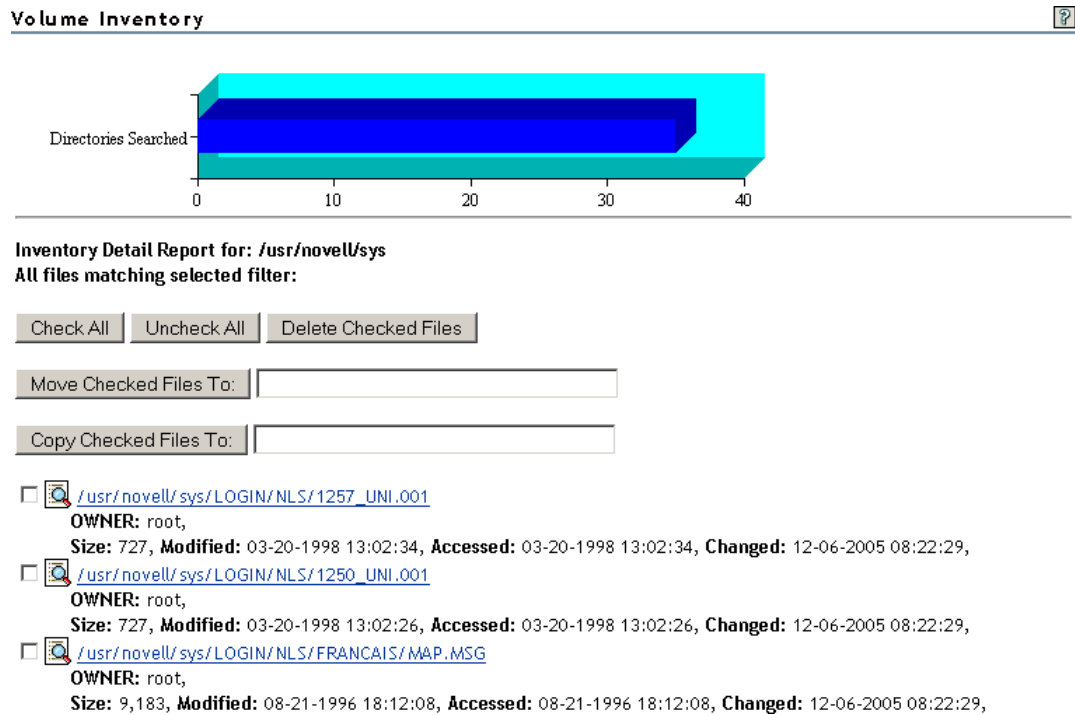
- ☐ Within Last Day
- ☐ 1 Day - 1 Week
- ☐ 1 Week - 2 Weeks
- ☐ 2 Weeks - 1 Month
- ☐ 1 Month - 2 Months
- ☐ 2 Months - 4 Months
- ☐ 4 Months - 6 Months
- ☐ 6 Months - 1 Year
- ☐ 1 Year - 2 Years
- ☐ More than 2 Years

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

- 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.



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” on page 61
- ♦ “Copying Selected Files” on page 62
- ♦ “Deleting Selected Files” on page 62
- ♦ “Opening or Downloading a File” on page 62
- ♦ “Managing Individual Files” on page 62

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 *file_name* 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.

Edit	Delete	Rename	<input type="text" value="/home/test/.emacs"/>
Create Hard Link	<input type="text"/>		
Create Symbolic Link	<input type="text"/>		

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 63](#)
- ♦ [Section 9.6.2, “Viewing a Saved NCP Trustee Report,” on page 63](#)
- ♦ [Section 9.6.3, “Emailing a Saved NCP Trustee Report,” on page 64](#)

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*.

NCP Trustee Reports

Volume	View Last Report	Generate Report	Email Report
V3	Display	Create	Send
V2	Display	Create	Send
V1	Display	Create	Send

- 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.

Shadow Volume Trustee Report

Primary Volume Tree: `/media/nss/V1`

Shadow Volume Tree: `/media/nss/V1SHADOW`

Report generated on `Fri Mar 16 18:28:14 2012`

[/media/nss/V1/folderjim](#)

Rights: `_RWCEMFA` User / Group `.CN=nonlumuser2.O=novell.T=TULIP.`

Elapsed Time(seconds): `14`

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 112.

- 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	<i>VNC Consoles</i>	VNC Consoles Screens	“Accessing VNC Consoles” on page 65
View Kernel Modules Information	<i>View Kernel Modules</i>	Kernel Module Listing	“Viewing Kernel Modules” on page 68
View Memory Information and turn swapping on and off.	<i>View Memory Information</i>	View Memory Config	“Viewing Memory Information” on page 68
Shut down and restart the host	<i>Down/Restart</i>	Down/Reset Options	“Shutting Down and Restarting the Host” on page 70
Manage packages	<i>View Package Information</i>	Package Information	“Managing Packages” on page 70
Manage processes	<i>View Process Information</i>	Process Information	“Managing Processes” on page 72
Schedule cron jobs to run	Schedule Task	Schedule Task	“Scheduling cron Jobs to Run on the Server” on page 74

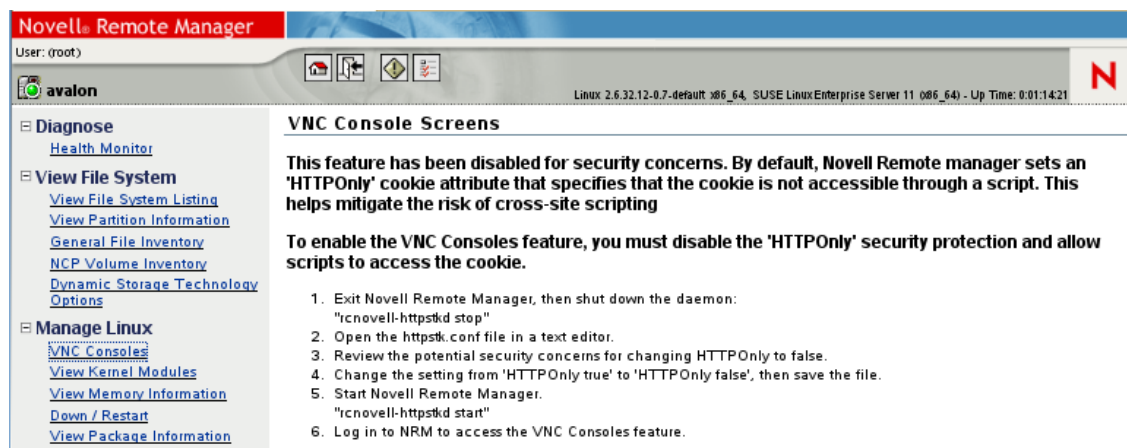
10.1 Accessing VNC Consoles

If VNC services are configured on the server, you can access the VNC consoles screens in Novell Remote Manager. The accessibility to the VNC consoles via Novell Remote Manager for Linux is limited to user `root`; it is not available to user Admin. This form of remote administration is less secure than SSH; therefore, we recommend using this feature only in a secure environment (behind a firewall).

IMPORTANT: VNC access is disabled by default to prevent cross-site scripting. You must disable the `HttpOnly` setting in the `/etc/opt/novell/httpstk.conf` file in order to enable the VNC console display. For information, see [Section A.5, “HttpOnly Command,” on page 113](#).

- 1 If VNC services are not configured on the server, you can configure them as follows:
 - 1a In *YaST*, log in as the `root` user, then click *Network Services > Remote Administration*.
 - 1b On the Remote Administration page, select the following options:
 - ♦ *Allow Remote Administration*
 - ♦ *Open Port in Firewall* (default port is 5801)
 - 1c Click *Finish*.
 - 1d Restart the display manager by entering the following command at the command line:

```
rcxdm restart
```
- 2 Verify that pop-up blocking is disabled in your Web browser.
- 3 Log in to Novell Remote Manager as the `root` user.
- 4 Select *Manage Linux > VNC Consoles*.
- 5 If VNC Consoles is disabled, a message is displayed instead of the console. You must disable the `HttpOnly` setting in the `/etc/opt/novell/httpstk.conf` file in order to enable the VNC console display. For information, see [Section A.5, “HttpOnly Command,” on page 113](#).



- 6 Click the *1024 X 728* button on the VNC Console Screens page.

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.

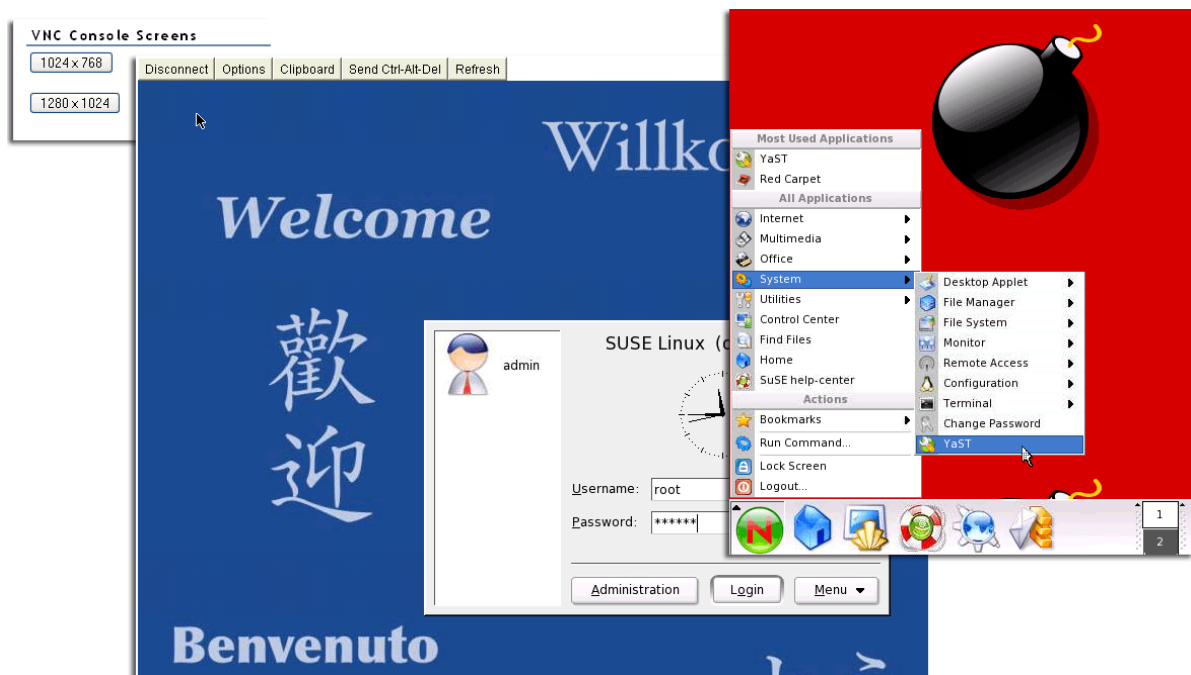
Table 10-2 VNC Console Page Tasks and Procedures

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 <i>Disconnect</i> button on this page.
Change any of the VNC client options currently selected.	Click the <i>Options</i> 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 <i>Clipboard</i> button.
Restart the server.	Click the <i>Send Ctrl+Alt+Del</i> button.
Refresh the current screen you are viewing.	Click the <i>Refresh</i> button.

Figure 10-1 illustrates 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 ?				
Kernel Module Information				
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
nvrnm	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

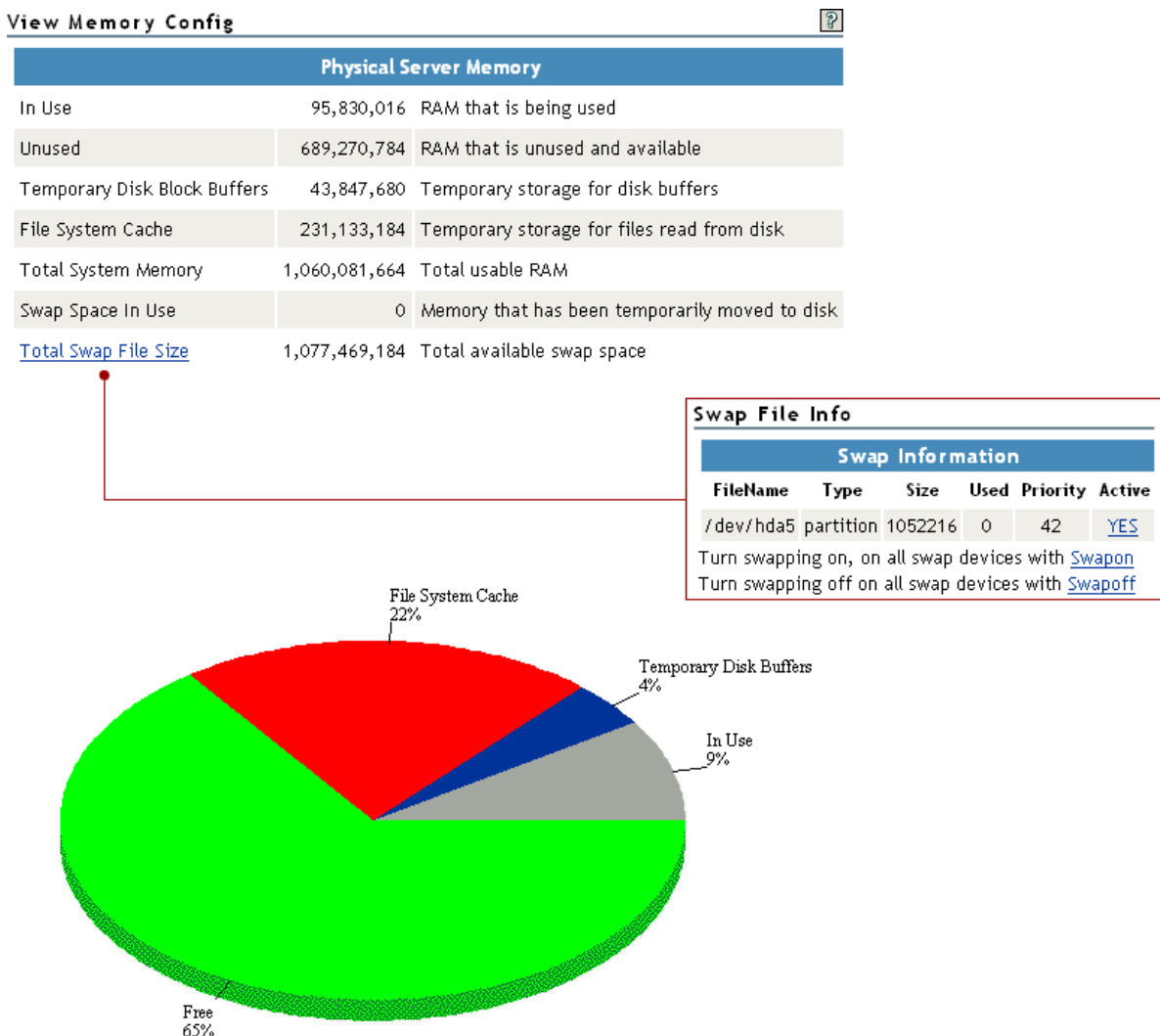
Clicking the *View Memory Information* link in the navigation frame displays the View Memory Config page. On this page you can view the following information about the memory in the server. The amount values are shown in bytes.

- ♦ 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 file name, 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



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
<i>Down</i>	Forces the host to shut down immediately.
<i>Reset</i>	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.

If the application that is being used to access the file creates a temporary file and locks the file, you might also need to search for and remove the temporary file.

For example, Microsoft Word creates a system file that begins with ~\$, such as ~\$myfile8.doc. OpenOffice and LibreOffice create a hidden file that begins with .~lock, such as .~lock.myfile10.odt. You can view the temporary files by selecting *Manage Shares*, then navigating the NCP volume or NSS volume to the folder where the open file is stored.

- ♦ 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

Package Information ?				
Package Information		Install	Search (case sensitive)	
Name	Group	Version	Release	Vendor
3ddiag	System/Base	0.716	116.1	SuSE Linux AG, Nuernberg, Germany
aaa_base	System/Fhs	9	29.20	SuSE Linux AG, Nuernberg, Germany
aaa_base_novell	System/Fhs	0.0.1	3	(none)
aaa_skel	System/Fhs	2004.6.8	0.2	SuSE Linux AG, Nuernberg, Germany
aalib	System/Libraries	1.4.0	279.1	SuSE Linux AG, Nuernberg, Germany
acl	System/Filesystems	2.2.21	54.4	SuSE Linux AG, Nuernberg, Germany
acroread	Productivity/Publishing/PDF	5.010	4.2	SuSE Linux AG, Nuernberg, Germany
alsa	System/Libraries	1.0.3	41.3	SuSE Linux AG, Nuernberg, Germany
apache2	Productivity/Networking/Web/Servers	2.0.49	27.21	SuSE Linux AG, Nuernberg, Germany
apache2-jakarta-tomcat-connectors	Productivity/Networking/Web/Frontends	5.0.19	29.1	SuSE Linux AG, Nuernberg, Germany
apache2-worker	Productivity/Networking/Web/Servers	2.0.49	27.21	SuSE Linux AG, Nuernberg, Germany
arts	Productivity/Multimedia/Sound/Players	1.2.1	35.4	SuSE Linux AG, Nuernberg, Germany
ash	System/Shells	0.4.18	56.1	SuSE Linux AG, Nuernberg, Germany
at	System/Daemons	3.1.8	898.1	SuSE Linux AG, Nuernberg, Germany
atk	System/Libraries	1.4.1	128.1	SuSE Linux AG, Nuernberg, Germany
attr	System/Filesystems	2.4.16	1.2	SuSE Linux AG, Nuernberg, Germany
audiofile	System/Libraries	0.2.5	37.1	SuSE Linux AG, Nuernberg, Germany
autofs	System/Daemons	3.1.7	900.1	SuSE Linux AG, Nuernberg, Germany
autovast2	System/YaST	2.9.52	0.2	SuSE Linux AG, Nuernberg, Germany

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	<p>Click the <i>Sort</i> icon at the top of the applicable column.</p> <p>The default sort is by name.</p>
View more detailed information about an installed package	Click the link for the applicable package under the <i>Name</i> column.
Remove an installed package	<ol style="list-style-type: none"> 1. Click the <i>link for the package</i> under the Name column. 2. Click <i>Remove</i>.
Install a new package that you have downloaded to the host	<ol style="list-style-type: none"> 1. Click <i>Install</i>. 2. Browse to the location where you uploaded the package to. The browse starts at the root of the host. 3. Click <i>Install</i>. <p>The selected package's file path is transferred to the <i>RPM File Path</i> field on the Package Installation page.</p> <p>When the <i>Install</i> button is clicked on the View Package Information page, Novell Remote Manager attempts to install the specified RPM file using the Linux RPM utility.</p>

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

Version : 0.716

Release : 116.1

Install date: Wed Jan 26 08:59:05 2005

Group : System/Base

Size : 47076

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.

Relocations: (not relocatable)

Vendor: SuSE Linux AG, Nuernberg, Germany

Build Date: Thu Jul 1 06:46:41 2004

Build Host: millikan.suse.de

Source RPM: 3ddiag-0.716-116.1.src.rpm

License: GPL

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 <i>Sort</i> icon ▼ at the top of the applicable column.
View more specific information about a listed process	Click the <i>link for the</i> applicable process under the <i>Name</i> column.
Kill a process	<div><div>1. Click the link for the applicable process under the <i>Name</i> column.</div><div>2. Click <i>Kill</i>.</div></div>


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 73 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 <code>top</code> 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 <code>top</code> command reports this information in kilobytes. Virtual Memory is the value reported by the <code>RSS</code> switch for the <code>top</code> command.

Figure 10-6 Example Process Information Page

Process Information 

Stop Refresh

Process Information							
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
 hwscond	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, you must log into Novell Remote Manager as the `root` user.

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*

The screenshot shows a web form titled "Schedule Task" with a help icon in the top right corner. Below the title is a section labeled "Currently Scheduled CRON Jobs:". A blue button labeled "Create a new scheduled command:" is positioned above the input fields. The form includes the following fields and controls:

- (REQUIRED) Description:** A text input field.
- Command to Execute:** A text input field.
- Start Time:** Two dropdown menus for hours (00) and minutes (02).
- Start Day:** A dropdown menu showing "Thursday" with the text "(for weekly commands)" to its right.
- Month and Day:** A dropdown menu showing "September" and a dropdown menu showing "20", with the text "(for one time or monthly commands)" to their right.
- Action Buttons:** Below the date fields, there is a text label "To schedule this timed command, click" followed by a "Submit" button. Below that, there is a text label "To reset the form, click" followed by a "Reset" button.

To create a new scheduled command:

- 1 Complete the required information on the Schedule Task page.

Field	Information to Provide
<i>Description</i>	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 <i>Currently Scheduled CRON Jobs</i> list.
<i>Command to Execute</i>	Type the command exactly as you would at a command line. All cron job entry types are valid except for lists and step values.
<i>Start Time</i>	Type the time you want the command to run.
<i>Start Day</i>	If you want to run the command once a week, specify the day of the week, then place an asterisk * in the <i>Month</i> and <i>Day</i> fields. If you want to run the command only once or monthly, specify a <i>Month</i> and <i>Day</i> setting, then place an asterisk * in the <i>Day of the Week</i> field. If you want to run the command monthly, specify a <i>Day</i> setting, then place an asterisk * in the <i>Start Day</i> and <i>Month</i> 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 you 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	<i>View Processors</i>	Processor Information	“Viewing Processors” on page 77
View Interrupt information	<i>Interrupt Information</i>	Interrupts	“Viewing Interrupt Information” on page 78
View memory I/O information	<i>IO Memory Information</i>	I/O Memory Information	“Viewing I/O Memory Information” on page 79
View port I/O information	<i>IO Port Information</i>	IO Port Information	“Viewing I/O Port Information” on page 80
View SMBIOS information	<i>SMBIOS Information</i>	SMBIOS Information	“Viewing SMBIOS Information” on page 81

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	3.000000.3
stepping	
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 pn1 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 <i>number</i>	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	
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
3ff97000-3ffffff	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

SMBIOS Information

Information Type

- [BIOS Information](#)
- [System Information](#)
- [Base Board Information](#)
- [System Enclosure or Chassis](#)
- [Processor Information](#)
- [Cache Information](#)
- [Port Connector Information](#)
- [System Slots](#)
- [On Board Device Information](#)
- [OEM Strings](#)
- [BIOS Language Information](#)
- [System Event Log](#)
- [Physical Memory Array](#)
- [Memory Device](#)
- [Memory Array Mapped Address](#)
- [Memory Device Mapped Address](#)
- [Hardware Security](#)
- [System Power Controls](#)
- [Voltage Probe](#)

BIOS Information

Name	Value
BIOS Vendor	Dell Computer Corporation
BIOS Version	A04
BIOS Release Date	01/15/2004
BIOS Characteristics	PCI is supported
	Plug and Play is supported
	APM is supported
	BIOS is Upgradeable (Flash)
	BIOS shadowing is allowed
	ESCD support is available
	Boot from CD is supported
	Selectable Boot is supported
	EDD (Enhanced Disk Drive) Specification is supported
	Int 13h - Japanese Floppy for Toshiba 1.2 MB (3.5", 360 RPM) is supported
	Int 5h, Print Screen Service is supported
	Int 9h, 8042 Keyboard services are supported
	Int 14h, Serial Services are supported
	Int 17h, Printer Services are supported
BIOS Characteristics Extension Byte 1	ACPI supported
	USB Legacy is supported

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	<i>Select Group</i>	Select Group	“Accessing an Existing Group” on page 88
Build and configure a new monitoring group	<i>Configure New Group</i>	Group Monitoring Operations	“Building and Configuring a Monitoring Group” on page 84
Change an existing group	<i>Select Group</i>	Select Group	“Changing an Existing Group” on page 89
Define or edit Group Monitoring types	<i>NRM Health Types</i>	Novell Remote Manager Health Monitoring Engine (NRM Health Types)	“Defining or Editing Group Monitoring Types” on page 93
Delete an existing group	<i>Select Group</i>	Select Group	“Deleting an Existing Group” on page 89
Scan the network for items to monitor on the network.	<i>Configure New Group > right-click > click Network Discovery</i>	Network Discovery	“Discovering Items on the Network to Monitor” on page 93
Generate and view server reports	<i>Configure New Group > right-click > click Save Group</i>	Group Monitoring Operations	“Generating and Viewing Server Reports” on page 90
Save a new group	<i>Configure New Group > right-click > click Save Group</i>	Save Group	“Saving a Group” on page 88
View group operations monitored items	<i>View Monitored Items</i>	Novell Remote Manager Health Monitoring Engine - Monitored Items	“Viewing Monitored Items” on page 90
View group operations defined NRM health types	<i>NRM Health Types</i>	Novell Remote Manager Health Monitoring Engine - NRM Health Types	“Viewing Group Monitoring Types” on page 91

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

1. [Building and Configuring a Monitoring Group \(page 84\)](#).
2. (Optional) [Saving a Group \(page 88\)](#).

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

3. [Generating and Viewing Server Reports \(page 90\)](#).

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

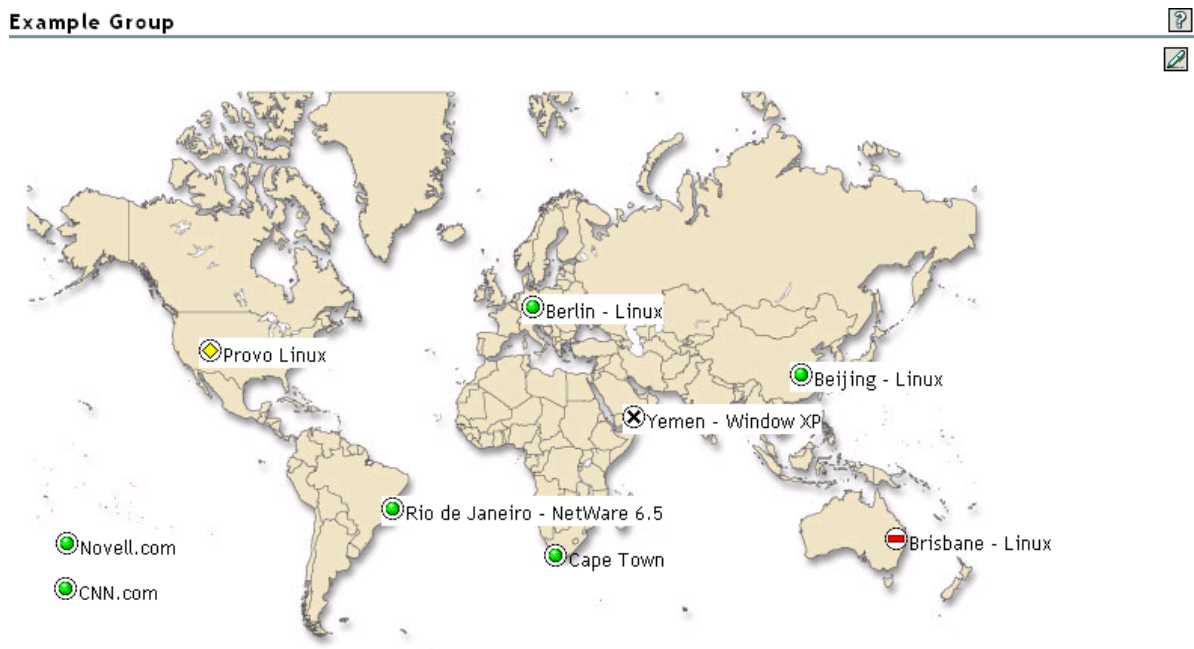
4. (Conditional) [Accessing an Existing Group \(page 88\)](#).

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	<input type="text"/>	Monitoring Type	NRM Health Monitor ▼
Item Address/URL	<input type="text"/>	Port	8008
Hide Normal Status	<input type="checkbox"/>		
Text Color	Default ▼	Text Background Color	Default ▼
Use single sign on NRM credentials	<input type="checkbox"/>		
User Name	<input type="text"/>	Password	* <input type="text"/>
<input type="button" value="Add"/>		<input type="button" value="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
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 URL for the Web page that you want to download. The address can be an IP address or DNS name. You do not need to specify the HTTP:// portion of a URL
Port	The default is provided. You can type a different port to use.
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.

Option	Details
<i>Monitoring Type</i>	<p>Specify one of the following types:</p> <ul style="list-style-type: none"> ♦ 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 download a Web page from the specified URL. You need to put the second part of the address only.
<i>Hide Normal Status</i>	<p>When selected, only items that are in an abnormal state are displayed.</p> <p>If you want to monitor all statuses, leave the check box deselected.</p>
<i>Text Color</i>	Black is the default. You can select any other color from the drop-down list.
<i>Text Background Color</i>	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 93](#).

- 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.

Group Operations Configuration
?

Display Options		E-mail Options	
Monitor Page Title	<input type="text"/>	Suspect Server Health E-mail Notification	<input type="checkbox"/>
Background Graphic	<div style="border: 1px solid #ccc; padding: 2px;">NRMDefaultGroupMap.JPG ▼</div>	First notification wait period	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">0 Minutes</div>
Refresh Rate	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">30 Seconds</div>	Additional notification wait period	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">0 Minutes</div>
		Critical Server Health E-mail Notification	<input type="checkbox"/>
		First notification wait period	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">0 Minutes</div>
		Additional notification wait period	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;">0 Minutes</div>

Apply

Option	Description
<i>Display</i>	<p>The display options let you control the following:</p> <ul style="list-style-type: none"> ♦ 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. <p>If you want to add a customized graphic, add it to the <code>/opt/novell/nrm/NRMGroupMaps</code> directory.</p>
<i>Email</i>	<p>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 <code>/etc/opt/novell/httpstkd.conf</code> file.</p>

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 88](#).

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 88](#)), 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.	<ol style="list-style-type: none">1. Select the group.2. Right-click the page, then click <i>Group Configuration</i>.3. Make the desired changes in the Group Operations Configuration form.4. Click <i>Apply</i>.5. Save the group. (See “Saving a Group” on page 88.)
See the details of the server health or the monitoring type.	<ol style="list-style-type: none">1. Select the group.2. Select the item you want to see the details for.3. Double-click the <i>Health Status</i> icon.
Edit an existing item in the group.	<ol style="list-style-type: none">1. Select the group.2. Select the item you want to edit.3. Right-click the selected item.4. Click <i>Edit</i>.
Delete a server or monitor item from a group.	<ol style="list-style-type: none">1. Select the group.2. Select the item you want to delete.3. Right-click the selected item.4. Click <i>Delete</i>.
Change the display to a full screen in your browser window.	<ol style="list-style-type: none">1. Select the group.2. Right-click the page.3. Click <i>Full Screen</i>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

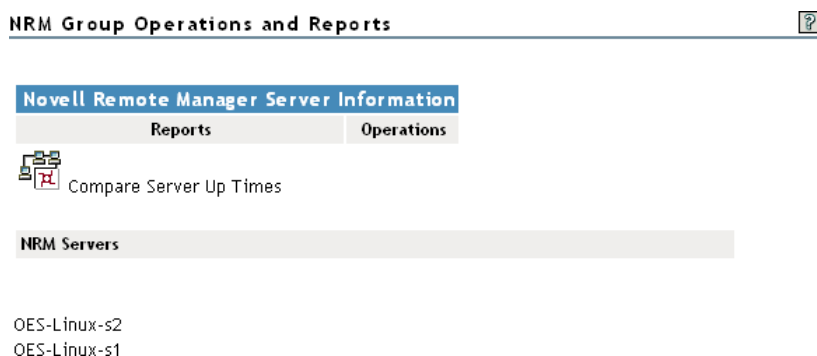
Running Server Comparison reports on a group of servers can help you in determine which servers need to be updated or have configurations changed, why operations on that server might be sluggish, or which servers are receiving the most action.

In this release, you can run only one report, the [“Compare Server Up Time Report” on page 90](#).

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 84](#) or [“Accessing an Existing Group” on page 88](#).
- 2 Right-click the customized Group page.
- 3 Click *NRM Reports & Operation*.



- 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 Verify that the browser you are using will accept pop-up dialog boxes.
- 4 Click *Network Discovery*.

The Network Discovery page is displayed:

NetWork Discovery?

Network Scan Parameters

DNS Name/IP Address

Subnet Mask

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.	<ol style="list-style-type: none">1. Accept the default IP address or DNS name and subnet mask information or change it.2. Click <i>Subnet Scan</i>.
Scan the network for hosts with port 80 open and listening for connections (Web Servers) within a specified subnet.	<ol style="list-style-type: none">1. Accept the default IP address or DNS name and subnet mask information or change it.2. Click <i>Web Server Scan</i>.
Scan the network for hosts with port 389 open and listening for connections (LDAP Servers) within a specified subnet.	<ol style="list-style-type: none">1. Accept the default IP address or DNS name and subnet mask information or change it.2. Click <i>LDAP Server Scan</i>.
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.	<ol style="list-style-type: none">1. Accept the default IP address or DNS name and subnet mask information or change it.2. Click <i>NRM Agent Scan</i>.
Scan the network for hosts with <i>user_defined_port</i> open and listening within a specified subnet.	<ol style="list-style-type: none">1. Accept the default IP address or DNS name and subnet mask information or change it.2. Click <i>Service Scan</i>.

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.	<ol style="list-style-type: none">1. Click the <i>Web Service More Info</i> icon for the applicable host on the Network Discovery page.2. View the information on the page that is returned.
Add the host to the current group.	<ol style="list-style-type: none">1. Click the <i>Add Item to Group</i> icon  for the applicable host on the Network Discovery page.2. Complete the required information on the Add New Monitor Item page, then click <i>Add</i>. <p>Most of the information is completed by default.</p>

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	<i>Use Group Operations > Configure New Group</i>	Building and Configuring a Monitoring Group (page 84)
Cron job, schedule	Manage Linux > Schedule Task	"Scheduling cron Jobs to Run on the Server" on page 74
Directory, change attributes of	<i>View File System > View File System Listing</i>	Viewing Details about Directories and Performing Actions on Them (page 45)
Directory, edit	<i>View File System > View File System Listing</i>	Viewing Details about Directories and Performing Actions on Them (page 45)
Directory, delete	<i>View File System > View File System Listing</i>	Viewing Details about Directories and Performing Actions on Them (page 45)
Directory, rename	<i>View File System > View File System Listing</i>	Viewing Details about Directories and Performing Actions on Them (page 45)
Directory, view detailed information about	<i>View File System > View File System Listing</i>	Viewing Details about Directories and Performing Actions on Them (page 45)
File, change attributes of	<i>View File System > View File System Listing</i>	Viewing the Details of a File and Performing Specific Actions (page 46)
File, download	<i>View File System > View File System Listing</i>	Downloading a File from the Server to a Local Workstation (page 46)
File, edit	<i>View File System > View File System Listing</i>	Viewing the Details of a File and Performing Specific Actions (page 46)
File, delete	<i>View File System > View File System Listing</i>	Viewing the Details of a File and Performing Specific Actions (page 46)

Tasks	Link in Navigation frame or Other Location	For More Information
File, rename	<i>View File System > View File System Listing</i>	Viewing the Details of a File and Performing Specific Actions (page 46)
Files, search for text in	<i>View File System > View File System Listing</i>	Searching for Text in Files (page 46)
File, upload	<i>View File System > View File System Listing</i>	Uploading a File to the Server (page 45)
File, view	<i>View File System > View File System Listing</i>	Viewing Individual Files (page 47)
File system, browse	<i>View File System > View File System Listing</i>	Browsing File Systems and Performing Actions on Them (page 43)
File system, perform action on	<i>View File System > View File System Listing</i>	Browsing File Systems and Performing Actions on Them (page 43)
Files, viewing details about	<i>View File System > View File System Listing</i>	Viewing the Details of a File and Performing Specific Actions (page 46)
Group operations, access an existing group	<i>Use Group Operations > Select Group</i>	Accessing an Existing Group (page 88)
Group operations, build and configure a new monitoring group	<i>Use Group Operations > Configure New Group</i>	Building and Configuring a Monitoring Group (page 84)
Group operations, change an existing group	<i>Use Group Operations > Select Group</i>	Changing an Existing Group (page 89)
Group operations, define or edit Group Monitoring types	<i>Use Group Operations > NRM Health Types</i>	Defining or Editing Group Monitoring Types (page 93)
Group operations, delete an existing group	<i>Use Group Operations > Select Group</i>	Deleting an Existing Group (page 89)
Group operations, discover items to monitor on the network.	<i>Use Group Operations > Configure New Group > right-click menu > Network Discovery</i>	Discovering Items on the Network to Monitor (page 93)
Group operations, generate and view server reports	<i>Use Group Operations > Configure New Group > right-click menu > Save Group</i>	Generating and Viewing Server Reports (page 90)
Group operations, save a new group	<i>Use Group Operations > Configure New Group > right-click menu > Save Group</i>	Saving a Group (page 88)
Group operations, view defined health types	<i>Use Group Operations > NRM Health Types</i>	Viewing Group Monitoring Types (page 91)
Group operations, view monitored items	<i>View Monitored Items</i>	Viewing Monitored Items (page 90)
Host, shut down	<i>Manage Linux > Down/Reset Options</i>	Shutting Down and Restarting the Host (page 70)

Tasks	Link in Navigation frame or Other Location	For More Information
Host, restart	<i>Manage Linux > Down/Reset Options</i>	Shutting Down and Restarting the Host (page 70)
Interrupt information, view	<i>Manage Hardware > Interrupt Information</i>	Viewing Interrupt Information (page 78)
I/O Memory information, view	<i>Manage Hardware > IO Memory Information</i>	Viewing I/O Memory Information (page 79)
IO Port information, view	<i>Manage Hardware > IO Port Information</i>	Viewing I/O Port Information (page 80)
Kernel modules, view	<i>Manage Linux > Kernel Module Listing</i>	Viewing Kernel Modules (page 68)
Memory information, view	<i>Manage Linux > View Memory Information</i>	Viewing Memory Information (page 68)
Mounted devices, perform actions on them	<i>Home icon > Info icon</i>	Viewing Mounted Devices and Performing Actions on Them (page 42)
Mounted devices, view	<i>Home icon > Info icon</i>	Viewing Mounted Devices and Performing Actions on Them (page 42)
Packages, install	<i>Manage Linux > Package Information</i>	Managing Packages (page 70)
Packages, remove	<i>Manage Linux > Package Information</i>	Managing Packages (page 70)
Packages, view information about	<i>Manage Linux > Package Information</i>	Managing Packages (page 70)
Partition information, view	<i>View File System > View Partition Information</i>	Viewing Partition Information (page 47)
Process, kill	<i>Manage Linux > Process Information</i>	Managing Processes (page 72)
Process, view information about	<i>Manage Linux > Process Information</i>	Managing Processes (page 72)
Processors, view information about	<i>Manage Hardware > View Processors</i>	Viewing Processors (page 77)
Server health, configure email notification about status	<i>Health Monitor and Configuration Icon</i>	Configuring Email Notification for Server Health Status (page 39)
Server health, configure item to monitor	<i>Diagnose > Health Monitor</i>	Configuring the Items to Monitor (page 39)
Server health, monitor health of a specific item	<i>Diagnose > Health Monitor</i>	Monitoring Overall Server Health or the Health of a Specific Item (page 35)
Server health, monitor overall health	<i>Diagnose > Health Monitor</i>	Monitoring Overall Server Health or the Health of a Specific Item (page 35)

Tasks	Link in Navigation frame or Other Location	For More Information
Server health, troubleshooting suspect or bad health status	<i>Diagnose > Health Monitor</i>	Troubleshooting a Suspect or Bad Health Status (page 39)
Server Group, monitor overall server health	<i>Use Group Operation > Configure New Group or Select Group</i>	Building and Configuring a Monitoring Group (page 84)
SMBIOS information, view	<i>Manage Hardware > SMBIOS Information</i>	Viewing SMBIOS Information (page 81)
Swap information, view	<i>Manage Linux > View Memory Information</i>	Viewing Memory Information (page 68)

14 Troubleshooting

This section describes known issues and workarounds for Novell Remote Manager for Novell Open Enterprise Server 11.

- ♦ [Section 14.1, “Daemon httpstkd Is Unable to Start,” on page 101](#)

14.1 Daemon httpstkd Is Unable to Start

The Novell Remote Manager daemon `httpstkd` might be unable to start if the ports it is trying to use are busy. This error is commonly shown by applications when the ports it uses (in this case NRM ports 8008 and 8009) are busy and do not repond. In this situation, you can start `httpstkd` without needing to reboot the server by modifying the ports used by Novell Remote Manager in the `/etc/opt/novell/httpstkd.conf` file:

- 1 Log in to the server as the `root` user.
- 2 Open the `/etc/opt/novell/httpstkd.conf` file in a text editor.
- 3 Change the default ports 8008 and 8009 to other unused ports on the following lines:

```
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
```

- 4 Save your changes, then close the `/etc/opt/novell/httpstkd.conf` file.
- 5 Open a terminal console, then start the `httpstkd` daemon by entering:

```
rcnovell-httpstkd start
```

15 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 11: 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 15.1, “Security Features,”](#) on page 103
- ♦ [Section 15.2, “Security Characteristics,”](#) on page 105
- ♦ [Section 15.3, “Security Configuration,”](#) on page 105

15.1 Security Features

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

Table 15-1 Security Features of Novell Remote Manager on OES Linux

Feature	Yes/ No	Details
Users are authenticated	Yes	<p>Users must log in to Novell Remote Manager.</p> <p>Log in as user <code>root</code>, a local Linux user, or as a Novell eDirectory user that is Linux User Management enabled.</p> <p>The <code>root</code> user is authenticated locally, not through eDirectory. This allows the <code>root</code> user to manage server resources even if the eDirectory services are not available.</p> <p>For more information, see “Accessing Novell Remote Manager” on page 23 and “Changing the Configuration” on page 29.</p>

Feature	Yes/ No	Details
Limited root user privileges for the Admin user	Yes	<p>User <code>root</code> 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 <code>root</code> 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.</p> <p>The Admin user or equivalent user needs <code>root</code> 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.</p> <pre>/etc/opt/novell/httpstk.conf /etc/pam.d/httpstk</pre> <p>The following file names are the names that are used as the description for a specified task:</p> <pre>/etc/cron.d/[task file name]</pre> <p>The following files may be the actual file or a symbolic link to the YAST or eDirectory certificates:</p> <pre>/etc/opt/novell/httpstk/server.pem /etc/opt/novell/httpstk/server.key</pre> <p>The following files are already modifiable by the Admin user:</p> <p>The first category has names that are whatever the user names the group that they create.</p> <pre>/opt/novell/nrm/NRMGroups/[nrm group names] /etc/opt/novell/nrmhconfig.conf /etc/opt/novell/nrmsvchltchcfig.conf</pre>
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	<p>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.</p> <p>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.</p> <p>For more information, see “Accessing Novell Remote Manager” on page 23 and “Changing the Configuration” on page 29.</p>
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: <ul style="list-style-type: none"> ♦ 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	

15.2 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 117](#).

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 113](#).

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 15.1, “Security Features,” on page 103](#). The user Admin or equivalent user has access according to the Linux and LUM file rights to all other files.

15.3 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 15-2 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 117


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 23.
Let all LUM-enabled eDirectory users access file system information in Novell Remote Manager.	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.	
Deny access to all non-LUM-enabled eDirectory users.	The eDirectory users that are not LUM enabled cannot access the server through Novell Remote Manager. We recommend that the <code>root</code> 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- <code>root</code> local users.	
Let the root user access Novell Remote Manager with full management rights.	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.	<ul style="list-style-type: none"> ♦ "Changing the Configuration" on page 29. ♦ "Accessing and Editing the HTTPSTKD Configuration File" on page 30.
Deny access to all LUM-enabled eDirectory users, including the Admin user and Admin-equivalent users.	Set the <code>nolum</code> option in the <code>/etc/opt/novell/httpstk.conf</code> file and edit the <code>/etc/pam.d/httpstk</code> file.	
Deny access to all non-LUM-enabled eDirectory users.	Remove these lines: <pre>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</pre> <p>When the <code>nolum</code> 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 <code>root</code> user has full management access to Novell Remote Manager.</p>	

Issue/Feature	Recommendation	For More Information
<p>Let the <code>root</code> user access Novell Remote Manager with full management rights.</p> <p>Restrict access for all LUM-enabled eDirectory users, except the Admin user and users with rights equivalent to Admin.</p> <p>Deny access to all non-LUM-enabled eDirectory users.</p>	<p>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.</p> <p>Set the <code>supervisoronly</code> option in the <code>/etc/opt/novell/httpstk.conf</code> file.</p> <p>When the <code>supervisoronly</code> 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 <code>root</code> user has full management access to Novell Remote Manager.</p>	<ul style="list-style-type: none"> ♦ “Changing the Configuration” on page 29. ♦ “Accessing and Editing the HTTPSTKD Configuration File” on page 30.
<p>Restrict access to specific workstations or a range of IP address</p>	<p>Set the <code>filteraddr</code> and <code>filtersubnet</code> options in the <code>/etc/opt/novell/httpstk.conf</code> file.</p>	<ul style="list-style-type: none"> ♦ “Changing the Configuration” on page 29. ♦ “Accessing and Editing the HTTPSTKD Configuration File” on page 30.
<p>Remove access to the utility for all users</p>	<p>Stop the HTTPSTKD daemon.</p>	<p>“Starting or Stopping HTTPSTKD” on page 25.</p>

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/httpstk.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:

- ♦ [Section A.1, “Address and Port Commands,” on page 109](#)
- ♦ [Section A.2, “Disable Auto LUM Command,” on page 110](#)
- ♦ [Section A.3, “Email Notification Commands,” on page 112](#)
- ♦ [Section A.4, “Filtering Commands,” on page 112](#)
- ♦ [Section A.5, “HttpOnly Command,” on page 113](#)
- ♦ [Section A.6, “InventoryResolveNonLumOwnerName Command,” on page 114](#)
- ♦ [Section A.7, “Language Commands,” on page 115](#)
- ♦ [Section A.8, “Load Command,” on page 116](#)
- ♦ [Section A.9, “SSL Key Cipher Strength Command,” on page 117](#)
- ♦ [Section A.10, “Supervisor Only Command,” on page 117](#)

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
<i>IP_address</i>	One of the following: <ul style="list-style-type: none"> ♦ 0.0.0.0 ♦ The assigned static IP address of the node A DNS name is not allowed.
<i>port/</i>	One of the following for public or secure: <ul style="list-style-type: none"> ♦ 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.
<i>keyfile_path/name</i>	keyfile=/etc/opt/novell/httpstkd/server.key is the default path and file name on a new OES server installation.
<i>certificate_path/name</i>	certfile=/etc/opt/novell/httpstkd/server.pem is the default path and file name 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	<p>This is the default setting.</p> <p>To perform all management functions, users must be logged in as user <code>root</code>.</p> <p>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.</p> <p>To view local file system information only, non-<code>root</code> local users can log in with their locally created user names and passwords. We recommend against creating non-<code>root</code> local users.</p> <p>When the <code>nolum</code> 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.</p>
nolum	<p>To perform all management functions, users must be logged in as user <code>root</code>.</p> <p>LUM-enabled eDirectory users are denied access. Non-LUM-enabled eDirectory users are denied access.</p> <p>To view local file system information only, non-<code>root</code> local users can log in with their locally created user names and passwords. We recommend against creating non-<code>root</code> local users.</p> <p>IMPORTANT: Setting this option does not disable LUM if it is already part of HTTPSTKD configuration.</p> <p>You can remove the auto LUM functionality by manually by editing <code>/etc/pam.d/httpstkd</code> and removing these lines:</p> <pre>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</pre>

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	<p>The inventory does not resolve the user IDs of non-LUM-enabled file owners. The owner is reported as the Nobody user.</p> <p>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.</p>
true	<p>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.</p>

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	<p>Use the following settings:</p> <ul style="list-style-type: none">♦ 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 <p>These are the default settings for this release.</p> <p>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.</p>

Example

The following commands set the browser languages for 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
<i>plug-in_file_path</i>	<code>/opt/novell/lib/</code> is the default path for Novell Remote Manager plug-in files.
<i>plug-in_file_name</i>	<code>libnrm.so</code> 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	<p>This is the default setting.</p> <p>Local users and all LUM-enabled eDirectory users can log in to Novell Remote Manager.</p> <p>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.</p>
supervisoronly	Lets only user <code>root</code> 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 Manager pattern is installed on an Novell Open Enterprise Server (OES) 11 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.
sfcx-xml-serviceproviders	A set of CIM providers that allow system services to be instrumented through a service description XML document.	<p>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 Small Footprint CIM Broker (SFCB) CIMOM environment.</p> <p>This XML Service provider is a CIM provider that runs within the SFCB 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.</p>

The Novell Remote Manager pattern is selected for installation whenever any other OES Services pattern is selected for Linux installation.

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 11: Novell Remote Manager Administration Guide* since the initial release of Open Enterprise Server 11.

This document was updated on the following dates:

- ♦ [Section C.1, “August 6, 2012,” on page 121](#)
- ♦ [Section C.2, “June 21, 2012,” on page 121](#)
- ♦ [Section C.3, “May 30, 2012,” on page 122](#)

C.1 August 6, 2012

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

- ♦ [Section C.1.1, “HTTPSTKD Configuration File Options,” on page 121](#)

C.1.1 HTTPSTKD Configuration File Options

Location	Change
Section A.5, “HttpOnly Command,” on page 113	The configuration file name is <code>/etc/opt/novell/httpstk.conf</code> . The command name <code>HttpOnly</code> is case sensitive.

C.2 June 21, 2012

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

- ♦ [Section C.2.1, “Viewing File Systems,” on page 122](#)
- ♦ [Section C.2.2, “What’s New,” on page 122](#)

C.2.1 Viewing File Systems

Location	Change
Section 9.6, “Generating and Viewing NCP Trustee Reports for NSS Volumes,” on page 62	The NCP Trustee Report feature is for NSS volumes only, including DST shadow volumes comprised of two NSS volumes.

C.2.2 What’s New

Location	Change
Section 2.1, “What’s New Manager (May 2012 Patches),” on page 13	The NCP Trustee Report feature is for NSS volumes only, including DST shadow volumes comprised of two NSS volumes.

C.3 May 30, 2012

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

- ♦ [Section C.3.1, “Viewing File Systems,” on page 122](#)
- ♦ [Section C.3.2, “What’s New for Novell Remote Manager,” on page 122](#)

C.3.1 Viewing File Systems

Location	Change
Section 9.5, “Inventorying Directories or NCP Volumes,” on page 56	File ownership information can now be retrieved for files on NSS volumes without needing to enable users with Linux User Management.
Section 9.6, “Generating and Viewing NCP Trustee Reports for NSS Volumes,” on page 62	The NCP Trustee Report feature is new in the May 2012 Scheduled Maintenance Patch.

C.3.2 What’s New for Novell Remote Manager

Location	Change
Section 2.1, “What’s New Manager (May 2012 Patches),” on page 13	This section is new.