

Novell CIFS for Linux Administration Guide

Novell® Open Enterprise Server

2 SP1

December, 2008

www.novell.com



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Novell, Inc.
404 Wyman Street, Suite 500
Waltham, MA 02451
U.S.A.
www.novell.com

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About This Guide

This guide contains information on installing, migrating, configuring, administering, managing, and troubleshooting Novell® CIFS software specific to Windows* CIFS running on Open Enterprise Server (OES) 2 SP1 Linux.

- ♦ Chapter 1, “Overview of CIFS,” on page 9
- ♦ Chapter 2, “What’s New,” on page 13
- ♦ Chapter 3, “Planning and Implementing CIFS on OES 2 SP1 Linux,” on page 15
- ♦ Chapter 4, “Installing a CIFS Server on OES 2 SP1 Linux,” on page 17
- ♦ Chapter 5, “Migrating CIFS from NetWare to OES 2 SP1 Linux,” on page 25
- ♦ Chapter 6, “Running CIFS in a Virtualized Environment,” on page 27
- ♦ Chapter 7, “Configuring Novell CIFS in a Novell Cluster Services Cluster,” on page 29
- ♦ Chapter 8, “Managing Novell CIFS,” on page 35
- ♦ Chapter 9, “Working With Client Computers,” on page 49
- ♦ Chapter 10, “Troubleshooting CIFS on OES 2 SP1 Linux,” on page 53
- ♦ Chapter 11, “Security Considerations for CIFS on OES 2 Linux,” on page 55
- ♦ Appendix A, “Command Line Utilities for CIFS,” on page 57

Audience

This guide is intended for OES 2 Linux* administrators who want to use and administer the CIFS services and to access shares.

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 Web site \(http://www.novell.com/documentation/feedback.html\)](http://www.novell.com/documentation/feedback.html) and enter your comments there.

Documentation Updates

For the most recent version of the *CIFS Guide*, visit the [OES 2 Documentation Web site \(http://www.novell.com/documentation/oes2sp1/\)](http://www.novell.com/documentation/oes2sp1/).

Additional Documentation

For documentation on CIFS on NetWare®, see the *OES 2 SP1: AFP, CIFS, and NFS for NetWare (NFAP) Administration Guide*.

Documentation Conventions

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

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

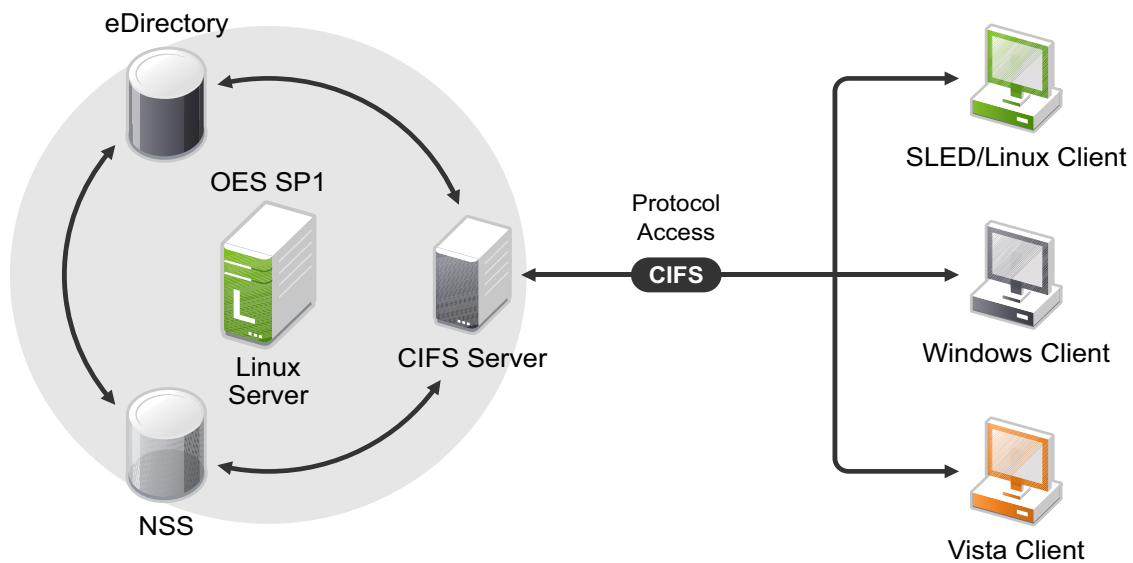
Overview of CIFS

1

CIFS (Common Internet File System) is a network file sharing protocol that is based on the SMB (Server Message Block) protocol. File sharing is achieved through these separate but intertwined protocols for service announcement, naming, authentication, and authorization. Novell® CIFS runs on the Open Enterprise Server (OES) 2 SP1 Linux server, uses Novell eDirectory™ services for user authentication, and allows the Windows and Linux client users to access the server data files or other shared resources in one of the following ways:

- ♦ For Windows, through the Network Neighborhood or My Network, Windows Explorer, and mapped drives from Windows and Windows Vista* workstations.
- ♦ For Linux, through a SMB client from Linux desktops.

Figure 1-1 Novell CIFS Conceptual Overview



- ♦ [Section 1.1, “CIFS Features on OES 2 SP1 Linux,” on page 10](#)
- ♦ [Section 1.2, “Advantages of Novell CIFS,” on page 10](#)
- ♦ [Section 1.3, “CIFS Server,” on page 10](#)
- ♦ [Section 1.4, “Universal Password for CIFS,” on page 11](#)
- ♦ [Section 1.5, “CIFS Comparison on NetWare and Linux,” on page 11](#)
- ♦ [Section 1.6, “CIFS Terminology,” on page 12](#)
- ♦ [Section 1.7, “What's Next,” on page 12](#)

1.1 CIFS Features on OES 2 SP1 Linux

CIFS implementation supports the following features on OES 2 SP1 Linux:

- ♦ Support for Windows 2000, XP, 2003, Vista Enterprise, Vista Business, and Vista Ultimate (both 32-bit and 64-bit), and SUSE® Linux Enterprise Desktop (SLED) 10 as client operating systems. For details, see [Section 3.2.3, “Client Operating System Requirements,” on page 16](#)
- ♦ Support for Universal Password
- ♦ Support for NTLMv1 authentication mode
- ♦ Integration with Novell eDirectory
- ♦ Integration with the Novell Storage Services™ (NSS) file system
- ♦ Support for Unicode* filenames
- ♦ Supports the Novell Trustee Model for file access
- ♦ Does not require Linux User Management (LUM) enabling
- ♦ Supported by Novell Cluster Services™ for high availability
- ♦ Administration and configuration through iManager

1.2 Advantages of Novell CIFS

- ♦ CIFS on OES 2 Linux simplifies overall network administration by consolidating user management through Novell eDirectory

All users who need access to the network are represented in eDirectory through User objects. This enables administrators to easily and effectively assign trustee rights, control access, and manage all User objects from a single location on the network

- ♦ Support for 1500 concurrent client connections
- ♦ Superior performance similar to NetWare® CIFS
- ♦ Takes advantage of enhanced interoperability services provided by OES 2 Linux server
- ♦ Enhanced Migration Tool support for NetWare CIFS users

1.3 CIFS Server

Novell CIFS enables Windows and Linux client workstations to create, copy, delete, move, save, and open files on an OES 2 Linux server. CIFS allows read and write access from multiple client systems simultaneously. All these various file operations and sharing of resources on a network are managed from a CIFS server.

The CIFS protocol offers various services, service announcements, user authentication and authorization, and naming service running on a CIFS server. For achieving the file sharing and other services, a CIFS Server uses NetBIOS over TCP/IP (NBT) and SMB services. CIFS file sharing is achieved by a mechanism called Browsing services or advertising. For details on Browsing and other services, see [Section 1.6, “CIFS Terminology,” on page 12](#).

1.4 Universal Password for CIFS

Login to the CIFS server requires a Universal Password to be set. Universal Password is part of OES 2 Linux, which makes the password creation and management activity for the CIFS services much easier. The Universal Password is enabled by default. To learn more about Universal Password, including how to enable it, see “[Deploying Universal Password](http://www.novell.com/documentation/password_management32/pwm_administration/data/allq21t.html)” (http://www.novell.com/documentation/password_management32/pwm_administration/data/allq21t.html) in the *Novell Password Administration Guide* (http://www.novell.com/documentation/password_management32/pwm_administration/data/bookinfo.html).

1.5 CIFS Comparison on NetWare and Linux

OES 2 Linux comes with improved support for CIFS protocol architecture. The following table compares CIFS services on NetWare and OES 2 Linux platforms:

Table 1-1 CIFS services on NetWare and OES 2 Linux

Service	NetWare	OES 2 Linux
64-Bit Support	No	Yes
Distributed File Services for NSS Volumes	Yes	Future
OpLocks	Yes	Yes
Cross Protocol Locking	Yes	Future
NSS Support	Yes	Yes
CIFS-enabled shared NSS pool/ volume in a NetWare-to-NetWare or Linux-to-Linux cluster	Yes	Yes
CIFS-enabled shared NSS pool/ volume in a mixed NetWare-to-Linux cluster	No	No
iManager Support and Administration tool	Yes	Yes
File and Record Locking	Yes	Yes
Domain Emulation	Yes	Future
Monitoring	No	Future
Xen* Virtualized Host Server Environment	NA	No
Xen Virtualized Guest Server Environment	Yes	Yes
Multi-processor/Multicore Server Support	No	Yes
Multi-File System Support	No	Future
NTLMv2/Kerberos*	No	Future

NOTE: Access to the same volume by CIFS, AFP, and NCP clients is not supported in OES2 SP1 even if the access does not occur at the same time.

1.6 CIFS Terminology

CIFS is defined by its local implementation rather than a universal specification. The following sections are terms and definitions that are part of CIFS and are widely used:

NetBIOS Names: Human-readable and visible names assigned to computers on a network. All NetBIOS computers on a network are configured by the administrator. CIFS uses NetBIOS Naming Service (NBNS) for name resolution.

Workgroup: A peer-to-peer computer network that shares files and information. Workgroups simplify network management by organizing servers and services into administrative groups. Workgroup names are defined by the NetBIOS names.

Domain Name System (DNS): An Internet service that translates domain names into IP addresses.

Browsing: The process of discovering the (NetBIOS names) of CIFS Servers that are on the network.

Browsing Services: An advertising mechanism used by a CIFS Server to announce and use the shares available in the network. This service maintains the list of available file and print services. The list is presented via the Network Neighborhood or My Network Places in Windows, Linux or SMB clients for Linux.

Local Master Browser (LMB): The workgroup leader for each individual workgroup. Also called a Master Browser.

Master Browser: A computer that is the workgroup leader for each individual workgroup. Also called a Local Master Browser or LMB.

Domain Master Browser (DMB): A computer that collects information from several Master Browsers within a domain.

Backup Browser (BB): Any computer on a network other than a Master Browser. Used to distribute the browser loads. Based on the network traffic and an election or voting process, a Backup Browser has the potential to become a Local Master Browser, if required.

OpLocks: Opportunistic locking. A locking and authentication mechanism of file sharing when there are multiple users or requests to the same share or resource on the network. OpLocks provides a means to cache a read/write operation on a file without updating the server every time.

Novell Product Terms: For definitions of Novell product terminology and other glossary terms used in this guide, such as NMAST[™], NICI, NCP[™], and others, visit the [Novell: Glossary of Terms \(http://www.novell.com/company/glossary.html\)](http://www.novell.com/company/glossary.html).

1.7 What's Next

If you are planning to implement CIFS on your enterprise server, continue with [Chapter 3, “Planning and Implementing CIFS on OES 2 SP1 Linux,” on page 15](#) to understand the implementation requirements.

What's New

2

The following new features are implemented on Open Enterprise Server (OES) 2 Linux for CIFS:

- ♦ **Installation and Configuration through YaST:** CIFS is installed and configured through the YaST interface on OES 2 Linux. For details, see [Section 4.2, “Installing and Configuring a CIFS Server through YaST,”](#) on page 18.
- ♦ **Administration and Configuration:** iManager provides an advanced level of administration and configuration of CIFS on OES 2 Linux. For details, see [Section 8.1, “Using iManager to Manage CIFS,”](#) on page 35.
- ♦ **Migrating to a Linux Platform:** NetWare® CIFS can be migrated to CIFS on OES 2 Linux by using either the new Migration Tool or the miggui command line utility. For details, see [Chapter 5, “Migrating CIFS from NetWare to OES 2 SP1 Linux,”](#) on page 25.

Planning and Implementing CIFS on OES 2 SP1 Linux

3

Planning and implementing CIFS on an Open Enterprise Server (OES) 2 Linux server requires you to understand the information and requirements discussed in the following sections:

- ♦ [Section 3.1, “Planning for CIFS,” on page 15](#)
- ♦ [Section 3.2, “CIFS System Prerequisites,” on page 15](#)
- ♦ [Section 3.3, “Constraints, Limitations, and Issues,” on page 16](#)
- ♦ [Section 3.4, “What's Next,” on page 16](#)

3.1 Planning for CIFS

The key factors to consider for implementing and enabling Novell® CIFS on your enterprise servers are:

- ♦ Upgrading from OES 2 Linux to OES 2 SP1 Linux on your enterprise servers. For details on installing CIFS on OES 2 SP1 Linux, see [Chapter 4, “Installing a CIFS Server on OES 2 SP1 Linux,” on page 17](#).
- ♦ Moving from NetWare® to an OES 2 Linux setup. For details see, [Chapter 5, “Migrating CIFS from NetWare to OES 2 SP1 Linux,” on page 25](#).

3.2 CIFS System Prerequisites

To access CIFS servers running on an OES 2 Linux server, client computers must be connected to the network, properly configured to run NBT (NetBIOS over TCP/IP), and meet the following basic minimum requirements:

- ♦ [Section 3.2.1, “Server Operating System Requirements,” on page 15](#)
- ♦ [Section 3.2.2, “Server Hardware Requirements,” on page 15](#)
- ♦ [Section 3.2.3, “Client Operating System Requirements,” on page 16](#)
- ♦ [Section 3.2.4, “Package Dependencies,” on page 16](#)

3.2.1 Server Operating System Requirements

Novell Open Enterprise Server 2 Support Pack 1 (OES 2 SP1) Linux.

3.2.2 Server Hardware Requirements

Same as the OES 2 SP1 Linux hardware requirements. For details, see [“Meeting All Server Software and Hardware Requirements”](#) in the *OES 2 SP1: Linux Installation Guide*.

3.2.3 Client Operating System Requirements

- ♦ Windows XP SP2 and SP3.
- ♦ Windows Vista Business SP1 and 64-bit SP1, Enterprise SP1 and 64-bit SP1, and Ultimate SP1 and 64-bit SP1.
- ♦ SUSE® Linux Enterprise Desktop versions.
- ♦ Any NFS* platform capable of NFS v2, NFS v3, or NFS v4, such as Linux, or FreeBSD*.

3.2.4 Package Dependencies

Use the following checklist to verify CIFS dependencies before proceeding:

- ☐ All Novell CIFS users must be in eDirectory™. Linux-only users are not supported.
- ☐ Novell CIFS supports only Novell Storage Services™ (NSS) volumes.
- ☐ NCP™ should be up and running for Novell CIFS to function properly.
- ☐ If your eDirectory replica is stored on an eDirectory server earlier than 8.8.3, ensure you upgrade the server using the [Security Services 2.0.6 patch \(http://download.novell.com/Download?buildid=LY1bZMAom6k~\)](http://download.novell.com/Download?buildid=LY1bZMAom6k~).

3.3 Constraints, Limitations, and Issues

- ♦ [Section 3.3.1, “Constraints and Limitations,” on page 16](#)
- ♦ [Section 3.3.2, “Co-existence Issues,” on page 16](#)

3.3.1 Constraints and Limitations

Currently, Novell does not support migrating NetWare to OES 2 Linux CIFS in a clustered environment. For detailed list of known issues and limitations for CIFS, see “[CIFS Issues](#)” and “[OES 2 Migration Tool](#)” in the *OES2 SP1: Readme*.

3.3.2 Co-existence Issues

Do not install any of the following service combinations on the same server as Novell CIFS. Although not all of the combinations cause pattern conflict warnings, Novell does not support any of the combinations shown:

- ☐ File Server (SLES 10 - Samba).
- ☐ Novell Domain Services for Windows (DSfW).
- ☐ Novell Samba.
- ☐ Any other Samba implementation.
- ☐ Xen Virtual Machines on the host.

3.4 What's Next

To proceed with CIFS installation on an OES 2 Linux server, continue with [Chapter 4, “Installing a CIFS Server on OES 2 SP1 Linux,” on page 17](#).

Installing a CIFS Server on OES 2 SP1 Linux

4

Novell® CIFS is not installed by default when you install Open Enterprise Server (OES) 2 SP1 Linux. CIFS needs to be selected so it can be installed during OES 2 Linux installation. This section provides the CIFS installation requirements and procedures.

- ♦ Section 4.1, “Preparing for CIFS Installation,” on page 17
- ♦ Section 4.2, “Installing and Configuring a CIFS Server through YaST,” on page 18
- ♦ Section 4.3, “Verifying Installation,” on page 23
- ♦ Section 4.4, “Installing the CIFS iManager Plug-In,” on page 24
- ♦ Section 4.5, “What's Next,” on page 24

4.1 Preparing for CIFS Installation

- ♦ Section 4.1.1, “Product Interdependencies,” on page 17
- ♦ Section 4.1.2, “Prerequisites,” on page 17
- ♦ Section 4.1.3, “Required Rights and Permissions for a CIFS User/Administrator,” on page 18

4.1.1 Product Interdependencies

CIFS has product interdependencies that must be considered:

- ♦ NMAST™ (Novell Modular Authentication Services).
- ♦ NICI (Novell International Cryptographic Infrastructure).

CIFS depends on NMAST for name resolution and authentication of CIFS users. NMAST is dependent on NICI for encryption and decryption services. A problem with any of these products causes CIFS users to be denied access to an OES 2 Linux server.

4.1.2 Prerequisites

To properly install and configure CIFS, ensure that the following prerequisites are met:

- ☐ You are running an OES 2 SP1 Linux server. For more information on installing OES 2 Linux, see the *OES 2 SP1: Linux Installation Guide*.
- ☐ You have a Universal Password. Read “Deploying Universal Password” in the *Novell Password Management Administration Guide* (http://www.novell.com/documentation/password_management32/pwm_administration/data/allq21t.html).

The Universal Password includes the ability to create password policies. It also removes the need to maintain two separate passwords for CIFS users.

- ☐ NMAST is installed on or added to an OES 2 Linux server that has a read/write eDirectory™ replica of the eDirectory partition where the User objects reside.

NMAS is automatically installed. For more information on NMAS, see the [NMAS 3.2 Administration Guide](http://www.novell.com/documentation/nmas32/admin/index.html?page=/documentation/nmas32/admin/data/a20gkue.html) (<http://www.novell.com/documentation/nmas32/admin/index.html?page=/documentation/nmas32/admin/data/a20gkue.html>).

- ❑ Novell iManager 2.7 is installed, configured, and running. For more information on iManager installation and administration, see the *Novell iManager 2.7 Installation Guide* and *Novell iManager 2.7.3 Administration Guide*.
- ❑ Stop all the running Samba daemons before installing CIFS. Use the following commands:
 - ♦ `/etc/init.d/smb stop`
 - ♦ `/etc/init.d/nmb stop`

4.1.3 Required Rights and Permissions for a CIFS User/Administrator

- ❑ The user/administrator needs supervisor rights over the container where the server object is installed.
- ❑ The user/administrator needs root permissions to install CIFS on an OES 2 Linux server.
- ❑ The user/administrator needs read, write, create, modify rights over the password policies sub-container of the security container, for the following reasons:
 - ♦ Adding the CIFS default policy to the password policies.
 - ♦ Modifying policies selected for CIFS, so that the proxy user can read passwords for users attached to the policy.

4.2 Installing and Configuring a CIFS Server through YaST

Follow this procedure to install and configure the CIFS services on an OES 2 SP1 Linux server in either of the following cases:

- ♦ Installing CIFS with the bundle of products during OES 2 SP1 Linux installation.
- ♦ Installing only the Novell CIFS service and its dependencies on an existing OES 2 SP1 Linux server.

Before you begin, ensure that you have the required eDirectory admin credentials to proceed, if you are installing CIFS after installing OES 2 SP1 Linux.

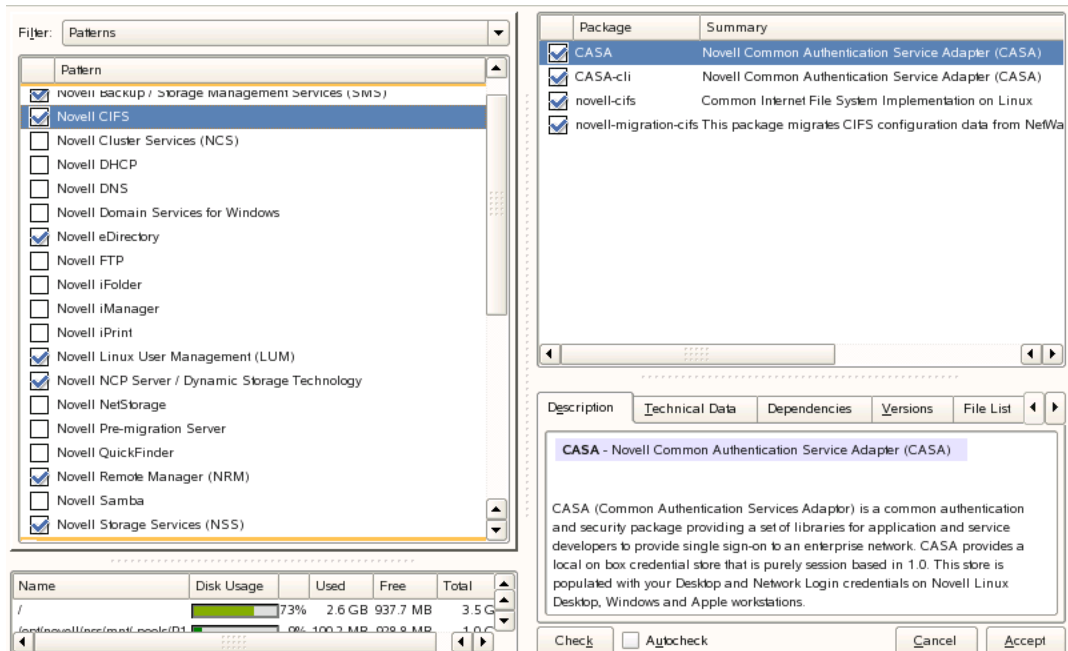
- 1 Launch YaST, using one of the following methods:

From your Desktop: Click *Computer > More Applications > System > YaST*.

or

From your Terminal: Run the `yast2` command on the server console.

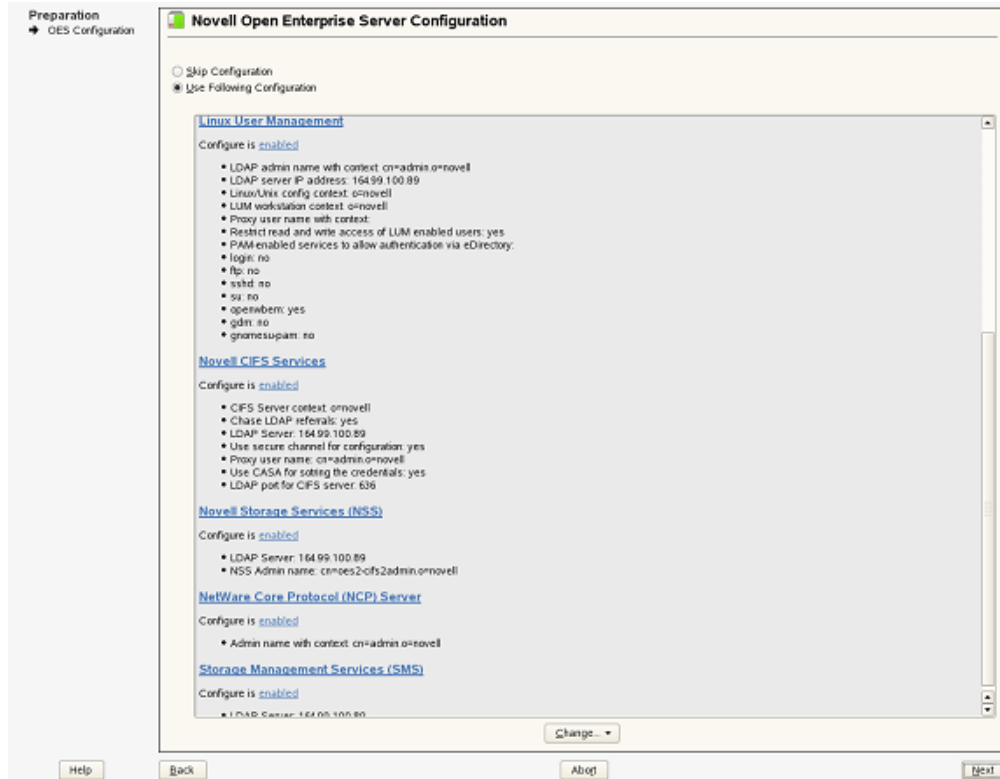
- 2 Click *Group > Software* to go to Software Selection page.
- 3 Under the *OES Services* group, select *Novell CIFS*.



IMPORTANT: By default, the CIFS dependency packages are selected: Novell eDirectory, Novell Linux User Management (LUM), NetWare Core Protocol Server (NCP), Novell Remote Manager (NRM), and Novell Storage Services (NSS), in addition to other OES 2 SP1 default dependencies or other services dependency packages.

4 Click *Accept*.

The subsequent pages allow the administrator to configure CIFS on OES 2.



5 Click *Novell CIFS service* or click *Next*.

NOTE: If you installing CIFS after installing OES 2 SP1, you will prompted to enter the eDirectory admin password. Enter the password and click *OK* to proceed.

6 Fill in the following fields and click *Next*:

Parameter	Description
eDirectory server address or host name	This is the default eDirectory server IP address. Select from the drop-down list to change to a different server.
Use secure channel for configuration	By default, this option is selected. This is preferred.
LDAP port for CIFS Server	The default is 636. This is preferred. Do not change the default port value during a fresh installation of the tree.
Local NCP Server context	Displays the NCP™ Server context.
CIFS Proxy User Name	Create a new proxy user. Use the format cn=proxyusername,o=company.
CIFS Proxy User Password	The password specified here is set in the CIFS configuration file. It cannot be changed. The maximum length is 256 characters.
Verify CIFS Proxy User Password	Re-enter the password for verification. It should be identical to the CIFS proxy user password.
eDirectory Contexts	The default is displayed. Select or add a new context, indicating where the user resides. Use the <i>Add</i> and <i>Delete</i> buttons to add and delete contexts.

Parameter	Description
Credential Storage Location	By default, the credential is stored in CASA. It is possible to store the credentials by using the Local File option. The password file is encrypted and encoded in the credential storage location.

7 Select an *eDirectory context* from the list and click *Next*.

Click *Add* or *Delete* to add or delete CIFS user contexts to eDirectory.

Novell CIFS Service Configuration
Use this dialog to specify options for configuring a CIFS server.

eDirectory Contexts
Provide a list of contexts that are searched when the CIFS User enters a username. The server searches through each context in the list until it finds the correct user object.

Novell CIFS Service Configuration
eDirectory Contexts:

eDirectory Contexts
o=novell
ou=dotted.ou,o=spaced.org

Buttons: Back, Add, Delete, Abort, Next

8 Select a *Password Policy* and click *Next*.

Novell CIFS Service Configuration
Use this dialog to specify options for configuring a CIFS server.

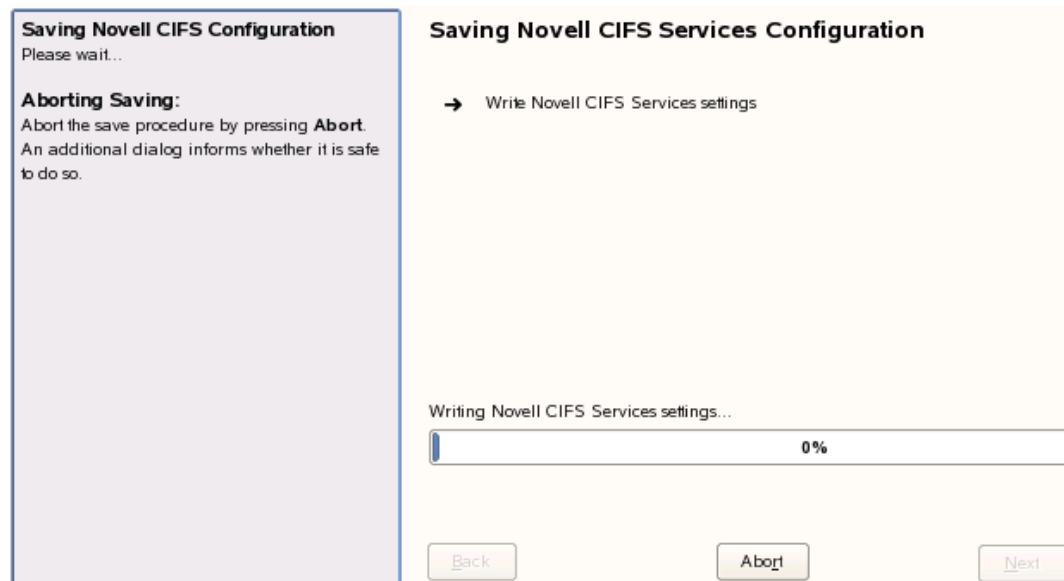
Select the Password Policies assigned to CIFS Users
Select all the password policies which are assigned to the CIFS Users.

Novell CIFS Service Configuration
Select the Password Policies assigned to CIFS Users:

<input type="checkbox"/> CIFS Default Password Policy

Buttons: Back, Abort, Next

The CIFS configuration settings you specified are saved successfully on your OES 2 Linux server.



4.3 Verifying Installation

Perform the following steps if you want to verify a successful installation. For troubleshooting your installation, see [Section 10.1, “CIFS Installation and Configuration Issues,” on page 53](#).

- ♦ [Section 4.3.1, “Verifying Files and Folders,” on page 23](#)
- ♦ [Section 4.3.2, “Verifying the File Configuration Information,” on page 24](#)

4.3.1 Verifying Files and Folders

Run the following commands on the OES 2 server console:

- 1 Run the `ls /opt/novell/cifs/` command and verify that the `bin` and `schema` folders are present.
- 2 Run the `ls /opt/novell/cifs/bin` command and verify that the following files are present:
 - ♦ `cifs-config.sh`
 - ♦ `encrypt_password`
 - ♦ `migCifsC`
 - ♦ `migcifs.pl`
 - ♦ `novcifs`
 - ♦ `retrive_proxy_cred`
 - ♦ `cifsd`
 - ♦ `getpwpolicies.sh`
 - ♦ `migCifsS`
 - ♦ `migcifs.sh`

- ♦ `readCasaC`
 - ♦ `verify-user.sh`
- 3 Run the `ls /opt/novell/cifs/schema` command and verify that the following files are present:
- ♦ `nfap.ldif`
 - ♦ `nfap.sch`
 - ♦ `password-policy.ldif`
- 4 If you selected CASA credentials, run the `CASACli -l` command to verify the credential details.
- or
- If you selected a local file for credential storage, verify the existence of the `.cifspwd.enc` file by running `ls /etc/opt/novell/cifs`.

4.3.2 Verifying the File Configuration Information

Verify whether the following files are populated with the information you specified while using YaST for configuration during installation:

- 1 Run `cat /etc/opt/novell/cifs/cifs.conf` and verify whether the configuration is the same as you specified during installation.
- 2 Run `cat /etc/opt/novell/cifs/cifsetxs.conf` and verify whether the context information is the same as you specified during installation.

4.4 Installing the CIFS iManager Plug-In

You must install the iManager plug-in for CIFS in order to access CIFS from iManager.

- 1 Launch iManager from your Web browser.
For details, see “[Accessing iManager](#)” in the *Novell iManager 2.7.3 Administration Guide*.
- 2 Click *Configure* and go to *Plug-In Module Installation > Available Novell Plug-In Modules*.
For details, see “[Plug-In Module Installation](#)” in the *Novell iManager 2.7.3 Administration Guide*.
- 3 Select the CIFS plug-in from the list and click *Install*.
- 4 Exit iManager.
- 5 From OES 2 Linux server console, run one of the following commands to complete the plug-in installation:
 - ♦ `/etc/init.d/tomcat5 restart`
 - ♦ `rcnovell-tomcat5 restart`

4.5 What's Next

When the installation is complete, you can get started with CIFS administration activities. For details, see [Chapter 8, “Managing Novell CIFS,” on page 35](#).

Migrating CIFS from NetWare to OES 2 SP1 Linux

5

The Open Enterprise Server (OES) 2 SP1 Migration Tool has a plug-in architecture that is made up of Linux command line utilities with a GUI wrapper. You can migrate CIFS from a NetWare[®] server to an OES 2 SP1 Linux server either by using the GUI Migration Tool or from the command line. For more information on NetWare CIFS, see the *OES 2 SP1: AFP, CIFS, and NFS for NetWare (NFAP) Administration Guide*.

To get started with migration, see the *OES 2 SP1: Migration Tool Administration Guide*.

For more information on migrating CIFS, see “Migrating CIFS from NetWare to OES 2 SP1 Linux” in the *OES 2 SP1: Migration Tool Administration Guide*.

To access the CIFS migration man page with command information, enter `man migCifs` at the command prompt. For details on migCifs command options, see “`migCifs(8)`” in the *OES 2 SP1: Migration Tool Administration Guide*.

Running CIFS in a Virtualized Environment

6

Novell CIFS runs in a virtualized environment just as it does on a physical NetWare[®] server, or on a physical server running Open Enterprise Server (OES) 2 Linux, and requires no special configuration or other changes.

To get started with virtualization, see “[Introduction to Xen Virtualization \(http://www.novell.com/documentation/sles10/xen_admin/data/sec_xen_basics.html\)](http://www.novell.com/documentation/sles10/xen_admin/data/sec_xen_basics.html)” in the *Virtualization with Xen (http://www.novell.com/documentation/sles10/xen_admin/data/bookinfo.html)* guide.

For information on setting up virtualized NetWare, see “[Installing and Managing OES 2 SP1 NetWare on a Xen-based VM Host Server](#)” in the *OES 2 SP1: NetWare Installation Guide* guide.

For information on setting up virtualized OES 2 Linux, see “[Installing, Upgrading, or Updating OES 2 SP1 Linux on a Xen-based Virtual Machine](#)” in the *OES 2 SP1: Linux Installation Guide* guide.

6.1 What's Next

To learn more about what you can do with CIFS on OES 2 Linux, continue with [Chapter 8, “Managing Novell CIFS,”](#) on page 35.

Configuring Novell CIFS in a Novell Cluster Services Cluster

7

Novell® Cluster Services™ 1.8.5 for Open Enterprise Server (OES) 2 Linux provides high availability, scalability, and security for your network while reducing administrative costs associated with managing client workstations.

This section describes how to set up Novell CIFS in a cluster so that Windows and Linux computers can use CIFS to access shared cluster resources on the network even when there is a server failure.

- ♦ [Section 7.1, “Benefits of Configuring CIFS for High Availability,” on page 29](#)
- ♦ [Section 7.2, “Cluster Terminology,” on page 29](#)
- ♦ [Section 7.3, “CIFS and Cluster Services,” on page 30](#)
- ♦ [Section 7.4, “Configuring CIFS in a Cluster,” on page 32](#)
- ♦ [Section 7.5, “What's Next,” on page 34](#)

7.1 Benefits of Configuring CIFS for High Availability

With the OES 2 Linux cluster configured with CIFS protocols, users receive the following benefits of a clustered environment:

- ♦ Novell Cluster Services and Novell Storage Services™ (NSS), which are part of OES 2 Linux, combine with Novell CIFS to facilitate highly available CIFS access for users.
- ♦ Enabling and disabling CIFS for shared NSS pools has a single point of administration through the browser-based Novell iManager pool configuration or the console-based NSSMU monitoring GUI.
- ♦ The cluster-enabled CIFS share is automatically mounted and dismounted when the shared NSS pool's cluster resource is brought online and offline.
- ♦ The CIFS sessions of the users continue without interruption when the shared NSS pool is migrated or failed over to a different node in the cluster.

7.2 Cluster Terminology

The following terminology is used in this section when discussing the cluster environment:

- ♦ **Active node:** The cluster server that currently owns the cluster resource and responds to network requests made to shared volumes on that resource.
- ♦ **Passive node:** The cluster server that does not currently own the cluster resources but is available if the resource fails over or is migrated to it.
- ♦ **Active/Passive clustering:** The cluster includes active nodes and passive nodes. The passive nodes are used if an active node fails.

- ♦ **Virtual server:** A cluster-enabled pool and related services that appears to clients as a physical server but is not associated with a specific server in the cluster. This is the name of the virtual server as it appears to NCP™, AFP, and Linux Samba clients.
- ♦ **CIFS virtual server:** A cluster-enabled pool and the Novell CIFS service that appear to CIFS clients as a physical server but are not associated with a specific server in the cluster. This is the name of the virtual server as it appears to CIFS clients.
- ♦ **Cluster IP address:** Each cluster-enabled NSS pool requires its own static IP address. The IP address is used to provide access and failover capability to the cluster-enabled pool (virtual server). The IP address assigned to the pool remains assigned to the pool regardless of which server in the cluster is accessing the pool.
- ♦ **Load script:** A file that contains the cluster resource definition and commands that load services and load the NSS pool and its volumes for a given cluster resource. Load scripts are generated by default when you cluster-enable a pool, and are modified by using the Clusters plug-in for Novell Cluster Services.
- ♦ **Unload script:** A file that contains the cluster resource definition and commands that unload services and dismount the NSS pool and its volumes for a given cluster resource. Unload scripts are generated by default when you cluster-enable a pool, and are modified by using the Clusters plug-in for Novell Cluster Services.

7.3 CIFS and Cluster Services

Novell Cluster Services can be configured either during or after OES 2 installation. In a cluster, Novell CIFS for OES 2 Linux, is available only in ACTIVE/PASSIVE mode, which means that CIFS software runs on all nodes in the cluster. When a server fails, the cluster volumes that were mounted on the failed server fail over to that other node. The following sections give details about using Novell CIFS in a cluster environment:

- ♦ [Section 7.3.1, “Prerequisites,” on page 30](#)
- ♦ [Section 7.3.2, “Using CIFS in a Cluster Environment,” on page 31](#)

7.3.1 Prerequisites

Before setting up Novell CIFS in a cluster environment, ensure that you meet the following prerequisites:

- ❑ Novell Cluster Services 1.8.5 installed on OES 2 Linux servers

For information on installing Novell Cluster Services, see “[Installing Novell Cluster Services on OES 2 Linux](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.

For information on managing Novell Cluster Services, see “[Managing Clusters](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.

- ❑ Novell CIFS is installed on all the nodes in the cluster to provide high availability

Follow the instructions in “[Installing and Configuring a CIFS Server through YaST](#)” on [page 18](#).

7.3.2 Using CIFS in a Cluster Environment

Keep in mind the following considerations when you prepare to use CIFS in a cluster.

- ♦ Novell CIFS is not cluster-aware and is not clustered by default. You must install and configure Novell CIFS on every node in the cluster where you plan to give users CIFS access to the shared cluster resource.
- ♦ Novell CIFS runs on all nodes in the cluster at any given time.
- ♦ Novell CIFS is started at boot time on each node in the cluster. A CIFS command is added to the load script and unload script for the shared cluster resource. This allows Novell CIFS to provide or not to provide access to the shared resource through Virtual server IP.

The following process indicates how CIFS is enabled and used in a cluster environment:

- 1. Creating Shared Pools:** To access the shared resources in the cluster environment through the CIFS protocol, you create the shared pools either by using the NSSMU utility or the iManager tool and selecting CIFS as an advertising protocol. For requirements and details about configuring shared NSS pools and volumes on Linux, see “[Configuring Cluster Resources for Shared NSS Pools and Volumes](#)” in the *OES 2 SPI: Novell Cluster Services 1.8.5 for Linux Administration Guide*.
- 2. Creating a Virtual Server:** When you cluster-enable an NSS pool, an NCS:NCP Server object is created for the virtual server. This contains the virtual server IP address, the virtual server name, and a comment.
- 3. Creating a CIFS Virtual Server:** When you cluster-enable an NSS pool and enable that pool for CIFS by selecting CIFS as an advertising protocol, a virtual CIFS server is added to eDirectory™. This is the name the CIFS clients use to access the virtual server.
- 4. Loading the CIFS Service:** When you enable CIFS for a shared NSS pool and when Novell CIFS is started at system boot, the following line is automatically added to the cluster load script for the pool's cluster resource:

```
novcifs --add --vserver=virtualserverFDN --ip-addr=virtualserverip
```

This command is executed when the cluster resource is brought online on an active node. You can view the load script for a cluster resource by using the Clusters plug-in for iManager. Do not manually modify the load script.

- 5. Unloading the CIFS Service:** When you CIFS-enable for a shared NSS pool, the following line is automatically added to the cluster unload script for the pool's cluster resource:

```
novcifs --remove --vserver=virtualserverFDN --ip-addr=virtualserverip
```

This command is executed when the cluster resource is taken offline on a node. The virtual server is no longer bound to the Novell CIFS service on that node. You can view the unload script for a cluster resource by using the Clusters plug-in for iManager. Do not manually modify the unload script

- 6. CIFS Attributes for the Virtual Server:** When you CIFS-enable a shared NSS pool, the following CIFS attributes are added to the NCS:NCP Server object for the virtual server:
 - ♦ nfapCIFSServerName (read access)
 - ♦ nfapCIFSAttachIP (read access)
 - ♦ nfapCIFSComment (read access)
 - ♦ nfapCIFSShares (write access)

The CIFS virtual server uses these attributes. The CIFS server proxy user must have default ACL access rights to these attributes, access rights to the virtual server, and be in the same context as the CIFS virtual server.

NOTE: If the CIFS server proxy user is in a different context, the cluster administrator should give access to these virtual server attributes for the proxy user.

7.4 Configuring CIFS in a Cluster

Perform the following tasks to configure or enable CIFS and make it available on a cluster environment:

- ♦ [Section 7.4.1, “Prerequisites,” on page 32](#)
- ♦ [Section 7.4.2, “Creating Shared Pools and Accessing Sharepoints,” on page 32](#)

7.4.1 Prerequisites

- ♦ The cluster environment is set up and ready
- ♦ All nodes in the cluster are installed and configured for CIFS
- ♦ All nodes in the cluster meet CIFS standalone server setup requirements and CIFS is running
- ♦ The shared disk is configured through iSCSI or SAN and is able to create shared pools

7.4.2 Creating Shared Pools and Accessing Sharepoints

You can configure, enable, and access the CIFS services by using iManager or by using NSSMU.

- ♦ [“Using iManager to Create the Pool” on page 32](#)
- ♦ [“Using NSSMU to Create the Pool” on page 33](#)

Using iManager to Create the Pool

- 1 Ensure that the [“Prerequisites” on page 32](#) are met.
- 2 Log in to iManager, then click *Storage > Pools*.
- 3 Under *Server*, specify the cluster object or browse and select it.
- 4 Click *New*.
- 5 Specify the pool name and click *Next*.
- 6 Select the shared disk and allocate the pool size with a value of 0, then click *Next*.

New Pool ?

Cluster Information

New Pool: **P2**

Shared Pool Clustering Parameters:

Virtual Server Name:

CIFS Virtual Server Name:

IP Address:

Advertising Protocols:

☒ NCP

☒ CIFS

☐ AFP

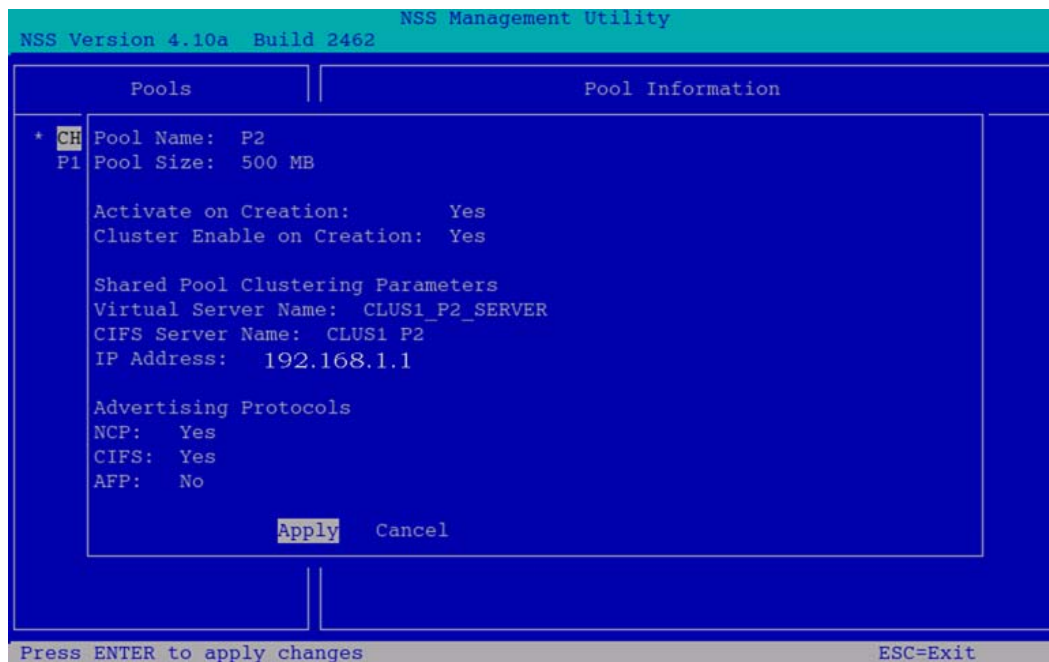
<< Back Finish Cancel

- 7 Specify an *IP address*, ensure that you select *CIFS* under *Advertising Protocols*, then click *Finish*.
- 8 Use the `cluster status` command to verify that the created pool server is running.
For details, see “[Console Commands for Novell Cluster Services](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.
- 9 Create volumes in the shared pools.
For details, see “[Configuring Cluster Resources for Shared NSS Pools and Volumes](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.
- 10 Create sharepoints, provide access rights, and assign password policies for the CIFS virtual server or pool server. Use the same procedure that you used to configure the virtual or pool server CIFS through iManager.
For details, see [Section 8.1, “Using iManager to Manage CIFS,” on page 35](#), but ensure that you select only the virtual or pool server as the OES 2 server.
- 11 Access the sharepoints from a client workstation through the virtual server IP address or virtual server (NetBIOS) name.

For details on creating pools by using iManager, see “[Using iManager to Create NSS Volumes](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.

Using NSSMU to Create the Pool

- 1 Ensure that the “[Prerequisites](#)” on [page 32](#) are met.
- 2 Start NSSMU from the server console of a cluster server.
- 3 Select pools from the NSSMU main menu.
- 4 Select the device where you want the pool to be created.
- 5 Specify the pool name and virtual server’s or pool server’s IP address.
- 6 Select *Yes* for CIFS under *Advertising Protocols*.



- 7 Select *Apply* and press Enter.
- 8 Use the `cluster status` command to verify that the created pool server is running.
For details, see “[Console Commands for Novell Cluster Services](#)” in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*.
- 9 Create volumes in the shared pools.
For details, see “[Configuring Cluster Resources for Shared NSS Pools and Volumes](#) in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*”.
- 10 Create sharepoints, provide access rights, and assign password policies for the CIFS virtual server or pool server. Use the same procedure that you used to configure the virtual or pool server CIFS through iManager.
For details, see [Section 8.1, “Using iManager to Manage CIFS,” on page 35](#), but ensure that you select only the virtual or pool server as the OES 2 server.
- 11 Access the sharepoints from a client workstation through the virtual server IP address or virtual server (NetBIOS) name.

For details on creating pools by using NSSMU, see “[Using NSSMU to Create NSS Volumes](#) in the *OES 2 SP1: Novell Cluster Services 1.8.5 for Linux Administration Guide*”.

7.5 What's Next

For information about managing the CIFS services by using iManager or the command line interface, see [Chapter 8, “Managing Novell CIFS,” on page 35](#).

For an explanation of how end users access network files from different workstations by using CIFS, see [Chapter 9, “Working With Client Computers,” on page 49](#).

Managing Novell CIFS

8

An administrator can start or stop CIFS and customize network access for CIFS users, enable or disable SMB signing, and perform other configuration and administration activities.

CIFS maintains a configuration file and context search information that is set up during installation. To access the CIFS share a CIFS search context is required. An eDirectory search context is created by default during the OES 2 Linux installation for all users who require access to the network. These contexts are saved in the context search file. When users specify a username, the CIFS component running on the server searches each context in the list until it finds the correct User object.

CIFS on an Open Enterprise Server (OES) 2 Linux server can be managed and administered either through iManager 2.7 or from the command line.

For details on how to install the CIFS iManager plug-in, see [Section 4.4, “Installing the CIFS iManager Plug-In,” on page 24](#).

For basic information on command line administration, see [Section 8.2, “Using the Command Line to Manage CIFS,” on page 46](#) or for complete details, see [Appendix A, “Command Line Utilities for CIFS,” on page 57](#).

- ♦ [Section 8.1, “Using iManager to Manage CIFS,” on page 35](#)
- ♦ [Section 8.2, “Using the Command Line to Manage CIFS,” on page 46](#)
- ♦ [Section 8.3, “What’s Next,” on page 48](#)

8.1 Using iManager to Manage CIFS

You can manage CIFS services from iManager 2.7. The recommended method to configure, manage, and modify CIFS properties and parameters is using iManager.

- ♦ [Section 8.1.1, “Prerequisites,” on page 35](#)
- ♦ [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#)
- ♦ [Section 8.1.3, “Setting the CIFS Server and Authentication Properties,” on page 37](#)
- ♦ [Section 8.1.4, “Managing CIFS Shares,” on page 41](#)
- ♦ [Section 8.1.5, “Configuring a CIFS User Context,” on page 45](#)
- ♦ [“Stopping CIFS” on page 46](#)

8.1.1 Prerequisites

- ♦ Install the CIFS iManager plug-in. For details, see [Section 4.4, “Installing the CIFS iManager Plug-In,” on page 24](#).
- ♦ Install CIFS on at least one OES 2 SP1 Linux server. For details on installing CIFS, see [Chapter 4, “Installing a CIFS Server on OES 2 SP1 Linux,” on page 17](#).

- Ensure that `ndsd` is running. Use `/etc/init.d/ndsd status` on the server console to check.
- Create an eDirectory user for the CIFS share. For details on how to create a user, see the [Creating and Modifying User Accounts](http://www.novell.com/documentation/edir88/edir88/data/afxkmdi.html) (<http://www.novell.com/documentation/edir88/edir88/data/afxkmdi.html>)

8.1.2 Starting iManager and Accessing a CIFS Server

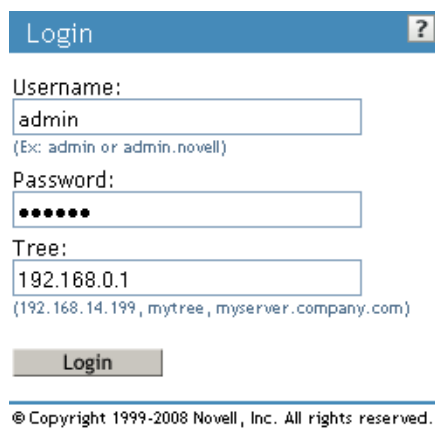
- 1 In a Web browser, specify the following in the address (URL) field:

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

For example:

`http://192.168.0.1/nps/iManager.html`

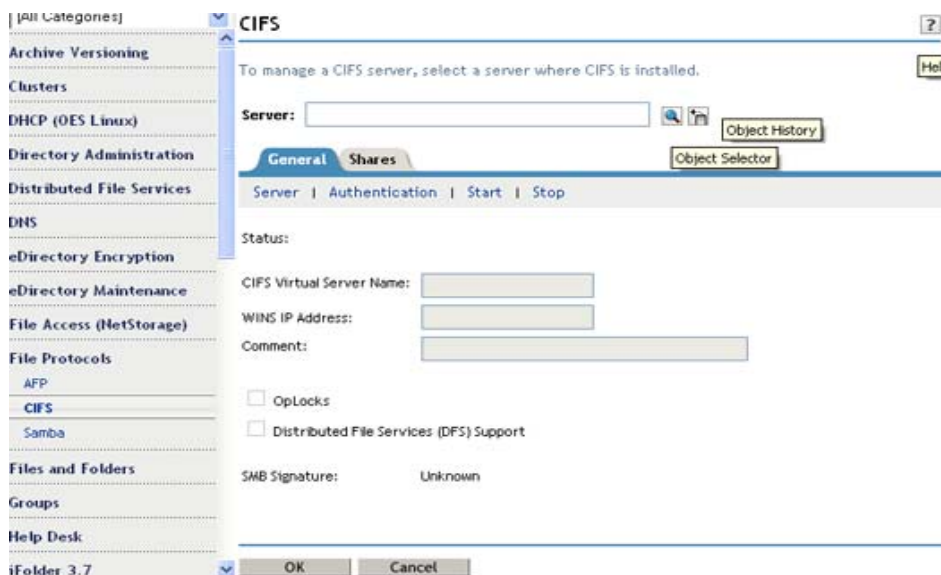
- 2 At the login prompt, specify the server administrator username and password and click *Login*.



The login form has a blue header with the word "Login" and a question mark icon. Below the header are four input fields: "Username:" with the value "admin" and a hint "(Ex: admin or admin.novell)", "Password:" with masked characters "••••••", "Tree:" with the value "192.168.0.1" and a hint "(192.168.14.199, mytree, myserver.company.com)", and a "Login" button at the bottom. A copyright notice "© Copyright 1999-2008 Novell, Inc. All rights reserved." is at the very bottom.

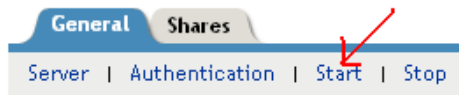
For more information on iManager administration, see the [Novell iManager 2.7.3 Administration Guide](#).

- 3 In the iManager application left frame, click *File Protocols*, then click *CIFS*.
The default CIFS parameters page is displayed. Use this page to configure and manage CIFS.



The screenshot shows the iManager application window. On the left is a tree view with categories like "Archive Versioning", "Clusters", "DHCP (OES Linux)", "Directory Administration", "Distributed File Services", "DNS", "eDirectory Encryption", "eDirectory Maintenance", "File Access (NetStorage)", "File Protocols", "Files and Folders", "Groups", "Help Desk", and "iFolder 3.7". The "File Protocols" category is expanded, showing "AFP", "CIFS", and "Samba". The "CIFS" option is selected. The main pane shows the "CIFS" configuration window. It has a title bar "CIFS" and a "Help" button. Below the title bar is a text box "To manage a CIFS server, select a server where CIFS is installed." and a "Server:" input field. There are tabs for "General" and "Shares", with "General" selected. Below the tabs are buttons for "Object History" and "Object Selector". A "Status:" section contains fields for "CIFS Virtual Server Name:", "WINS IP Address:", and "Comment:". There are checkboxes for "OpLocks" and "Distributed File Services (DFS) Support". At the bottom, it shows "SMB Signature: Unknown" and "OK" and "Cancel" buttons.

- 4 In the *Server* field, specify the OES 2 Linux server name.
or
Browse and select it from the object selector
or
Use the object history button to select it.
- 5 If the CIFS server is not running, click *Start* to start the CIFS server.



The *Status* changes to *Running* and all the CIFS properties are displayed on the screen.

If a Samba server is running, CIFS does not start. To resolve this problem, see [“CIFS is not running with Samba” on page 53](#).

- 6 Continue with other administrative actions as necessary:
 - ♦ [Section 8.1.3, “Setting the CIFS Server and Authentication Properties,” on page 37](#)
 - ♦ [Section 8.1.4, “Managing CIFS Shares,” on page 41](#)
 - ♦ [Section 8.1.5, “Configuring a CIFS User Context,” on page 45](#)

8.1.3 Setting the CIFS Server and Authentication Properties

The server and authentication parameters can be set by using the parameters listed under the *General* and *Share* tabs on the default CIFS server page in the iManager.

For information on starting iManager and accessing the CIFS server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#).

To change these parameters from command line, see [Section 8.2.4, “Modifying the CIFS Configuration,” on page 47](#)

- ♦ [“Setting CIFS General Server Parameters” on page 37](#)
- ♦ [“Enabling and Disabling SMB Signing” on page 39](#)
- ♦ [“Setting CIFS General Authentication Parameters” on page 39](#)

Setting CIFS General Server Parameters

The General page contains the *Server* and *Authentication* properties tabs. By default, the Server Properties page is displayed. View or edit the server parameters on this page.

Figure 8-1 CIFS General Server Parameters

CIFS?

To manage a CIFS server, select a server where CIFS is installed.

Server:

blr-vm1.novell

General

Shares

Context

Server

Authentication

Start

Stop

Status:

Running

CIFS Virtual Server Name:

BLR-VM1_W

WINS IP Address:

0.0.0.0

Comment:

VIRTUAL SERVER NAME

☐ OpLocks

☐ Distributed File Services (DFS) Support

SMB Signature

☐ Disabled

☐ Mandatory

☒ Optional

OK

Cancel

NOTE: You cannot configure these parameters for CIFS on a shared pool server.

Table 8-1 CIFS Server Page Parameters

Parameter	Description
CIFS Virtual Server Name	The name of the server running CIFS services. The length can be a maximum of 15 characters. The default server name is the OES 2 Linux server name but you can use a different name if you want.
WINS IP Address	The address of the WINS server to be used to locate the PDC, if the PDC and the server running CIFS are on different subnets.
Comment	A comment associated with the name of the server running CIFS services. This comment is displayed when viewing details. The maximum length is 47 characters. IMPORTANT: You should use single-byte characters in comments. Double-byte characters are not supported.
OpLocks (Opportunistic Locking)	Improves file access performance. Not enabled by default.

Parameter	Description
Distributed File Services (DFS) Support	This option is not supported for CIFS on Linux.
SMB Signature	By default, this is set to <i>Optional</i> . Select <i>Mandatory</i> or <i>Optional</i> or <i>Disabled</i> . For details, see “Enabling and Disabling SMB Signing” on page 39 .

Enabling and Disabling SMB Signing

SMB signing supports message authentication, which prevents active message attacks. The authentication is provided by placing a digital signature into each SMB. The digital signature is then verified by both the client and the server. It can be set to mandatory or optional mode.

To use SMB signing mode, both the client and the server should be enabled for SMB signing. Use either Optional or Mandatory modes to enable it.

Optional mode: If SMB signing is set to the optional mode (the default mode after enabling it by using console commands), it automatically detects whether or not individual clients have SMB signing enabled. If a client does not have SMB signing enabled, the server does not use SMB signing for client communication. If a client has SMB signing enabled, the server uses SMB signing for client communication.

Mandatory mode: If you set SMB signing to mandatory mode, all clients must have SMB signing enabled or they cannot connect to the server. If SMB signing is set as mandatory on the server, clients cannot establish sessions with the server unless they have SMB signing enabled.

Disable mode: You can disable SMB signing by setting SMB signing to disabled mode.

IMPORTANT: After enabling or disabling SMB signing, or changing the mode to optional or mandatory, clients must reconnect in order for changes to take effect. For example, if SMB signing is enabled on the server, SMB signing is not in effect for individual clients until each of those clients reconnects.

Setting CIFS General Authentication Parameters

On the General page, select *Authentication* to view or edit the CIFS authentication parameters.

Figure 8-2 CIFS Authentication Page Parameters

CIFS?

To manage a CIFS server, select a server where CIFS is installed.

Server:

blr-vm1.novell

General

Shares

Context

Server

Authentication

Start

Stop

Mode

☒ eDirectory (Local)

☐ Third Party Domain

Work Group / Domain Name:

WORKGROUP

Primary Domain Controller

Name:

IP Address:

0.0.0.0

OK

Cancel

NOTE: You cannot configure these parameters for CIFS on a shared pool server.

Table 8-2 CIFS Authentication Page Parameters

Parameters	Description
Mode	<p>Indicates the method of authentication used by CIFS. CIFS uses either eDirectory™ (local) or third-party Domain authentication mechanisms.</p> <ul style="list-style-type: none"> ♦ eDirectory (Local): Clients are members of a workgroup. The server running CIFS services performs the user authentication. The login credentials (username and password) on an OES 2 Linux server must match the login credentials used by the client users. ♦ Third Party Domain: Clients are members of a domain. A Windows domain controller performs user authentication. The username and password on the domain controller must match the username and password used to log in to the Windows workstation. <p>IMPORTANT: If you change the modes from Local to Third Party Domain or from Third Party Domain to Local, restart the CIFS server for the changes to take effect.</p>

Parameters	Description
Work Group / Domain Name	The workgroup or domain to which the server belongs. Domain is a third-party domain.
Primary Domain Controller Name	The name of the PDC server. This is needed if the PDC is on a different subnet. This option should be used only when there is a valid reason for overriding WINS or DNS. This field can be changed only if <i>Third Party Domain</i> is selected.
Primary Domain Controller IP Address	The PDC server's static IP address. This is needed if the PDC is on a different subnet. This option should be used only when there is a valid reason for overriding WINS or DNS. This field can be changed only if <i>Third Party Domain</i> is selected.
IMPORTANT: If this is not a static address, the server running CIFS services cannot contact the PDC when PDC reboots and the address changes.	


8.1.4 Managing CIFS Shares

The *Shares* tab on the default CIFS server page in iManager displays the CIFS share details. Use the Shares page to add a new share path on the server to be specified as a sharepoint and to be accessible via the Network Neighborhood. NSS Volumes are added by default.



For information on starting iManager and accessing the CIFS server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,”](#) on page 36.

To manage CIFS Shares from command line, see [Section 8.2.5, “Working with CIFS Shares,”](#) on page 48.

Figure 8-3 CIFS Shares Page Parameters


CIFS 

To manage a CIFS server, select a server where CIFS is installed.

Server:  

General Shares Context

New... | Edit... | Delete 2 Item(s)

<input type="checkbox"/> Name 	Path	Comment
<input type="checkbox"/> <u>ADMIN</u>	_ADMIN	VOL1
<input type="checkbox"/> <u>VOL1</u>	VOL1	NSS Volume1

OK Cancel

NOTE: If no shares are specified, all mounted volumes are displayed.

IMPORTANT: Double-byte characters are not supported in a Share name, Share path, or Comment.

Administrators can add, edit, and delete CIFS shares.

- ♦ “Adding a New CIFS Share” on page 42
- ♦ “Editing a CIFS Share” on page 43
- ♦ “Deleting a CIFS Share” on page 44
- ♦ “CIFS Share Parameters” on page 44


Adding a New CIFS Share

Before adding a new share, ensure that your CIFS server is started and running. For details on how to start the server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#).

- 1 On the default CIFS server page in iManager click the *Shares* tab, then click *New*.

For information on starting iManager and accessing the CIFS server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#).


New Share



required = *

Share names can have up to 80 characters and contain characters A to Z, 0 to 9, _, !, @, #, \$, %, &, (,). Names cannot begin or end with the "_" (underscore) character or contain "__" (multiple underscores).

Share Name*:

Volume*: 

Path*:
(vol: or vol:\directorypath)

Comment:

OK

Cancel

- 2 Specify the *Share Name*, *Volume*, *Path*, and *Comment* for the new share. For details, see [Table 8-3 on page 44](#).
- 3 Click *OK* to save your changes.

On successful addition of a share, the following message is displayed.

 **Complete: Success**

The share, CIFSShare, was successfully created.

Editing a CIFS Share

Before editing a share, ensure that your CIFS server is started and running.

For details on how to start the server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#).

- 1 On the default CIFS server page in iManager click the *Shares* tab, then select a share from the list and click *Edit*, or click a particular share link to edit the share.

For information on starting iManager and accessing the CIFS server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,” on page 36](#).

Edit Share: VOL1



required = *

Share names can have up to 80 characters and contain characters A to Z, 0 to 9, _, !, @, #, \$, %, &, (,). Names cannot begin or end with the "_" (underscore) character or contain "__" (multiple underscores).

Share Name*:

VOL1

Path*:

VOL1



Comment:

NSS Volume1

- 2 Modify the *Share Name* or *Path* or *Comment* for the share. For details, see [Table 8-3 on page 44](#).
- 3 Click the *Modify* button to modify the *Volume* and *Path* on the pop-up screen. For details, see [Table 8-3 on page 44](#).

4 Click *OK* twice to save your changes.

Deleting a CIFS Share

Before deleting a share, ensure that your CIFS server is started and running. For information on starting iManager and accessing the CIFS server, see [Section 8.1.2, “Starting iManager and Accessing a CIFS Server,”](#) on page 36.

- 1 On the default CIFS server page in iManager click the *Share* tab, then select one or more shares from the list, then click *Delete*.

On successful deletion of the share the following message is displayed.



The selected shares were successfully deleted.



- 2 Either click *OK* to return to the main page or click *Repeat Task* to delete more shares.

CIFS Share Parameters

Use this table information to create and edit CIFS shares.

Table 8-3 *Shares Page Parameters*

Parameter	Description
Name	<p>The name that the CIFS share uses for all the CIFS services and for display on Windows computers. For example, if you specify <code>Company Photos</code> as the share name associated with <code>vol1\graphics</code>, then Windows workstations browsing the network see <code>Company Photos</code> instead of <code>vol1\graphics</code>.</p> <p>A Share name can be up to 80 characters long and can contain any single-byte characters, but should not begin or end with an underscore <code>_</code> or contain multiple underscores <code>_</code>.</p>
Volume	The OES 2 volume name.

Parameter	Description
Path	The CIFS share path. This is the path to the server volume or directory that becomes the root of the sharepoint. This path must end with a backslash (\) and should contain only single-byte characters.
Comment	A description for the sharepoint. The description appears in Network Neighborhood or My Network Places. The maximum length is 47 characters. Use only single-byte characters.

8.1.5 Configuring a CIFS User Context

On the default CIFS server page in iManager click the *Context* tab to list, add, and delete the CIFS user contexts.

To configure a context search from the command line, see [Section 8.2.6, “Configuring the CIFS Context Search File,” on page 48](#).

Figure 8-4 CIFS Context Page

CIFS

To manage a CIFS server, select a server where CIFS is installed.

Server:

General Shares **Context**

New... | Delete 1 Item(s)

<input type="checkbox"/>	Context	<input type="checkbox"/>
<input type="checkbox"/>	o=novell	

OK Cancel

- ♦ [“Adding a New Context” on page 45](#)
- ♦ [“Deleting a Context” on page 46](#)

Adding a New Context

- 1 Click *New* to add a new user context to CIFS.

Figure 8-5 Add New Context



- 2 Browse the Object Selector, select a context to add, then click *OK* to save.

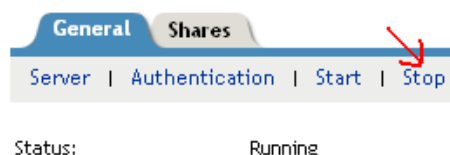
Deleting a Context

Select one or more contexts and click *Delete*.

8.1.6 Stopping CIFS

To stop a running CIFS server:

- 1 If the CIFS server status is *Running* on your screen, click *Stop* to stop the CIFS server.



The *Status* changes to *Stopped* and all the CIFS properties are dimmed on the screen.

8.2 Using the Command Line to Manage CIFS

Command line utilities are available to control the CIFS services. The main activities for CIFS services are described in this section. For information about specific CIFS commands, see [Appendix A, “Command Line Utilities for CIFS,” on page 57](#) or enter `man novcifs` at the command prompt.

- ♦ [Section 8.2.1, “Starting CIFS,” on page 46](#)
- ♦ [Section 8.2.2, “Stopping CIFS,” on page 47](#)
- ♦ [Section 8.2.3, “Restarting CIFS,” on page 47](#)
- ♦ [Section 8.2.4, “Modifying the CIFS Configuration,” on page 47](#)
- ♦ [Section 8.2.5, “Working with CIFS Shares,” on page 48](#)
- ♦ [Section 8.2.6, “Configuring the CIFS Context Search File,” on page 48](#)

8.2.1 Starting CIFS

Use the `rcnovell-cifs start` command to start CIFS.

NOTE: If a Samba server is running, CIFS does not start. To resolve this problem see “[CIFS is not running with Samba](#)” on page 53.

8.2.2 Stopping CIFS

Use the `rcnovell-cifs stop` command to stop CIFS.

8.2.3 Restarting CIFS

Use the `rcnovell-cifs restart` command to restart CIFS.

8.2.4 Modifying the CIFS Configuration

The configuration settings are taken directly from the CIFS iManager settings. The recommended method to modify CIFS configuration is using iManager. For details, see [Section 8.1.3, “Setting the CIFS Server and Authentication Properties,”](#) on page 37.

Use the following steps to edit the CIFS configuration from command line:

- 1 Use any text editor to open the `cifs.conf` file from `/etc/opt/novell/cifs/` directory.

IMPORTANT: It is recommended to not change the default settings in this file, unless there is an absolute need to do so.

- 2 Use the following information to change the configuration:

- ♦ In the AUTHENT section, set the mode to either local or domain. Local is preferred. For example, `-AUTHENT local`.

IMPORTANT: A domain mode is a third-party domain. For this mode, a Windows domain controller performs user authentication. A local mode is an eDirectory mode. For this mode, the server running CIFS services performs the user authentication.

- ♦ In the COMMENT section, specify an appropriate user comment to associate with the sharepoint.
- ♦ In the DOMAIN / WORKGROUP section, set the domain to use.

IMPORTANT: For third-party domains, specify the domain name. For the local option, set the workgroup.

- ♦ Leave the OPLOCKS [yes/no] set to yes.
 - ♦ Leave the UNICODE [yes/no] set to yes.
 - ♦ In the -PDC [PDC_NAME] [PDC_IP_ADDR] section, specify the PDC name and IP address.
 - ♦ In the -WINS [WINS_IP_ADDR] section, specify the WINS IP address. Set this if the PDC and the server running CIFS are on different subnets.
 - ♦ In the -SUBNET [subnet] section, specify the subnet value, if required.
- 3 Restart the CIFS server by using the `rcnovell-cifs restart` command for the configuration changes to take effect.

8.2.5 Working with CIFS Shares

CIFS sharepoints can be added, removed, and displayed by using the command line interface or server console. You can view details about how CIFS shares are listed and configured by using any of the following commands at the server console or prompt:

To manage CIFS shares using iManager, see [Section 8.1.4, “Managing CIFS Shares,” on page 41](#).

- ♦ [“Adding a New Sharepoint” on page 58](#)
- ♦ [“Removing a Sharepoint” on page 58](#)
- ♦ [“Displaying the List of Sharepoints” on page 58](#)
- ♦ [“Displaying the Specific Sharepoint Details” on page 58](#)
- ♦ [“Enabling or Disabling SMB Signing” on page 58](#).

8.2.6 Configuring the CIFS Context Search File

Use the following procedure to add/modify contexts from the command line by editing the context search file:

NOTE: The recommended method is to use iManager to configure the search context. For details, see [Section 8.1.5, “Configuring a CIFS User Context,” on page 45](#).

- 1 Use any text editor to open the `cifsctxs.conf` file from `/etc/opt/novell/cifs` on the server.
- 2 Specify the full contexts to search on separate lines.

For example, if you have users with full eDirectory distinguished names such as Robert.sales.acme, Maria.graphics.marketing.acme, Sophia.graphics.marketing, and Ivan.marketing.acme, specify the following contexts in the `cifsctxs.conf` file:

```
sales.acme
graphics.marketing.acme
marketing.acme
```

- 3 Save the file.

8.3 What's Next

To learn how to use CIFS services as an end user, continue with [Chapter 9, “Working With Client Computers,” on page 49](#).

If CIFS is properly configured, the users on your network can perform the following tasks:

- ♦ [Section 9.1, “Accessing Files from a Client Computer,” on page 49](#)
- ♦ [Section 9.2, “Mapping Drives and Mounting Volumes,” on page 50](#)

9.1 Accessing Files from a Client Computer

From a client computer, you can access files and folders through Windows, Windows Vista, or Linux. Use one of the following methods to access the CIFS server from your clients:

- ♦ [Section 9.1.1, “Accessing Files from a Windows or Windows Vista Client,” on page 49](#)
- ♦ [Section 9.1.2, “Accessing Files from a Linux Desktop,” on page 50](#)

9.1.1 Accessing Files from a Windows or Windows Vista Client

- ♦ [“Prerequisite” on page 49](#)
- ♦ [“Procedure to Access Files” on page 49](#)

Prerequisite

Accessing files from a Windows computer requires NetBIOS over TCP/IP to be enabled on the Windows computer. If you have disabled NetBIOS over TCP/IP, you won't be able to access files and directories through CIFS.

Procedure to Access Files

- 1 Specify your username (no context) and local password to log in to the computer.
- 2 Access the network by clicking the network icon.
In Windows 2000 or XP, click *My Network Places*. In Vista, click *Network*.
- 3 Browse to the workgroup or domain specified during the CIFS software installation.
- 4 Select the server running CIFS.

Although it is the same computer, the CIFS server name is not the same as the Open Enterprise Server (OES) 2 Linux server name. For more information, ask your network administrator.

TIP: You can specify the server name or the server IP address in *Find Computer* to quickly access the server running CIFS software.

- 5 Browse to the desired folder or file.

NOTE: Windows users can also be managed through a Windows Domain Controller.

9.1.2 Accessing Files from a Linux Desktop

You can access files either by using an IP address or a NETBIOS name. If your Linux client is a SUSE® Linux Enterprise Desktop (SLED) 10 desktop, you can also use nautilus to access the files.:

- ♦ “Using an IP Address to Access Files” on page 50
- ♦ “Using a NETBIOS Name to Access Files” on page 50
- ♦ “Using nautilus to Access Files” on page 50

Using an IP Address to Access Files

- 1 Run this command from the command prompt:

```
smbclient://<SERVER_IP_ADDRESS>/<VOLUME_NAME> -U<user_name> -p 139
```

- 2 Enter the password when prompted.

For example,

```
trml-prompt:~ # smbclient //192.168.103.158/V1 -Uari -p 139
session request to 192.168.103.158 failed (Called name not present)
session request to 192 failed (Called name not present)
Password: (enter password here)
OS=[SUSE LINUX 10.1SUSE LINUX 10.1WORKGROUP] Server=[]
smb: \>
```

Using a NETBIOS Name to Access Files

- 1 Run this command from the command prompt:

```
smb://<SERVER_NAME>/<VOLUME_NAME> -U<user_name> -p 139
```

- 2 Enter the password when prompted.

Using nautilus to Access Files

- 1 Run this command from the command prompt:

```
smb://<SERVER_IP_ADDRESS>/<VOLUME_NAME>
```

- 2 Enter the username and password when prompted.

9.2 Mapping Drives and Mounting Volumes

You can map drives for accessing the CIFS share names from a Windows or Windows Vista client and mount the volumes from a linux client.

- ♦ Section 9.2.1, “Mapping Drives from a Windows Client,” on page 51
- ♦ Section 9.2.2, “Mapping Files from a Windows Vista Client,” on page 51
- ♦ Section 9.2.3, “Mounting Volumes from a Linux Client,” on page 51

9.2.1 Mapping Drives from a Windows Client

From a Windows 2000 or XP client computer, you can map drives and create shortcuts that are retained after rebooting.

1 Right click on the *My Computer* icon.

2 Click *Map Network Drive*.

There are several ways to access *Map Network Drive*. For example, you can use the *Tools* menu in Windows Explorer or you can right-click *Network Neighborhood*.

3 Browse to or specify the following path:

`\\server_running_Novell_CIFS\sharepoint | volume | directory\`

4 Select the server running CIFS.

Although it is the same computer, the CIFS server name is not the same as the OES 2 Linux server name. For more information, contact your network administrator.

5 Specify the user name and password to login.

6 Click *OK* to proceed.

9.2.2 Mapping Files from a Windows Vista Client

1 From the Windows explorer, either right click on the *Computer* icon, from the left-pane or go to the *Tools* menu.

2 Select *Map Network Drive*.

3 Specify a *Drive* to map.

4 Specify a path or Browse to the desired folder to map to the Drive. In this case, a CIFS share name, for example `\\server_running_Novell_CIFS\sharepoint | volume | directory\`.

5 Click *Connect using a different user name* link.

6 Specify the user name and password to login.

7 Click *OK* to proceed.

9.2.3 Mounting Volumes from a Linux Client

1 Login as a `root` administrator.

2 From your OES 2 server console, enter one of the three commands:

- ♦ `smbmount`

For example, `smbmount //<ip_address>/<share_name> <mount_point> -
ousername=<username>,password=<password>`

or

- ♦ `mount -t smbfs`

or

- ♦ `mount -t cifs`

For example, `mount -t cifs - ousername=<username>,password=<password> //
<ip_address>/<share_name> <mount_point>`

3 Login to the specific share name in the mounted volume with the required credentials.

Troubleshooting CIFS on OES 2 SP1 Linux

10

- ♦ [Section 10.1, “CIFS Installation and Configuration Issues,” on page 53](#)
- ♦ [Section 10.2, “CIFS Start/Restart Issues,” on page 53](#)
- ♦ [Section 10.3, “CIFS Migration Issues,” on page 54](#)

10.1 CIFS Installation and Configuration Issues

- ♦ [“CIFS is not coming up after installation” on page 53](#)
- ♦ [“CIFS is not running with Samba” on page 53](#)

CIFS is not coming up after installation

Explanation: CIFS status is listed as stopped after a successful installation.

Possible Cause: You might have installed CIFS alone after installing Open Enterprise Server (OES) 2 SP1 Linux.

Action: Restart the OES 2 SP1 server for the installation and configuration settings to take effect.

CIFS is not running with Samba

Explanation: The CIFS server doesn't come up if the Samba server is running.

Possible Cause: CIFS cannot coexist with samba daemons.

Action: Log in as `root`. Use the following commands to stop the Samba daemons and restart the CIFS server:

- ♦ `/etc/init.d/smb stop`
- ♦ `/etc/init.d/nmb stop`
- ♦ `/etc/init.d/rcnovell-cifs start`

10.2 CIFS Start/Restart Issues

- ♦ [“CIFS is not coming up” on page 53](#)

CIFS is not coming up

Explanation: CIFS is not starting or restarting.

Possible Cause: The proxy user password was changed in eDirectory™ by using iManager or command line interface.

Action: Reconfigure the CIFS services through YaST. Use the same proxy user and the changed password or create a new proxy user.

- 1 Launch *YaST* on the OES 2 Linux Server.

- 2 Open the *Novell CIFS Service Configuration* screen.
- 3 Change the password in the *CIFS Proxy User Password* field.

NOTE: Specify a password that adheres to the password policy restrictions.

- 4 Retype the password in the *Verify CIFS Proxy User Password* field.
- 5 Click *Next* and continue with the remaining configuration steps in [Section 4.2, “Installing and Configuring a CIFS Server through YaST,” on page 18.](#)

10.3 CIFS Migration Issues

- ♦ [“After migration, CIFS is not coming up” on page 54](#)
- ♦ [“Different Tree migration is not available in the Migration Tool” on page 54](#)

After migration, CIFS is not coming up

Explanation: The migration is complete but CIFS is not running.

Possible Cause: Configuration settings have not taken effect on the OES 2 SP1 server.

Action: Restart the OES 2 SP1 server for the migration to take effect.

Different Tree migration is not available in the Migration Tool

Explanation: The Different Tree scenario is not supported in the Migration Tool.

Action: Use the following workaround:

- 1 Migrate the File System from the source server to the target server, using the Different Tree scenario.

For detailed information, see [“Migrating Data to a Server in a Different Tree”](#) in the *OES 2 SP1: Migration Tool Administration Guide*.

- 2 Reconfigure CIFS by using YaST on the target server.

For detailed YaST configuration steps, see [Section 4.2, “Installing and Configuring a CIFS Server through YaST,” on page 18.](#)

Security Considerations for CIFS on OES 2 Linux

11

You can use several protection mechanisms to counteract potential security vulnerabilities for CIFS on Open Enterprise Server (OES) 2 Linux:

- ♦ [Section 11.1, “Using Credentials,” on page 55](#)
- ♦ [Section 11.2, “Using CASA,” on page 55](#)
- ♦ [Section 11.3, “Using VPN Connections,” on page 55](#)
- ♦ [Section 11.4, “Using SMB Signing,” on page 55](#)
- ♦ [Section 11.5, “Other Security Considerations,” on page 55](#)

11.1 Using Credentials

When you set the password for the CIFS proxy user during YaST configuration, make sure you choose a password according to password policy restrictions. Choose a password that has combination of alphanumeric characters, capital letters, small letters, and adheres to the password policy restrictions.

11.2 Using CASA

Select CASA as the secret store during YaST configuration of CIFS.

11.3 Using VPN Connections

Use VPN or other secure connections while accessing confidential CIFS shares through the Internet, because CIFS packets are not encrypted.

11.4 Using SMB Signing

For a secure connection, set the SMB signing option to *optional* in iManager. For details on how to set it, see [“Enabling and Disabling SMB Signing” on page 39](#).

11.5 Other Security Considerations

OES 2 Linux provides Universal Password security. For details, see “How to Secure Universal Password” in the *Novell Password Management Administration Guide* (http://www.novell.com/documentation/password_management32/pwm_administration/data/bwjorxp.html).

Command Line Utilities for CIFS

A

This section describes the command line utilities that work on an Open Enterprise Server (OES) 2 Linux server for running the CIFS services.

To access a man page with the command information, enter `man novcifs` at the command prompt.

- ♦ “[novcifs\(8\)](#)” on page 58

novcifs(8)

Name

novcifs - A client interface program that communicates with the `cifsd` daemon for Novell OES 2 Linux. For `novcifs` to be running, the user must log in as `root`.

Syntax

Displaying the List of Sharepoints

```
novcifs [-sl | --share --list]
```

Displaying the Specific Sharepoint Details

```
novcifs [-sln SHARENAME | --share --list --name=SHARENAME]
```

Adding a New Sharepoint

```
novcifs [-sap PATH -n SHARENAME -m CONNECTION-LIMIT -c COMMENT |  
--share --add --path=PATH --name=SHARENAME --conn-limit=CONNECTION-LIMIT --  
comment=COMMENT]
```

Removing a Sharepoint

```
novcifs [-srn SHARENAME | --share --remove --name=SHARENAME]
```

Enabling or Disabling the Debug Log (for Developers)

```
novcifs [-b yes|no | --enable-debug=yes|no]
```

Enabling or Disabling the Info Log

```
novcifs [-f yes|no | --enable-info=yes|no]
```

Enabling or Disabling SMB Signing

```
novcifs [-g yes|no|optional|force | --enable-smbSigning=yes|no|optional|force]
```

Displaying Operational Parameters

```
novcifs [-o | --oper-params]
```

Adding a Virtual Server to the Shared Pool

```
novcifs [-av VIRTUALSERVERFDN -I VIRTUALSERVERIP | --add --  
vserver=VIRTUALSERVERFDN --ip-addr=VIRTUALSERVERIP]
```

Removing a Virtual Server from the Shared Pool

```
novcifs [-rv VIRTUALSERVERFDN -I VIRTUALSERVERIP | --remove --  
vserver=VIRTUALSERVERFDN --ip-addr=VIRTUALSERVERIP]
```

Displaying the Active Client Connection Count on the CIFS Server

```
novcifs [-C | --conn-count]
```

Options

Usage Options

-s | --share

An argument to manipulate a sharepoint.

-l | --list

Displays the list of sharepoints.

-a | --add

Adds a new sharepoint or virtual server.

-p PATHNAME | --path=PATHNAME

Specifies a volume based path to add for the sharepoint. This path is not an absolute path.

-n SHARENAME | --name=SHARENAME

Specifies the CIFS sharename while adding or removing the sharepoint.

-m CONNECTION-LIMIT | --conn-limit=CONNECTION-LIMIT

Specifies the connection limit of the CIFS sharepoint to add.

-c COMMENT | --comment=COMMENT

Specifies a CIFS sharepoint comment to add.

-C | --conn-count

Displays the active connection count.

-r | --remove

Removes the sharepoint or virtual server.

-v VIRTUALSERVERFDN | --vserver=VIRTUALSERVERFDN

Specifies the virtual server FDN to add or remove.

-I VIRTUALSERVERIP | --ip-addr=VIRTUALSERVERIP

Specifies the virtual server IP address to add or remove.

-o | --oper-params

Displays the operational parameters, such as enabled or disabled, for different CIFS configurations.

-f yes | no | --enable-info=yes | no

Enables or disables the info log status.

-g yes | no | optional | force | --enable-smbsigning=yes | no | optional | force

Enables or disables the SMB signature.

yes for enabling.

no for disabling.

optional for optional enabling.

force for mandatory enabling.

This is an add-on functionality.

-b yes | no | --enable-debug=yes | no

Enables or disables the debug log.

Help Options

-h | --help

Displays the help information for CIFS commands, syntax, and exits.

-u | --usage

Displays the usage information for the commands and exits.

Files

/etc/opt/novell/cifs/cifs.conf

CIFS configuration file.

/etc/opt/novell/cifs/cifsctxs.conf

CIFS context file.

/etc/opt/novell/cifs/.cifspwd.enc

Encrypted CIFS proxy user file.

/etc/init.d/novell-cifs

Initialization script for CIFS. You should use this script to start and stop CIFS, rather than running it directly.

/var/opt/novell/log/cifs.log

CIFS server log file.

Examples

`/etc/init.d/novell-cifs start` runs this program in the standard way.

`/usr/sbin/novcifs` runs the client interface program directly.

`VOL1:dir1` or `VOL1:/dir1` is a volume based path.

Authors

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See Also

`migCifs(8)`

Report Bugs

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

