

Novell CIFS Administration Guide

Open Enterprise Server 11 SP1

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Novell.

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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) 11 SP1 server.

- ♦ Chapter 1, “Overview of CIFS,” on page 9
- ♦ Chapter 2, “What’s New or Changed in Novell CIFS,” on page 13
- ♦ Chapter 3, “Planning and Implementing CIFS,” on page 19
- ♦ Chapter 4, “Installing and Setting Up CIFS,” on page 23
- ♦ Chapter 5, “Administering the CIFS Server,” on page 31
- ♦ Chapter 6, “Migrating CIFS to OES 11 SP1,” on page 59
- ♦ Chapter 7, “Running CIFS in a Virtualized Environment,” on page 61
- ♦ Chapter 8, “Configuring CIFS with Novell Cluster Services for an NSS File System,” on page 63
- ♦ Chapter 9, “Working with Client Computers,” on page 69
- ♦ Chapter 10, “Troubleshooting CIFS,” on page 73
- ♦ Chapter 11, “Security Guidelines for CIFS,” on page 79
- ♦ Chapter 12, “Tuning the Parameters and Settings for a File Server Stack,” on page 81
- ♦ Appendix A, “Command Line Utility for CIFS,” on page 87
- ♦ Appendix B, “Comparing Novell CIFS and Novell Samba,” on page 95
- ♦ Appendix C, “Comparing CIFS on NetWare and CIFS on OES 11 SP1,” on page 97
- ♦ Appendix D, “Configuration and Log Files,” on page 99
- ♦ Appendix E, “Documentation Updates,” on page 101

Audience

This guide is intended for OES 11 SP1 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.

Documentation Updates

For the most recent version of the *CIFS Guide*, visit the [OES 11 Documentation Web site \(http://www.novell.com/documentation/oes11\)](http://www.novell.com/documentation/oes11).

Additional Documentation

For documentation on CIFS on NetWare, see the [Native File Access Protocols Guide \(http://www.novell.com/documentation/nw65/file_afp_cifs_nfs_nw/data/h9izvdye.html#h9izvdye\)](http://www.novell.com/documentation/nw65/file_afp_cifs_nfs_nw/data/h9izvdye.html#h9izvdye).

1 Overview of CIFS

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 this but intertwined with other protocols for service announcement, naming, authentication, and authorization.

- ♦ [Section 1.1, “Understanding CIFS,” on page 9](#)
- ♦ [Section 1.2, “CIFS and Universal Password,” on page 10](#)
- ♦ [Section 1.3, “CIFS Features and Capabilities,” on page 10](#)
- ♦ [Section 1.4, “Limitations,” on page 12](#)
- ♦ [Section 1.5, “What's Next,” on page 12](#)

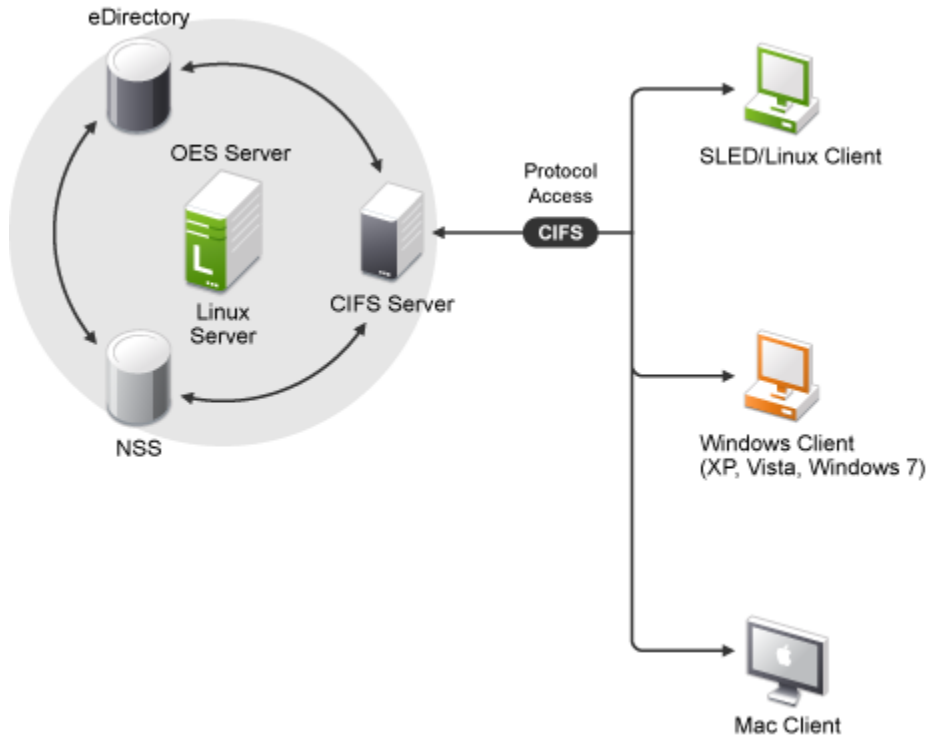
1.1 Understanding CIFS

The Common Internet File System (CIFS) also known as Server Message Block (SMB) is an application-layer network protocol used for providing shared access to files on a Local Area Network (LAN). It relies on NetBIOS over TCP (NBT) for reliable transport. Although file sharing is the primary purpose of CIFS, there are other functions that CIFS is commonly associated with. Some of them include service announcements, name resolution, user authentication, authorization, and browsing for other CIFS servers in the network.

Novell CIFS runs on the Open Enterprise Server (OES) 11 SP1 server, uses Novell eDirectory services for user authentication, and allows Windows, Linux, and Mac 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 workstations.
- ♦ For Linux, through an SMB client from Linux desktops.

Figure 1-1 Novell CIFS Conceptual Overview



Novell CIFS enables Windows, Linux, and Mac client workstations to create, copy, delete, move, save, and open files on an OES 11 SP1 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.

1.2 CIFS and Universal Password

Universal Password helps in management of password-based authentication schemes. Each CIFS user must be Universal Password enabled in order to be allowed to log in to the CIFS server. The Universal Password is not enabled by default.

To learn more about Universal Password, including how to enable it, see [Deploying Universal Password](#) in the *Novell Password Administration Guide*

1.3 CIFS Features and Capabilities

The CIFS implementation supports the following features on OES 11 SP1:

Table 1-1 CIFS Feature List

Feature	Description
Client Support	<p>Support for clients from Windows XP onwards.</p> <p>Support for Linux clients from SLED 10 onwards (CIFS filesystem only)</p> <p>Support for Mac clients from 10.5 onwards</p>
Integration and Support for Novell Technologies	<p>Integration with Novell eDirectory</p> <p>Integration with the Novell Storage Services (NSS) file system</p> <p>Support for DST shadow volume pair access. For more information, refer to Section 5.5, “Dynamic Storage Technology for CIFS Server,” on page 51.</p> <p>Support for DFS junctions. For more information, refer to Section 5.6, “DFS Junction Support in CIFS Linux,” on page 52</p>
Subtree Search	<p>Subtree search or contextless login enables CIFS to search for a user in the entire base context of a tree.</p> <p>For more information, refer to Section 5.7, “Subtree Search,” on page 55</p>
Cross-Protocol File Locking	<p>Cross-Protocol locks help prevent the same file from being concurrently accessed for modifications from different users/clients accessing over different protocols (CIFS, NCP, and AFP).</p> <p>This option ensures that a file is updated correctly before another user, application, or process can access it.</p> <p>For more information, refer to Section 5.3, “Locks Management for CIFS,” on page 47</p>
Migration	<p>Migration capability from NetWare to Linux. For more information, refer to Chapter 6, “Migrating CIFS to OES 11 SP1,” on page 59</p>
Universal Password	<p>Support for Universal Password. For more information, refer to Password Management Security Consideration</p>
Authentication Modes	<p>CIFS supports NMAP authentication method</p> <p>Support for NTLMv1 and NTLMv2 authentication mode. For more information, refer to Table 5-2 on page 38.</p> <p>Support for Third-Party Authentication</p>
File Access	<p>Supports the Novell Trustee Model for file access.</p> <p>For more information, refer to “Novell Trustee Model” in the OES 11 SP2 Beta: NSS File System Administration Guide for Linux</p>
Client-side caching (Offline Files support)	<p>Stores frequently used information on the client's machine. For more information, refer to Section 5.8, “Enabling Offline Files Support,” on page 56</p>

Feature	Description
High Availability	Supported by Novell Cluster Services for high availability. For more information, refer to Chapter 8, “Configuring CIFS with Novell Cluster Services for an NSS File System,” on page 63
Administration and Configuration	Performed through iManager. For more information, refer to Section 5.1, “Using iManager to Manage CIFS,” on page 31
User Management	CIFS does not require Linux User Management (LUM) enabling.

1.4 Limitations

- ♦ SMBv2 is not supported in this OES 11 SP1 release.
- ♦ SMB on TCP/IP through Port 445 is not available.
- ♦ A file or folder loses its explicit trustee assignments if Rename/Move operations are performed on it. An administrator must re-assign trustee rights to the renamed or moved folder or file.

1.5 What's Next

If you are planning to implement CIFS on your enterprise server, continue with [Chapter 3, “Planning and Implementing CIFS,”](#) on page 19 to understand the implementation requirements.

2 What's New or Changed in Novell CIFS

This section describes enhancements and changes in Novell CIFS since the initial release Novell Open Enterprise Server (OES) 11.

- ♦ [Section 2.1, “What’s New \(OES11 SP1 May 2014 Patches\),” on page 13](#)
- ♦ [Section 2.2, “What’s New \(OES 11 SP1 January 2014 Patches\),” on page 13](#)
- ♦ [Section 2.3, “What’s New \(OES 11 SP1 November 2013 Patches\),” on page 14](#)
- ♦ [Section 2.4, “What’s New \(OES 11 SP1 April 2013 Patches\),” on page 14](#)
- ♦ [Section 2.5, “What’s New \(OES 11 April 2013 Patches\),” on page 14](#)
- ♦ [Section 2.6, “What’s New \(OES 11 SP1 Jan 2013 Patches\),” on page 14](#)
- ♦ [Section 2.7, “What’s New \(OES 11 Jan 2013 Patches\),” on page 15](#)
- ♦ [Section 2.8, “What’s New \(OES 11 SP1 November 2012 Patches\),” on page 17](#)
- ♦ [Section 2.9, “What’s New \(OES 11 November 2012 Patches\),” on page 17](#)
- ♦ [Section 2.10, “What’s New \(OES 11 SP1 September 2012 Patches\),” on page 17](#)
- ♦ [Section 2.11, “What’s New \(OES 11 September 2012 Patches\),” on page 17](#)
- ♦ [Section 2.12, “What’s New or Changed in Novell CIFS \(OES 11 SP1\),” on page 17](#)
- ♦ [Section 2.13, “What’s New or Changed in Novell CIFS \(OES 11\),” on page 17](#)

2.1 What’s New (OES11 SP1 May 2014 Patches)

CIFS NMAP Authentication Method for Linux Supports Grace Logins

In spite of the user having grace logins left, the CIFS NMAP Authentication method for Linux does not authenticate a user when the user password has expired. This functionality has been modified to enable a user to login using the old password till the grace login count is exhausted.

Immediately after applying the patch execute the procedure as explained in section “[Patches:](#)” in the *OES 11 SP1: Novell CIFS for Linux Administration Guide*.

2.2 What’s New (OES 11 SP1 January 2014 Patches)

Interoperability with Partnering Vendors

Interoperability with some antivirus and Hierarchical Storage Management (HSM) partner products has been improved in OES 11 SP1.

2.3 What's New (OES 11 SP1 November 2013 Patches)

Pass-through Information Levels Capability

The Novell CIFS server now implements the pass-through information levels capability. This is a configurable option and is turned off by default. It can be enabled or disabled using `novcifs --info-level-passthru=yes|no` command.

2.4 What's New (OES 11 SP1 April 2013 Patches)

Novell CIFS will now be able to display the list of trustees associated with the specified file or folder as per the CIFS cache record, import the trustee information from the `trustee_database.xml` file associated with the specified volume into the CIFS cache, and display the count of new, modified, and removed trustees for the specified volume. For more information, see “[Viewing the Trustees Associated with a File or Folder](#),” “[Synchronizing the Trustee List for a Volume](#),” and “[Viewing Statistics of Trustees for a Volume](#)” in the [OES 11: Novell CIFS for Linux Administration Guide](#).

2.5 What's New (OES 11 April 2013 Patches)

Upgrade to eDirectory 8.8.7

An upgrade to Novell eDirectory 8.8 SP7 is available in the April 2013 Scheduled Maintenance for OES 11. For information about the eDirectory upgrade, see [TID 7011599](#) (<http://www.novell.com/support/kb/doc.php?id=7011599>) in the Novell Knowledgebase.

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

2.6 What's New (OES 11 SP1 Jan 2013 Patches)

Upgrade to Novell iManager 2.7.6

The January 2013 Scheduled Maintenance for OES 11 SP1 includes a channel upgrade from Novell iManager 2.7.5 to Novell iManager 2.7.6.

Novell iManager 2.7.6 provides the following enhancements:

- Microsoft Internet Explorer 10 certification in the desktop user interface view on Windows 8 (excluding Windows 8 RT) and Windows Server 2012.
- Apple Safari 6.0 certification on Mac OSX Mountain Lion (version 10.8).
- iManager Workstation certification on Windows 8 Enterprise Edition (32-bit and 64-bit).
- iManager 2.7.6 support for Tomcat 7.0.32. and Java 1.7.0_04 versions.

iManager documentation links in this guide have been updated to reflect this change.

iManager 2.7.6 documentation is available on the [Web](#). For earlier iManager versions, see [Previous Releases](#).

Novell Client Support for Windows 8 and Server 2012

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

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

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

Novell Client 2 SP3 for Windows documentation is available on the [Web](#). Documentation for earlier versions is available under [Previous Releases](#).

OES Client Services Support for Windows 8 and IE 10

In the January 2013 Scheduled Maintenance for OES 11 SP1, OES client services added support for user access from Windows 8 clients (excluding Windows 8 RT), with the exception of Domain Services for Windows (DSfW). DSfW was not tested with Windows 8 clients and does not support them.

Client applications are supported to run on Windows 8 clients in the desktop user interface view.

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

OES Client Services Support for Windows Server 2012

In the January 2013 Scheduled Maintenance for OES 11 SP1, OES client services were not tested with Windows Server 2012 servers. Client access support for Windows Server 2012 is deferred to a future release for OES 11 SP1. Support is planned for OES 11 SP2.

OES Client Services Support for Mac OS X 10.8 and Safari 6.0

In the January 2013 Scheduled Maintenance for OES 11 SP1, OES client services added support for user access from Mac OS X Mountain Lion (version 10.8) clients, with the exception of Domain Services for Windows (DSfW) and Novell iFolder:

- ♦ DSfW was not tested with Mac OS X 10.8 clients and does not support them. DSfW support for Mac OS X 10.8 clients is planned for a future release.
- ♦ The iFolder client does not run on Mac OS X 10.8 clients and does not support them.

Web-based client access is supported for the Apple Safari 6.0 Web browser on Mac OS X 10.8 clients.

Safari 6.0 is not supported by DSfW and iFolder.

2.7 What's New (OES 11 Jan 2013 Patches)

Upgrade to Novell iManager 2.7.6

The January 2013 Scheduled Maintenance for OES 11 includes a channel upgrade from Novell iManager 2.7.5 to Novell iManager 2.7.6.

Novell iManager 2.7.6 provides the following enhancements:

- ♦ Microsoft Internet Explorer 10 certification in the desktop user interface view on Windows 8 (excluding Windows 8 RT) and Windows Server 2012.
- ♦ Apple Safari 6.0 certification on Mac OSX Mountain Lion (version 10.8).
- ♦ iManager Workstation certification on Windows 8 Enterprise Edition (32-bit and 64-bit).
- ♦ iManager 2.7.6 support for Tomcat 7.0.32. and Java 1.7.0_04 versions.

iManager documentation links in this guide have been updated to reflect this change.

iManager 2.7.6 documentation is available on the [Web](#). For earlier iManager versions, see [Previous Releases](#).

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

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

Novell Client 2 SP3 for Windows documentation is available on the [Web](#). Documentation for earlier versions is available under [Previous Releases](#).

OES Client Services Support for Windows 8 and IE 10

In the January 2013 Scheduled Maintenance for OES 11, OES client services added support for user access from Windows 8 clients (excluding Windows 8 RT), with the exception of Domain Services for Windows (DSfW). DSfW was not tested with Windows 8 clients and does not support them.

Client applications are supported to run on Windows 8 clients in the desktop user interface view.

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

OES Client Services Do Not Support Windows Server 2012

In the January 2013 Scheduled Maintenance for OES 11, OES client services were not tested with Windows Server 2012 servers. Client access support for Windows Server 2012 is deferred to a future release for OES 11. Support is planned for OES 11 SP2.

OES Client Services Support for Mac OS X 10.8 and Safari 6.0

In the January 2013 Scheduled Maintenance for OES 11, OES client services added support for user access from Mac OS X Mountain Lion (version 10.8) clients, with the exception of Domain Services for Windows (DSfW) and Novell iFolder:

DSfW was not tested with Mac OS X 10.8 clients and does not support them. DSfW support for Mac OS X 10.8 clients is planned for a future release.

The iFolder client does not run on Mac OS X 10.8 clients and does not support them.

Web-based client access is supported for the Apple Safari 6.0 Web browser on Mac OS X 10.8 clients.

Safari 6.0 is not supported by DSfW and iFolder.

2.8 What's New (OES 11 SP1 November 2012 Patches)

Novell CIFS will now be able to increase the file id pool size from 65k to 600k. In addition, you can also dump file handle statistics and directory cache statistics. For more information, see [“Enabling CIFS File Id Pool”](#) and [“Dumping File Handle Statistics”](#) in the [OES 11: Novell CIFS for Linux Administration Guide](#).

2.9 What's New (OES 11 November 2012 Patches)

Novell CIFS will now be able to increase the file id pool size from 65k to 600k. In addition, you can also dump file handle statistics and directory cache statistics. For more information, see [Enabling CIFS File Id Pool, Dumping File Handle Statistics, and Dumping Directory Cache Statistics](#) in the [OES 11: Novell CIFS for Linux Administration Guide](#).

2.10 What's New (OES 11 SP1 September 2012 Patches)

Novell CIFS will now be able to cache the invalid user logins for a specific timeout period. Further authentication requests from the same user name will be ignored based on the configured timeout period. For more information, see [“Enabling Invalid User Caching”](#) in the [OES 11: Novell CIFS for Linux Administration Guide](#).

2.11 What's New (OES 11 September 2012 Patches)

CIFS will now be able to cache the invalid user logins for a specific timeout period. Further authentication requests from the same user name will be ignored based on the configured timeout period. For more information, see [Enabling Invalid User Section](#) in the [OES 11: Novell CIFS for Linux Administration Guide](#).

2.12 What's New or Changed in Novell CIFS (OES 11 SP1)

Novell CIFS in OES 11 SP1 has been modified to run on 64-bit SUSE Linux Enterprise Server (SLES) 11 SP2. There are no other changes in the OES 11 SP1 release of Novell CIFS.

2.13 What's New or Changed in Novell CIFS (OES 11)

This section describes enhancements and changes to Novell CIFS for Novell Open Enterprise Server (OES) 11.

- ♦ It is now possible to restart CIFS service in a cluster setup when cluster resources are active.
- ♦ You can now use the monitor command with the `rcnovell-cifs` script to check the CIFS server status. When `rcnovell-cifs monitor` is invoked, it returns the status of CIFS if it is already running otherwise (dead/not running) it starts a new instance and returns the status. For more information, see [Configuring CIFS with Novell Cluster Services for an NSS File System](#) in the [OES 11: Novell CIFS for Linux Administration Guide](#).

3 Planning and Implementing CIFS

Planning and implementing CIFS on an Open Enterprise Server (OES) 11 SP1 server requires you to understand the information and requirements discussed in the following sections:

- ♦ [Section 3.1, “Planning for CIFS,” on page 19](#)
- ♦ [Section 3.2, “Preparing for CIFS Installation,” on page 19](#)
- ♦ [Section 3.3, “CIFS System Prerequisites,” on page 20](#)
- ♦ [Section 3.4, “Co-existence Issues,” on page 21](#)
- ♦ [Section 3.5, “What's Next,” on page 22](#)

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 SP3 Linux to OES 11 SP1 on your enterprise servers. For details, see [“Upgrading to OES 11 SP1”](#) in the *OES 11 SP1: Installation Guide*.
- ♦ Moving from NetWare to an OES 11 SP1 setup. For details see, [Chapter 6, “Migrating CIFS to OES 11 SP1,” on page 59](#).

3.2 Preparing for CIFS Installation

- ♦ [Section 3.2.1, “Prerequisites,” on page 19](#)
- ♦ [Section 3.2.2, “Required Rights and Permissions for a CIFS User/Administrator,” on page 20](#)

3.2.1 Prerequisites

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

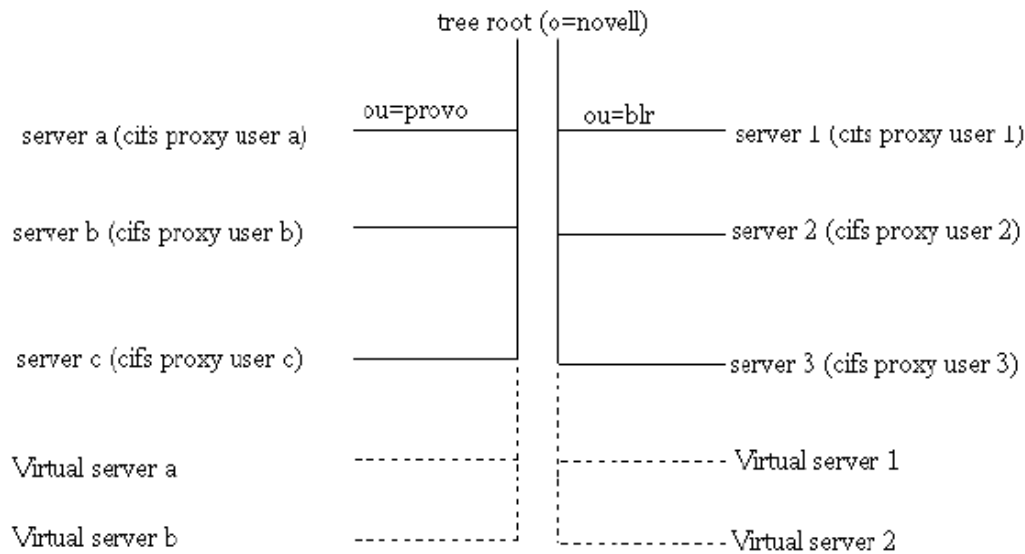
- ☐ CIFS users must be universal password enabled. For more information, see [Deploying Universal Password](#) in the *Novell Password Management Administration Guide*.

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

- ☐ Stop all the running Samba daemons before installing CIFS. Use the following commands:
 - ♦ `/etc/init.d/smb stop`
 - ♦ `/etc/init.d/nmb stop`

3.2.2 Required Rights and Permissions for a CIFS User/Administrator

Example for CIFS Cluster Rights



The *cifs proxy user a*, *cifs proxy user b*, and *cifs proxy user c* have the rights to read the eDirectory CIFS attributes under *ou=provo* (*Virtual server a* and *Virtual server b*). Hence if these virtual servers are hosted in any of these three nodes, the configuration is read by the CIFS service in the corresponding node.

The *cifs proxy user 1*, *cifs proxy user 2*, and *cifs proxy user 3* have rights to read the eDirectory CIFS attributes under *ou=blr* (*Virtual server 1* and *Virtual server 2*). Hence if these virtual servers are hosted in any of these three nodes, the configuration is read by the CIFS service in the corresponding node.

If the virtual server requires to be migrated across the branches, then the *cifs proxy users* have to be given explicit rights on those branches such that the CIFS attribute information can be read.

The attributes for which the *cifs proxy user* requires rights are, *nfapCIFSservername*, *nfapCIFScomment*, *nfapCIFSshares*, and *nfapCIFSattach*. These attributes must have read, write, and compare rights. If the rights are defined on the branch (preferable), then the inherit rights also have to be provided.

In this example, if *Virtual server 2* is to be hosted on node *server c*, then *cifs proxy user c* must be provided access to read the attributes of *Virtual server 2*. The rights for the above mentioned attributes can be provided at *ou=blr* for *cifs proxy user c*. Hence the same rights hold good for hosting *Virtual server 1* too.

3.3 CIFS System Prerequisites

To access CIFS servers running on an OES 11 SP1 server ensure you meet the following basic minimum requirements:

- [Section 3.3.1, “Server Operating System Requirements,” on page 21](#)
- [Section 3.3.2, “Server Hardware Requirements,” on page 21](#)

- ♦ [Section 3.3.3, “Client Operating System Requirements,” on page 21](#)
- ♦ [Section 3.3.4, “CIFS Prerequisite Checks,” on page 21](#)

3.3.1 Server Operating System Requirements

Novell Open Enterprise Server 2 Support Pack 1 or later.

3.3.2 Server Hardware Requirements

Same as the OES 11 SP1 hardware requirements. For details, see “[Meeting All Server Software and Hardware Requirements](#)” in the *OES 11 SP1: Installation Guide*.

3.3.3 Client Operating System Requirements

- ♦ Windows XP SP2 and SP3
- ♦ Windows Vista
- ♦ Windows 7
- ♦ Windows 8
- ♦ Mac Client support from 10.5 onwards
- ♦ SUSE Linux Enterprise Desktop 10 onwards (CIFS file system only)

3.3.4 CIFS Prerequisite Checks

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=LYlbZMAom6k~) (<http://download.novell.com/Download?buildid=LYlbZMAom6k~>).

3.4 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 11 SP1 - Samba).
- ☐ Novell Domain Services for Windows (DSfW).
- ☐ Any other Samba implementation.
- ☐ Xen Virtual Machines on the host.

3.5 What's Next

To proceed with CIFS installation on an OES 11 SP1 server, continue with [Chapter 4, “Installing and Setting Up CIFS,”](#) on page 23.

4 Installing and Setting Up CIFS

This section describes how to install and configure Novell CIFS. CIFS should be selected to be installed during OES 11 SP1 installation. This section also provides the CIFS installation requirements and procedures.

- ♦ [Section 4.1, “Installing CIFS during the OES 11 SP1 Installation,” on page 23](#)
- ♦ [Section 4.2, “Installing CIFS after the OES 11 SP1 Installation,” on page 24](#)
- ♦ [Section 4.3, “Installing NMAS,” on page 28](#)
- ♦ [Section 4.4, “Verifying Installation,” on page 28](#)
- ♦ [Section 4.5, “Installing the CIFS iManager Plug-In,” on page 30](#)
- ♦ [Section 4.6, “What's Next,” on page 30](#)

4.1 Installing CIFS during the OES 11 SP1 Installation

- 1 In the YaST install for OES, on the *Installation Settings* page, click *Software* to go to the *Software Selections* page.

For information about the entire OES 11 SP1 installation process, see the [OES 11 SP1: Installation Guide](#).

- 2 From the *OES Services* option, select *Novell CIFS*. Click *Accept*.

The following additional services are automatically selected:

- ♦ Novell Backup / Storage Management Services (SMS)
- ♦ Novell eDirectory
- ♦ Novell Linux User Management (LUM)
- ♦ Novell NCP Server / Dynamic Storage Technology
- ♦ Novell Remote Manager (NRM)
- ♦ Novell Storage Services (NSS)

- 3 Select the IP address of the LDAP server from the *Directory Server Address* drop-down list. If you do not want to use the default, select a different LDAP server in the list.
- 4 Browse or specify a user (existing or created here) with rights to search the LDAP tree for CIFS objects.

If you selected the *Use Common Proxy User as default* for OES Products check box during eDirectory configuration, the Proxy user name and password fields are auto-populated. If a common proxy is not configured, the CIFS Proxy User Name field is populated with a system-generated proxy user name.

- 5 Specify a password (existing or created here) for the Proxy user.

This field is disabled if you selected the *Use Common Proxy User as default* for OES Products check box during eDirectory configuration. If a common proxy is not configured, the Proxy Password field is auto-populated with a system-generated proxy password.

- 6 Retype the same password in the *Verify Proxy User Password* field.
- 7 Click *Add*, then browse to search for an existing eDirectory context or specify an existing eDirectory context to search for the CIFS user.

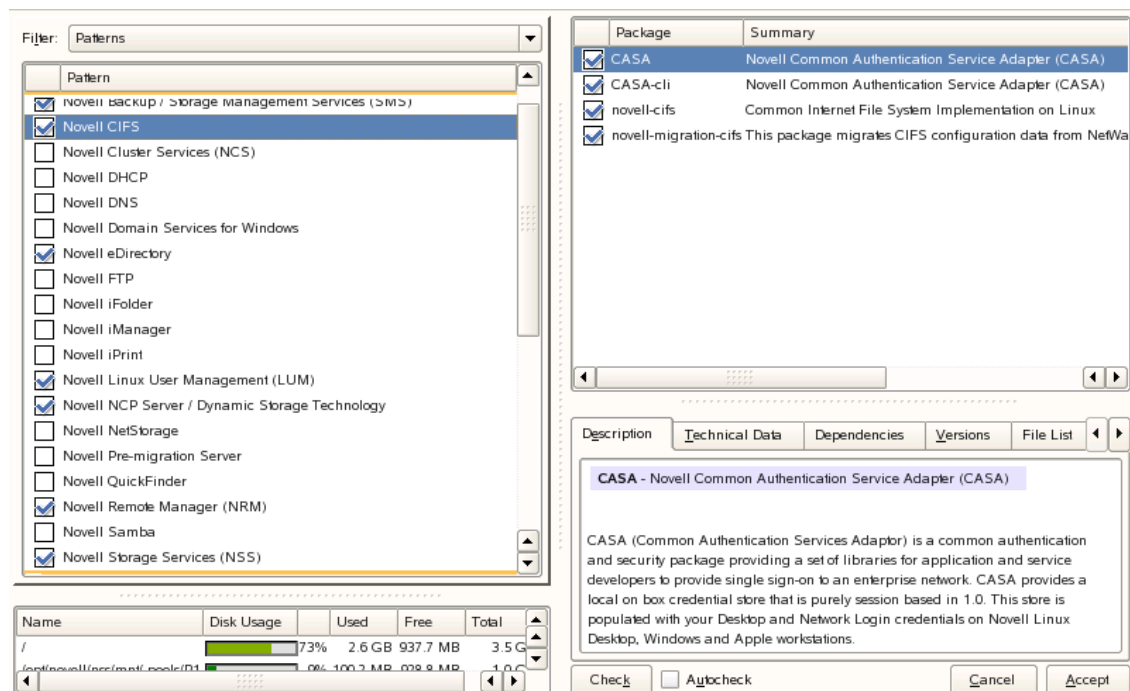
The CIFS server searches through each context in the list until it finds the correct user object. For example, if users exist in ou=users, provide the context. If there are any users in ou=user1,ou=users, it is not resolved unless you have a subtree search enabled. The ou=user1,ou=users context must be added explicitly.

- 8 Click *Next*.
- 9 Click *Apply* to save the changes.

4.2 Installing CIFS after the OES 11 SP1 Installation

Before you begin, ensure that you have the required eDirectory admin credentials to proceed, if you are installing CIFS after installing OES 11 SP1.

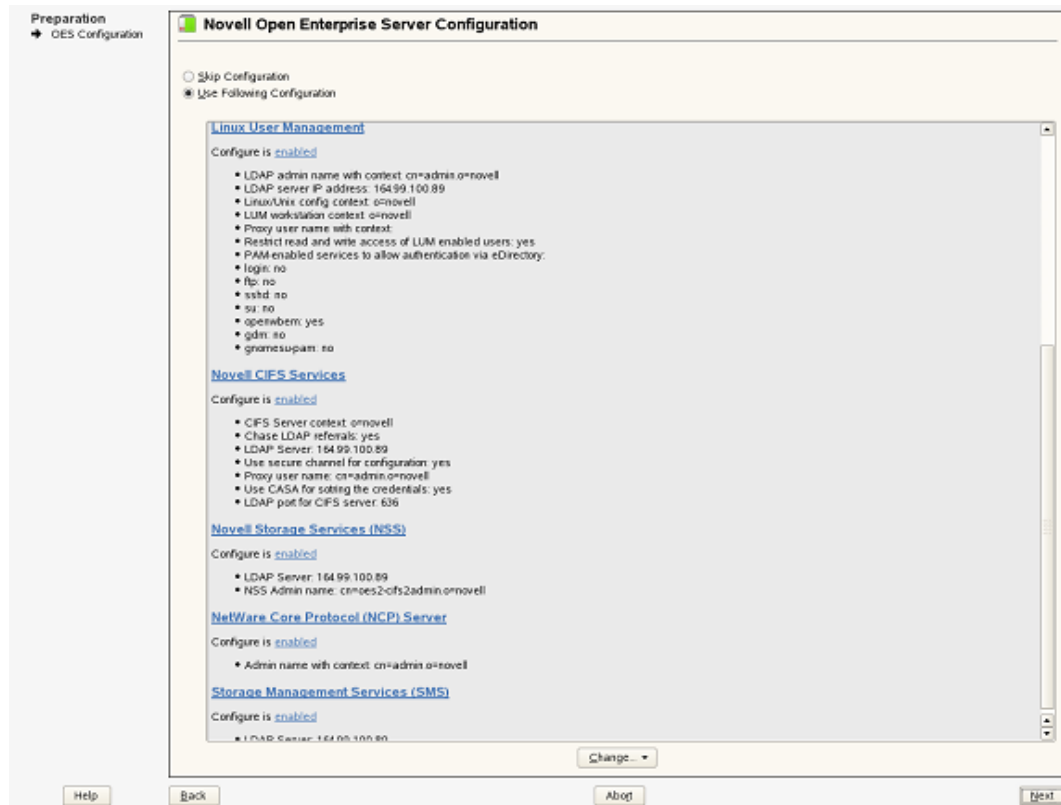
- 1 Launch YaST, using one of the following methods:
From your Desktop: Click *Computer > More Applications > System > YaST*.
 or
From your Terminal: Run the `yast2` command on the server console.
- 2 Click *Group > Open Enterprise Server > OES Install and Configuration*.
- 3 Select *Novell CIFS* from the software patterns listed.



IMPORTANT: When "Novell CIFS" is selected, the CIFS dependency packages are also selected. These dependencies include: Novell eDirectory, Novell Linux User Management (LUM), NetWare Core Protocol Server (NCP), Novell Remote Manager (NRM), and Novell Storage Services (NSS). These packages are in addition to any other OES 11 SP1 service or dependency packages selected by default

4 Click *Accept*.

The subsequent pages allow the administrator to configure CIFS on OES 11 SP1.



5 To change the default configuration settings for CIFS, click on the Novell CIFS service or click *Next* to continue with the default configuration.

NOTE: If you are installing CIFS after installing OES 11 SP1, you are prompted to enter the eDirectory admin password. Enter the password and click *OK* to proceed.

Novell CIFS Service Configuration

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

eDirectory server address or host name
The IP address shown is the default LDAP server for this service. If you do not want to use the default, select a different LDAP server in the list.

If you are installing into an existing tree, ensure that the server you select has a master replica or read/write replica of eDirectory. If you need to add another LDAP server to the list, add it using the LDAP Configuration for Open Enterprise Services dialog.

LDAP Port for CIFS Server
Port for the LDAP operations to use.

Local NCP Server Context
Indicates the context for the local NCP Server object (CIFS Server is a part of this NCP Server object).
e.g. o=novell

Use existing user as CIFS Proxy User
During eDirectory configuration, if you have selected the 'Use Common Proxy User as default for OES Products' check box, then the CIFS proxy user and password fields are populated with the common proxy user name and password. The password field is disabled.

Create a new CIFS Proxy User

eDirectory server address or host name
198.162.1.1

LDAP Port for CIFS Server
636

Local NCP Server context
o=novell

CIFS Proxy User
☒ Use existing user as CIFS Proxy User
☐ Create a new CIFS Proxy User
CIFS Proxy User Name (e.g. cn=cifsProxy,o=novell)
cn=OESCommonProxy_cs-dtb-12,o=novell
CIFS Proxy User Password
Verify CIFS Proxy User Password

Credential Storage Location:
☒ CASA
☐ Local File

Back Abort Next

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.
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. NOTE: If the OES 11 SP1 server is attached to an existing tree, the administrator can change this to another LDAP port.
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. During eDirectory configuration, if you have selected the <i>Use Common Proxy User as default for OES Products</i> check box, then the proxy user and password fields are populated with common proxy user name and password. You cannot change this password in the CIFS configuration screen.
CIFS Proxy User Password	The password specified here is set in CASA or the local file.
Verify CIFS Proxy User Password	Re-enter the password for verification. It should be identical to the CIFS proxy user password.
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.

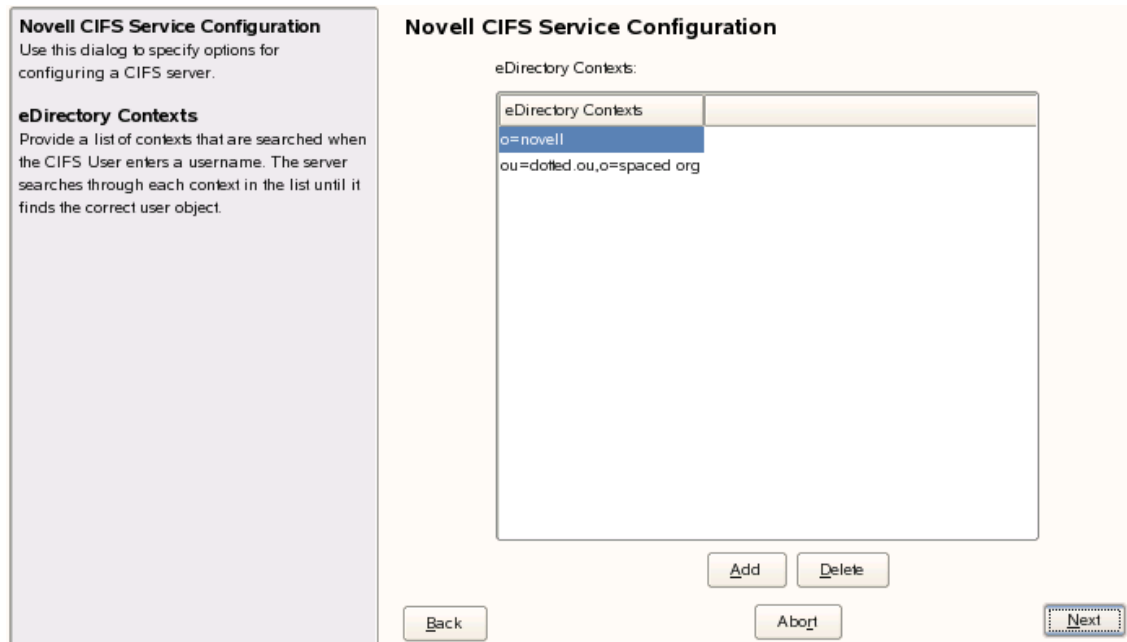
- 7 Select *eDirectory Contexts* having CIFS users. CIFS server searches these contexts for CIFS users during authentication.

If you want to add a CIFS user context, click *Add*. The format for specifying the context is as follows:

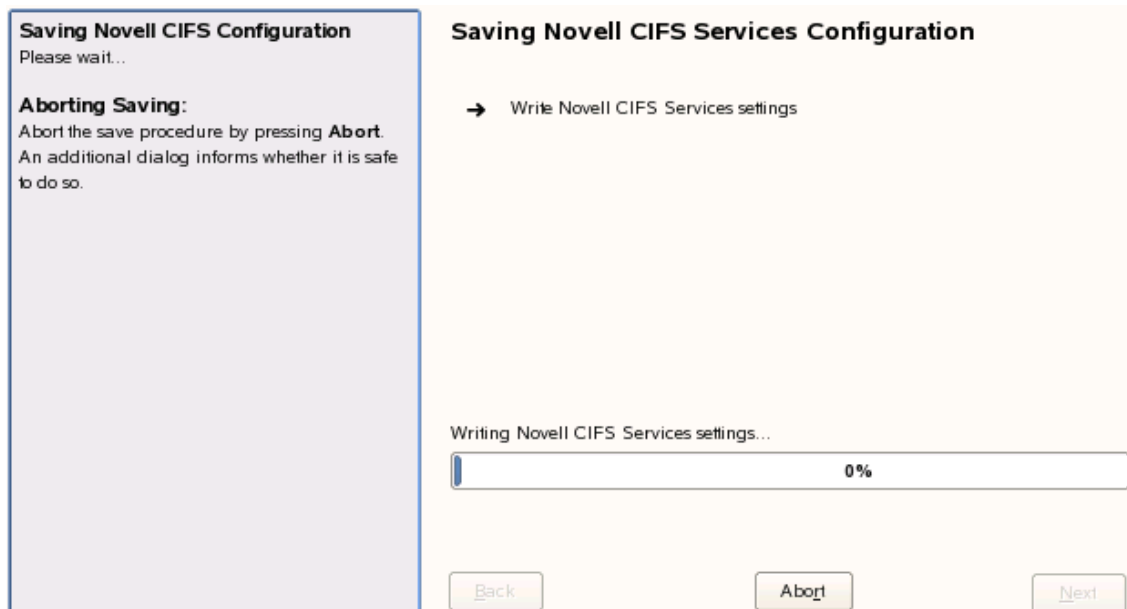
For example: `ou=eng,o=novell`

If you want to delete a CIFS user context, select a context from the available list and click *Delete*.

The CIFS user contexts are stored in `/etc/opt/novell/cifs/cifstxs.conf`.



- 8 The CIFS configuration settings you specified are saved successfully on your OES 11 SP1 server.



4.3 Installing NMAS

Use one of the following methods to install NMAS:

- ♦ **Fresh/Media Install:** LSM is installed with CIFS by default. NMAS can be installed only once for the entire tree.
- ♦ **Patches:** Patches for CIFS NMAS methods are packed with `novell-cifs-nmas-methods.rpm`. After the rpm is installed, run the following command to update the method version:

```
nmasinst -addmethod <adminDN> <treeName> <configFile> [-h hostname[:port]] [-w  
pwd] [-checkversion]
```

```
nmasinst -addmethod cn=admin.o=novell CIFS-TREE /opt/novell/cifs/share/  
nmasmthd/ntlm/config.txt -checkversion
```

When prompted, type the admin password.

For more information on `nmasinst`, see [Using the nmasinst Utility to Install a Login Method](#) in the [Novell Modular Authentication Services 3.3.4 Administration Guide](#).

After installation or upgrade of NMAS method, ensure that NMAS method is synchronized in eDirectory as mentioned in section “[Synchronizing NMAS Login Methods Is Required to Avoid Login Failures](#)” in the [OES 11 SP1: Planning and Implementation Guide](#).

NOTE: While installing a newer version of CIFS, it might try to pull in few NMAS methods that might already be existing on your server. In this case the following Add Method: 694 - ERROR: - 16024 error occurs. It occurs only when the patches are updated from the command line interface. This error can be ignored as it does not cause disruption to any service. The NMAS methods present in the server are retained and are not overwritten.

4.4 Verifying Installation

Perform the following steps if you want to verify a successful installation. For troubleshooting your installation, see [Section 10.2, “CIFS Installation and Configuration Issues,”](#) on page 73.

- ♦ [Section 4.4.1, “Verifying Files and Folders,”](#) on page 28
- ♦ [Section 4.4.2, “Verifying the File Configuration Information,”](#) on page 29
- ♦ [Section 4.4.3, “Verifying LSM Installation,”](#) on page 30

4.4.1 Verifying Files and Folders

Run the following commands on the OES 11 SP1 server console:

- 1 Run the `ls /opt/novell/cifs/` command and verify that the `bin`, `schema`, and `share` folders are present.
- 2 Run the following commands and verify the presence of the following files:

Commands	Files
<code>ls /opt/novell/cifs/bin</code>	<ul style="list-style-type: none"> ♦ <code>cifs-config.sh</code> ♦ <code>encrypt_password</code> ♦ <code>novcifs</code> ♦ <code>retrive_proxy_cred</code> ♦ <code>getpwpolicies.sh</code> ♦ <code>verify-user.sh</code> ♦ <code>cifs_proxy_rights_assign.sh</code> ♦ <code>cifs_retrieve_proxy_cred.sh</code> ♦ <code>cifs_update_proxy_cred.sh</code> ♦ <code>cifs-lcm.sh</code> ♦ <code>cifs_create_proxy_user.sh</code>
<code>ls /opt/novell/migration/sbin</code>	<ul style="list-style-type: none"> ♦ <code>migcifs.sh</code> ♦ <code>migcifs.pl</code> ♦ <code>migCifsS</code> ♦ <code>migCifsC</code> ♦ <code>readCasaC</code>

- 3 Run `ls /usr/sbin` command and verify that the `cifsd` file is present.
- 4 Run the `ls /opt/novell/cifs/schema` command and verify that the following files are present:
 - ♦ `nfap.ldif`
 - ♦ `nfap.sch`
 - ♦ `password-policy.ldif`
- 5 If you selected CASA storage for storing the CIFS proxy user credentials, run the `CASActli -l` command to verify if there is an entry for novell-cifs.
or
If you selected a local file for credential storage, verify the existence of the `.cifspwd.enc` file by running `ls -a /etc/opt/novell/cifs`.
- 6 Check for `libcifslcm.so` library under `/usr/lib64`.

4.4.2 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/cifsctxs.conf` and verify whether the context information is the same as you specified during installation.

4.4.3 Verifying LSM Installation

LSM installation can be verified either through iManager or Local File System.

Verifying through iManager

In iManager, click NMAS. Under NMAS Login Methods and NMAS Login Sequences, verify that the `cifslinlsm` method is present.

Verifying through Local File System

- ♦ Verify that `CIFSLINLSM_X64` is present at `/var/opt/novell/eDirectory/data/nmas-methods` on a 64-bit system.

4.5 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 more information, see the [Novell iManager 2.7.5 Administration Guide](#).
- 2 Click *Configure* and go to *Plug-In Installation > Available Novell Plug-In Modules*.
For more information, see the [Novell iManager 2.7.5 Administration Guide](#).
- 3 Select the *CIFS Management* plug in from the list and click *Install*.
- 4 Exit iManager.
- 5 From OES 11 SP1 server console, run the following commands to complete the plug-in installation:

```
rcnovell-tomcat6 restart
```

4.6 What's Next

When the installation is complete, you can get started with CIFS administration activities. For details, see [Chapter 5, “Administering the CIFS Server,” on page 31](#).

5 Administering the CIFS Server

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. An eDirectory search context is created by default during the OES 11 SP1 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) 11 SP1 server can be managed and administered either through iManager 2.7.5 or from the command line.

For details on how to install the CIFS iManager plug-in, see [Section 4.5, “Installing the CIFS iManager Plug-In,”](#) on page 30.

For basic information on command line administration, see [Section 5.2, “Using the Command Line to Manage CIFS,”](#) on page 44 or for complete details, see [Appendix A, “Command Line Utility for CIFS,”](#) on page 87.

- [Section 5.1, “Using iManager to Manage CIFS,”](#) on page 31
- [Section 5.2, “Using the Command Line to Manage CIFS,”](#) on page 44
- [Section 5.3, “Locks Management for CIFS,”](#) on page 47
- [Section 5.4, “Third-Party Domain Authentication,”](#) on page 48
- [Section 5.5, “Dynamic Storage Technology for CIFS Server,”](#) on page 51
- [Section 5.6, “DFS Junction Support in CIFS Linux,”](#) on page 52
- [Section 5.7, “Subtree Search,”](#) on page 55
- [Section 5.8, “Enabling Offline Files Support,”](#) on page 56
- [Section 5.9, “Directory Cache Management for CIFS Server,”](#) on page 56
- [Section 5.10, “What’s Next,”](#) on page 57

5.1 Using iManager to Manage CIFS

You can manage CIFS services from iManager 2.7.5 and further versions. The recommended method to configure, manage, and modify CIFS properties and parameters is by using iManager.

NOTE: Admin equivalent/container admin users should be LUM-enabled to manage the CIFS server through CIFS iManager plugin.

- [Section 5.1.1, “Prerequisites,”](#) on page 32
- [Section 5.1.2, “Selecting a Server to Manage,”](#) on page 32
- [Section 5.1.3, “Setting the CIFS Server and Authentication Properties,”](#) on page 34

- ♦ [Section 5.1.4, “Managing CIFS Shares,” on page 39](#)
- ♦ [Section 5.1.5, “Configuring a CIFS User Context,” on page 43](#)
- ♦ [Section 5.1.6, “Stopping CIFS,” on page 44](#)

5.1.1 Prerequisites

- ♦ Install the CIFS iManager plug-in. For details, see [Section 4.5, “Installing the CIFS iManager Plug-In,” on page 30](#).
- ♦ Install CIFS on at least one OES 11 SP1 server. For details on installing CIFS, see [Chapter 4, “Installing and Setting Up CIFS,” on page 23](#).
- ♦ Ensure that `ndsd` is running. Use `/etc/init.d/ndsd status` on the server console to check.

5.1.2 Selecting a Server to Manage

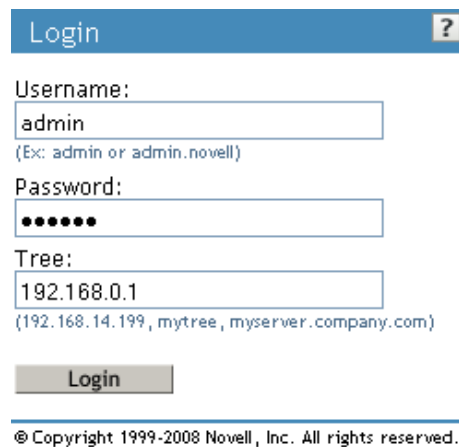
- 1 In a Web browser, specify the following in the address (URL) field:

`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, password and tree name or IP address of the tree, then click *Login*.



Username:
admin
(Ex: admin or admin.novell)

Password:
••••••

Tree:
192.168.0.1
(192.168.14.199, mytree, myserver.company.com)

Login



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For more information on iManager administration, see the [Novell iManager 2.7.5 Administration Guide](#).

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

CIFS

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

Server:  

General Shares

[Server](#) | [Authentication](#) | [Start](#) | [Stop](#)

Status:

CIFS Virtual Server Name:

WINS IP Address:

Comment:

☐ OpLocks

☐ Distributed File Services (DFS) Support

SMB Signature: Unknown

OK Cancel

- 4 In the *Server* field, specify the OES 11 SP1 server name.
or
Browse and select it from the object selector
or
Use the object history button to select it.
- 5 Verify the status of the server. If the CIFS server is stopped, 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 74](#).

6 Continue with other administrative actions as necessary:

- ♦ [Section 5.1.3, “Setting the CIFS Server and Authentication Properties,” on page 34](#)
- ♦ [Section 5.1.4, “Managing CIFS Shares,” on page 39](#)
- ♦ [Section 5.1.5, “Configuring a CIFS User Context,” on page 43](#)

5.1.3 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 5.1.2, “Selecting a Server to Manage,” on page 32](#).

To change these parameters from command line, see [Section 5.2.5, “Modifying the CIFS Configuration,” on page 45](#)

- ♦ [“Setting CIFS General Server Parameters” on page 34](#)
- ♦ [“Enabling and Disabling SMB Signing” on page 36](#)
- ♦ [“Setting CIFS General Authentication Parameters” on page 37](#)

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 5-1 CIFS General Server Parameters

General

Shares

Context

Server | Authentication | Start | Stop

Status:

Running

CIFS Virtual Server Name:

OESBOX_W

WINS IP Address:

0.0.0.0

Comment:

☒ OpLocks

☐ Distributed File Services (DFS) Support

SMB Signature

☒ Disabled

☐ Mandatory

☐ Optional

NOTE: For a virtual server, only CIFS Virtual Server Name and Comment are not inherited from the physical server. Hence only these parameters can be edited for CIFS on a shared pool server.

Table 5-1 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 11 SP1 server name.
WINS IP Address	The address of the WINS server.
Comment	<p>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.</p> <p>IMPORTANT: You should use single-byte characters in comments. Double-byte characters are not supported.</p>
OpLocks (Opportunistic Locking)	Improves file access performance. The option is enabled by default.
Distributed File Services (DFS) Support	This option allows Distributed File Services support in CIFS. The option is disabled by default.
SMB Signature	By default, this is set to <i>Disabled</i> . Select <i>Mandatory</i> or <i>Optional</i> or <i>Disabled</i> . For details, see “Enabling and Disabling SMB Signing” on page 36 .

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 packet. The digital signature is then verified by both the client and the server. It can be set to mandatory or optional mode.

SMB signing should be turned off when domain authentication is configured.

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. When a third party domain authentication is selected, SMB signing is disabled.

CIFS third party domain authentication works in parity with NetWare.

Figure 5-2 CIFS Authentication Page Parameters

CIFS

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

Server:

GeneralShareContext

ServerAuthenticationStartStop

Mode

☒ eDirectory (Local)

☐ Third Party Domain

Work Group / Domain Name:

LMCompatibilityLevel:

Accept LM and NTLM responsesAccept LM and NTLM responsesAccept NTLM response/refuse LM responseAccept NTLMv2 response/refuse LM and NTLM response

Primary Domain Controller

Name:

IP Address:

OK

Cancel

Table 5-2 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 11SP1 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>
Work Group / Domain Name	<p>The workgroup or domain to which the server belongs. Domain is a third-party domain.</p>
LMCompatibilityLevel	<p>NTLMv2 is an authentication protocol that is cryptographically stronger than NTLMv1. NTLMv2 is not negotiated between the client and the server. The protocol does not determine the challenge or response algorithms, so it must be configured on both the client and the server by setting the LMCompatibilityLevel (the Windows registry key is at HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\L SA). Novell CIFS currently supports 0, 4, and 5 compatibility levels for NTLMv2.</p> <p>Select the appropriate LMCompatibilityLevel from the drop-down list.</p> <ul style="list-style-type: none"> ♦ Accept LM and NTLM responses (Default setting) - Level 0: The server or domain controller compares the client's responses against LM, NTLM, LMv2, and NTLMv2 responses. Any valid response is accepted. ♦ Accept NTLM response/refuse LM response (NTLM authentication) - Level 4: The server or domain controller accepts a valid LM, NTLM, LMv2, or NTLMv2 response. ♦ Accept NTLMv2 response /refuse LM and NTLM response (NTLMv2 required) - Level 5: The server or domain controller compares the client's responses, using only LMv2 and NTLMv2. <p>NOTE: When the Accept NTLMv2 responses only option is selected and you are attempting to map a share from a Windows 7 or Windows 8 workstation, make sure you specify the domain name along with the user name for the mapping to be successful.</p>

Parameters	Description
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 the PDC reboots and the address changes.

5.1.4 Managing CIFS Shares

The *Share* tab on the default CIFS server page in iManager displays the CIFS share details. Use the Shares page to add a new share 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 5.1.2, "Selecting a Server to Manage," on page 32](#).


To manage CIFS Shares from command line, see [Section 5.2.7, "Working with CIFS Shares," on page 46](#).

Figure 5-3 CIFS Shares Page Parameters

CIFS

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

Server:  

General Share Context			
Add... Edit... Remove			
<input type="checkbox"/> Name	 Path	Comment	
<input type="checkbox"/> CVOL1	CVOL1	NSS Volume	
<input type="checkbox"/> CVOL2	CVOL2	NSS Volume	

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 40](#)
- ♦ [“Editing a CIFS Share” on page 41](#)
- ♦ [“Removing a CIFS Share” on page 42](#)
- ♦ [“CIFS Share Parameters” on page 42](#)

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 5.1.2, “Selecting a Server to Manage,” on page 32](#).

NOTE: There is a limitation on the number of shares a CIFS server can host. For most configurations this limit is between 300 to 500 shares.

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

For information on starting iManager and accessing the CIFS server, see [Section 5.1.2, “Selecting a Server to Manage,” on page 32](#).

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 5-3 on page 42](#).
- 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 5.1.2, “Selecting a Server to Manage,” on page 32](#).

If you edit the default share name, a new share is created. However, the default share is still present with the same share name.

NOTE: All shares on a volume are removed on pool unmount.

- 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 5.1.2, “Selecting a Server to Manage,” on page 32](#).

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 5-3 on page 42](#).
- 3 Click the *Modify* button to modify the *Volume* and *Path* on the pop-up screen. For details, see [Table 5-3 on page 42](#).

- 4 Click *OK* twice to save your changes.

Removing 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 5.1.2, “Selecting a Server to Manage,” on page 32](#).

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

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

 **Complete: Success**

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 5-3 *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 <i>Company Photos</i> as the share name associated with <i>vol1\graphics</i>, then Windows workstations browsing the network see <i>Company Photos</i> instead of <i>vol1\graphics</i>.</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 <i>_</i> or contain multiple underscores <i>_</i>.</p>
Volume	The OES 11 SP1 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 may contain single-byte and multi-byte characters. NOTE: Do not end the path with a backslash (\).
Comment	A description for the sharepoint. The description appears in Network Neighborhood or My Network Places. The maximum length is 47 characters. Comment may contain single-byte and multi-byte characters.

5.1.5 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 5.2.8, “Configuring the CIFS Context Search File,” on page 47](#).

The recommended method is to use iManager to configure the search context.

Figure 5-4 CIFS Context Page

- ♦ [“Adding a New Context” on page 43](#)
- ♦ [“Removing a Context” on page 44](#)

Adding a New Context

Before adding a new context, ensure that your CIFS server is started and running. For details on how to start the server, see [Section 5.1.2, “Selecting a Server to Manage,” on page 32](#).

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

Figure 5-5 Add New Context



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

Removing a Context

Before removing a context, ensure that your CIFS server is started and running. Select one or more contexts and click *Remove*.

5.1.6 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.

5.2 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 Utility for CIFS,” on page 87](#) or enter `man novcifs` at the command prompt.

- [Section 5.2.1, “Starting CIFS,” on page 45](#)
- [Section 5.2.2, “Stopping CIFS,” on page 45](#)
- [Section 5.2.3, “Restarting CIFS,” on page 45](#)
- [Section 5.2.4, “Monitoring CIFS,” on page 45](#)
- [Section 5.2.5, “Modifying the CIFS Configuration,” on page 45](#)
- [Section 5.2.6, “Anonymous Login for CIFS,” on page 46](#)
- [Section 5.2.7, “Working with CIFS Shares,” on page 46](#)
- [Section 5.2.8, “Configuring the CIFS Context Search File,” on page 47](#)

5.2.1 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 74](#).

5.2.2 Stopping CIFS

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

5.2.3 Restarting CIFS

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

5.2.4 Monitoring CIFS

Use the `rcnovell-cifs monitor` command to monitor the status of the CIFS server.

If the CIFS server is not running, the monitor script starts the CIFS server and returns the status.

5.2.5 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 5.1, “Using iManager to Manage CIFS,” on page 31](#).

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.

- 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 server.
- ♦ 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.

5.2.6 Anonymous Login for CIFS

Anonymous login for CIFS can be used to map to the CIFS share without a username and password.

If a user attempts to login to a CIFS server with a username that does not exist in the eDirectory, he or she will be logged in as a guest user. The guest user will be granted rights applicable for a Public Trustee.

The anonymous configuration is set at the server level so the anonymous login settings affect all CIFS shares on the server.

- ♦ [“Setting Anonymous Login” on page 46](#)
- ♦ [“Anonymous Login in a Cluster” on page 46](#)

Setting Anonymous Login

To set anonymous login, use the following command:

```
novcifs -e [yes/no]
```

The CIFS connections logged in as an anonymous user have privileges on the NSS volumes assigned to the Public trustee. The Public trustee rights can be set on any folder in an NSS volume by using the Novell Client. For more information, see the [Novell Client for Linux documentation](#)

If you don't have the Novell Client installed, you can use iManager to add Public trustee rights. For more information, see [“Viewing, Adding, or Removing File System Trustees”](#) in the [OES 11 SP1: File Systems Management Guide](#).

Anonymous Login in a Cluster

In a cluster setup, anonymous login must be configured on every node and must be set to the same configuration level for consistent behavior across all shares.

This needs to be done for all the CIFS server parameters except for server name, server comment, and shares.

IMPORTANT: When you provide supervisor rights to public objects, it allows access to all secured folders. For security considerations, do not provide supervisor rights to the public objects.

5.2.7 Working with CIFS Shares

CIFS sharepoints can be added, removed, and displayed by using the command line interface or server console. CIFS shares cannot be added to virtual server object using command line (`novcifs`). If the shares are added on cluster resource using command line, then all the shares are lost if the resource leaves that node.

NOTE: Whenever a CIFS service is restarted on a node (node A) that hosts a cluster resource, the resource must be moved offline. It must then be available online or migrated to another node (node B), then brought back to the original node (node A) such that rebinding occurs.

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 5.1.4, “Managing CIFS Shares,” on page 39](#).

To manage CIFS shares using console, see the following sections:

- ♦ [“Adding a New Share Point on a Non-Clustered Volume \(Login to the node as root\)” on page 89](#)
- ♦ [“Removing a Share Point on a Non-Clustered Volume \(Login to the node as root\)” on page 89](#)
- ♦ [“Displaying the List of Share Points” on page 89](#)
- ♦ [“Displaying Details of a Share Point” on page 89](#)
- ♦ [“Enabling or Disabling SMB Signing” on page 91](#).

5.2.8 Configuring the CIFS Context Search File

Do not modify the CIFS Context Search file directly in a text editor. You should use Novell iManager to configure the search context. For information, see [Section 5.1.5, “Configuring a CIFS User Context,” on page 43](#).

To edit the CIFS Context Search File, do the following:

- 1 Open the `/etc/opt/novell/cifs/cifscctxs.conf` file in a text editor.
- 2 Specify the context be added in dot format, for example, `ou=fa-testing.o=novell`
- 3 Save the file.

5.3 Locks Management for CIFS

Cross-Protocol locks help prevent the same file from being concurrently accessed for modifications. This option ensures that a file is updated correctly before another user, application, or process can access it.

- ♦ **Byte-Range Locking:** Two types of byte-range locking are used:
 - ♦ **Exclusive Lock:** The locked byte range is read/write for the holder of the lock and deny-all for all others. A write lock on a byte range is acquired by an application that intends to write data into that byte range, and does not want other applications to be able to read or write to the byte range while it is accessing that byte range. A write lock on a given byte range is exclusive. It is granted to only one requester at a time. A write lock denies other applications the ability to either read or write to the locked byte-range.
 - ♦ **Shared Lock:** Also called a non-exclusive byte-range lock. The locked byte range is read-only for the holder of the lock and deny-write for all others. A read lock on a byte range is normally acquired by an application that intends to read data from the byte range, and does not want other applications to be able to write to the byte range while it is performing the read operation. A read lock on a given byte range is sharable, which means it is granted to multiple requesters concurrently. However, it is incompatible with a concurrent write lock on the same byte range. A read lock denies other applications the ability to write to the locked byte range. In environments that implement advisory record locking rather than mandatory record locking, a read lock simply advises other applications that they should not write to the locked byte-range, even though they are technically able to do so.

- ♦ **Opportunistic Locking:** Opportunistic Locking or Oplocks improves file access performance and is enabled by default. Oplocks must be enabled on the server for Offline files to function correctly on Windows XP, Windows Vista, and Windows 7.

IMPORTANT: If a file is opened with multiple protocols when the migration or failover begins, the file should be closed and reopened after the migration or failover to acquire cross-protocol locks on the new node.

For more information, see [“Using Novell Remote Manager for Linux to Configure Cross-Protocol Locks”](#) in the *OES 11 SP1: NCP Server for Linux Administration Guide*.

5.4 Third-Party Domain Authentication

For third-party domain authentication, the clients are members of a third-party domain such as Windows. A Windows domain controller performs the user authentication. The username and password on the domain controller must match the username and password used to log in to the Windows workstation.

Ensure that you understand and meet the following prerequisites before setting up third-party authentication:

- ♦ [Section 5.4.1, “Prerequisites,” on page 48](#)
- ♦ [Section 5.4.2, “Using iManager to Enable Third-Party Authentication,” on page 49](#)

5.4.1 Prerequisites

- ♦ [“Prerequisites for the Windows Primary Domain Controller” on page 48](#)
- ♦ [“Prerequisites for the CIFS Server” on page 49](#)

Prerequisites for the Windows Primary Domain Controller

- ♦ Ensure that the Primary Domain Controller (PDC) is up and reachable by using the NETBIOS name of the PDC from the CIFS server.

For example, WINPDC_W.

- ♦ Disable autodisconnect feature in PDC to avoid resetting connection from PDC to CIFS server. You can do that by configuring timeout value (in minutes) for idle sessions through autodisconnect parameter. The valid value range is -1 to 65535. Setting the timeout period value to -1 completely disables the auto-disconnect of idle sessions feature. For more information about how to configure timeout period (autodisconnect parameter), see [“How Autodisconnect Works in Windows NT and Windows 2000”](#)
- ♦ Disable SMB signing by following the instructions in [“Overview of Server Message Block Signing”](#) (<http://support.microsoft.com/kb/887429>)
- ♦ The desktop user or the user that has joined the domain must be same as the CIFS user.
- ♦ For Windows 2008 Server and later versions, apply the changes as per the [Microsoft Knowledge Base](#) article.

NOTE: The Windows client might be required to log in as the same user with the same password to access the CIFS shares when you are using third-party authentication.

Prerequisites for the CIFS Server

- ♦ Ensure that SMB signing is disabled on the CIFS server. For details, see [“Enabling and Disabling SMB Signing” on page 36](#).

5.4.2 Using iManager to Enable Third-Party Authentication

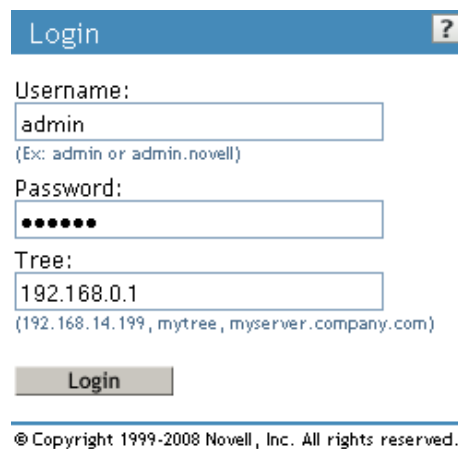
- 1 In a Web browser, specify the following in the address (URL) field:

`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, password, tree name or IP address of the tree, then click *Login*.



Username:
admin
(Ex: admin or admin.novell)

Password:
••••••

Tree:
192.168.0.1
(192.168.14.199, mytree, myserver.company.com)

Login



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For more information on iManager administration, see the [.Novell iManager 2.7.5 Administration Guide](#).

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

CIFS

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

Server:  

General

Shares

Server

Authentication

Start

Stop

Status:

CIFS Virtual Server Name:

WINS IP Address:

Comment:

☐ OpLocks

☐ Distributed File Services (DFS) Support

SMB Signature: Unknown

OK

Cancel

- 4 Select the CIFS server you want to manage.
- 5 Select *General > Authentication*
- 6 Select *Third party Domain* as the mode of authentication.
- 7 Specify the *Work Group/Domain Name* of the Windows environment.
- 8 Specify the *LMCompatibility level*. For details, see [Table 5-2, “CIFS Authentication Page Parameters,” on page 38](#).

- 9 Specify the name of the Primary Domain Controller. Ensure that the name does not exceed 15 characters.
- 10 Specify the IP address of the Primary Domain Controller.
- 11 Click OK to save the changes in the CIFS properties.

5.5 Dynamic Storage Technology for CIFS Server

Dynamic Storage Technology (DST) for Novell Open Enterprise Server (OES) 11 SP1 is an information life-cycle management technology that uses a policy-based approach for relocating data between two Novell Storage Services (NSS) volumes located on different devices, and transparently provides a unified view of the file tree to users. You specify policies that classify data to be moved by its frequency of use, filename, file type, and file size. Policy enforcement is automated with scheduled and on-demand runs of the policies. DST allows you to seamlessly tier storage between high-performance and lower-performance devices.

For example, you can establish policies that keep frequently-used mission-critical data on high-performance devices, and move rarely accessed less-essential data to lower-performance devices. Backup can be performed separately on the two volumes, which allows for different backup schedules. Dynamic Storage Technology enables you to manage data more efficiently for the enterprise and in doing so, the enterprise can potentially realize significant cost savings in storage management.

CIFS server for Linux provides the CIFS services for NSS volumes on Linux. Dynamic Storage Technology is a component of NCP Server.

Enabling DST: DST is automatically enabled when the shadow volume is added to the primary volume.

CIFS DST supports only NSS volumes being used as shadow volumes. If you plan to use DST, you need to install NSS when you install CIFS server and Dynamic Storage Technology. The NSS volumes must meet the “[Storage Requirements for DST Volume Pairs](#)” in the *OES 11 SP1: Dynamic Storage Technology Administration Guide*.

DST for CIFS server allows you to specify a shadow relationship between two volumes, which forms a shadow volume pair. The secondary directory tree structure, or shadow file tree, shadows the primary file tree. For more information, see “[Planning for DST Shadow Volume Pairs and Policies](#)” in the *OES 11 SP1: Dynamic Storage Technology Administration Guide*.

DST presents a unified view to users of the subdirectory trees on each volume. The primary file tree and secondary file tree have the same directory structure so that each subdirectory appears in both locations as data is moved between the two volumes. The primary tree and the secondary tree are overlaid to create one virtual volume tree that is transparently presented to the users. The CIFS users are not aware of the actual physical location of the files. For more information, see “[Data Access Requirements for a DST Shadow Volume Pair](#)” in the *OES 11 SP1: Dynamic Storage Technology Administration Guide*.

For more information about “[Configuring DST Global Policies](#)” see the *OES 11 SP1: Dynamic Storage Technology Administration Guide*.

5.6 DFS Junction Support in CIFS Linux

CIFS must be configured to support [DFS Junctions](#). By default, DFS junction support is disabled. You must enable it on host (server that hosts the junction) and target (server that is pointed by the junction) servers in order for the junctions to work. The junctions that point to subdirectories are also supported with CIFS Linux. For more information, see “[Managing DFS Junctions](#)” in the *OES 11 SP1: Novell Distributed File Services Administration Guide for Linux*

- ♦ [Section 5.6.1, “Prerequisites,” on page 52](#)
- ♦ [Section 5.6.2, “Enabling DFS Support,” on page 52](#)
- ♦ [Section 5.6.3, “Limitations,” on page 53](#)
- ♦ [Section 5.6.4, “Problems Following DFS Junctions with CIFS in Windows 2000/XP Releases,” on page 53](#)

5.6.1 Prerequisites

- ♦ Unicode must be enabled.
- ♦ DFS must be enabled for CIFS on all the host and target servers.
- ♦ Both host and target CIFS servers must be running.
- ♦ The VLDB server must be running.

IMPORTANT: The CIFS clients accessing DFS junctions must be DFS aware. smbclient on Linux may not work appropriately in case of junctions as it is not DFS aware.

5.6.2 Enabling DFS Support

Use the instructions in this section to enable DFS junction support in CIFS Linux:

- 1 In iManager, click *File Protocols > CIFS*.
- 2 Browse to locate and select the server you want to manage.

Figure 5-6 Enabling DFS Support

The screenshot shows the 'Context' tab of the 'CIFS Server Properties' dialog box. At the top, there are tabs for 'General', 'Shares', and 'Context'. Below these are links for 'Server', 'Authentication', 'Start', and 'Stop'. The 'Status' is 'Running'. The 'CIFS Virtual Server Name' is 'OESBOX_W'. The 'WINS IP Address' is '0.0.0.0'. There is a 'Comment' field. Below these are two checkboxes: 'OpLocks' (checked) and 'Distributed File Services (DFS) Support' (unchecked). At the bottom, there is a section titled 'SMB Signature' with three radio buttons: 'Disabled' (selected), 'Mandatory', and 'Optional'.

- 3 Select the check box for *Distributed File Services (DFS) Support* to enable the DFS support in CIFS Linux.
- 4 Click OK.

5.6.3 Limitations

- ♦ Junctions from Linux to NetWare system work only when the junction target is the root of the volume. However if both the source and target is on a Linux system, then junctions to subdirectories also work.

Junctions in NetWare cannot point to volumes in Linux.

- ♦ DFS is available only if Unicode (UTF8 format) is enabled.
- ♦ Only CIFS shares are enabled with DFS support.

5.6.4 Problems Following DFS Junctions with CIFS in Windows 2000/XP Releases

Windows Unable to Resolve the NetBIOS Name of the CIFS Server

Clients using Windows 2000 Service Pack 4 and Windows XP Service Pack 2 might have problems following DFS junctions over CIFS because of a defect in Windows. (This problem exhibits itself in a pure Windows environment.) When using DFS with CIFS, the CIFS server and Windows clients are on different IP subnets. In this case, the client must have a way to resolve the CIFS server name in order for DFS to work. This is a Microsoft/CIFS requirement, not a CIFS Linux requirement.

NOTE: This problem does not affect Windows clients that use the Novell Client.

There are multiple ways the client can resolve the CIFS server name:

- ♦ Configure both the client and server for the same WINS server
- ♦ Configure both the client and server to use the same DNS server
- ♦ Modify the `hosts` file for all client computers with appropriate entries for any volumes on OES servers that use DFS junctions

To modify the `hosts` file on a client:

- 1 In a text editor, open the `hosts` file and modify the `hosts` file.
 - ♦ **Windows 2000:** `c:\WINNT\system32\drivers\etc\hosts`
 - ♦ **Windows XP/7:** `c:\windows\system32\drivers\etc\hosts`If you do not have `hosts` file, create the file.
- 2 A line at the end of the file that identifies the IP address and NetBIOS name of the data server.

```
192.168.1.1      servername_W
```

Replace `192.168.1.1` with the actual IP address and `servername` with the name of your server.

IMPORTANT: Modifying the CIFS server name of the virtual server using iManager is not allowed. However, it is possible to modify the CIFS server name for a physical server.

We recommend that you do not modify the CIFS server name of the physical server that is the DFS target.

For example, suppose you have the following server:

- ♦ Server IP address: `10.10.1.1`. If the DFS target is a cluster resource, then mention `<Cluster IP address>` or `<Cluster Resource IP address>`
 - ♦ Server name: `USERSVR`
 - ♦ NetBIOS server name: `USERSVR_W`
- If the target of the junction is a cluster resource, mention the `<Cluster IP address>` or `<Cluster Resource IP address>` and instead of server name, mention the cluster resource name.

The line you add to the `hosts` file is:

```
10.10.1.1 USERSVR_W
```

NOTE: The string length of the NetBIOS name should not exceed 15 chars. The hostname or the last 13 characters from the hostname, whichever is shorter is considered and appended with `_W` at the end to frame the standard NetBIOS name.

- 3 Save and close the `hosts` file.
- 4 If necessary, repeat [Step 1](#) to [Step 3](#) on each client computer, or create a `hosts` file and distribute it to the client machines.
- 5 On each client, map a network drive to the user's data volume.

Continuing the example above, the user could map to `\\10.10.1.1\VOL1` or to `\\USERSVR_W\VOL1`.

5a In the Windows Explorer file manager, click *Tools > Map Network Drive*.

5b In the *Folder* field, type one of the following:

```
\\192.168.1.1\volumename
```

```
\\servername_W\volumename
```

Replace 192.168.1.1 with the actual IP address or servername with the hostname of your server.

5c (Optional) Select *Reconnect at Logon*.

5d Click *Finish*.

After Modifying the Junction Target, Accessing the Junction Still Leads to the Old Target

Windows does not prompt the server every time to resolve the junction every time it is accessed. It prompts the server only for the first time and then caches it. When the junction is accessed the next time, Windows does not prompt CIFS server to resolve the junction but it makes use of the target location it received previously.

On restarting the Windows machine, if the same mapping is done, it points to correct location. Because there is no cached value, it prompts the CIFS server to provide the location of the target that the junction points to and gets the latest value from CIFS server.

5.7 Subtree Search

A subtree search login enables CIFS to search for a user in the entire base context of a tree. The subtree search setting that is saved in the `cifs.conf` file stays persistent even if the system or service is restarted.

- ♦ [Section 5.7.1, “Prerequisites,” on page 55](#)
- ♦ [Section 5.7.2, “Enabling a Subtree Search,” on page 55](#)
- ♦ [Section 5.7.3, “Subtree Search in a Cluster Setup,” on page 55](#)

5.7.1 Prerequisites

To use the subtree search feature, the CIFS proxy user should have read rights for the base context. These rights are assigned automatically from iManager when the context is added.

5.7.2 Enabling a Subtree Search

After you have finished installing CIFS, start the CIFS server and enable the subtree search by using the following command:

```
novcifs -y yes
```

To disable the subtree search, use the `novcifs -y no` command.

You can choose to enable or disable the subtree search before the user starts connecting to the CIFS server.

5.7.3 Subtree Search in a Cluster Setup

A subtree search can be configured only at a physical server or node level. In a cluster setup, each node should be configured with the same configuration level for consistent behavior.

NOTE: The time taken for the LDAP search to be completed depends on the WAN link and on the number of user replicas in the tree.

5.8 Enabling Offline Files Support

Offline Files helps you be more productive. You can use this feature on a portable computer, or on a desktop computer that occasionally connects to your workplace network. For example, this feature is useful if you are working at home on a desktop computer, and need to automatically get files off the network whenever you connect.

The files that you select are automatically downloaded from shared folders on the network and stored on your computer. When you disconnect, the files are available to use. When you reconnect to the network, your changes are added to the files on the network in a process called synchronization. If someone else on the network made changes to the same file, you can save your version, keep the other version, or save both.

You can enable client-side caching by using the following command:

```
novcifs [--csc= 0|1|2|3]
```

This feature configures client-side caching feature that can be used to store frequently used information on the client's machine.

0 Enables Windows clients to cache files for offline use. Does not permit automatic file-by-file re-integration. (Default)

1 Enables Windows clients to cache files for offline use. Permits automatic file-by-file reintegration.

2 Enables Windows clients to cache files for offline use. Clients are permitted to work from their local cache even while online.

3 Does not permit Windows client to cache files for offline use.

For information on configuring workstations to use offline files, see [Microsoft Support \(http://support.microsoft.com/kb/307853\)](http://support.microsoft.com/kb/307853).

5.9 Directory Cache Management for CIFS Server

Table 5-4 Server Parameter Information for Directory Cache Management

Parameter Name and Description	Default Value	Value Options
MAXIMUM_CACHED_FILES_PER_SUBDIRECTORY Controls the maximum number of file entries that can be cached by the system for a given folder in the directory cache.	10240	Minimum is 512 files.
MAXIMUM_CACHED_FILES_PER_VOLUME Controls the maximum number of file entries that can be cached by the system for a given volume in the directory cache.	256000	Minimum is 2048 files.
MAXIMUM_LAZY_CLOSE_FILES Controls the maximum number of files' handles that can be lazy closed in the directory cache.	4096	16 to 64000

Parameter Name and Description	Default Value	Value Options
MAXIMUM_CACHED_SUBDIRECTORIES_PER_VOLUME Controls the maximum number of folder entries that can be cached by the system for a volume in the directory cache.	102400	4096

5.10 What's Next

To learn how to use CIFS services as an end user, continue with [Chapter 9, “Working with Client Computers,”](#) on page 69.

6 Migrating CIFS to OES 11 SP1

The Open Enterprise Server (OES) 11 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 11 SP1 server either by using the GUI Migration Tool or from the command line. For more information on NetWare CIFS, see the [NW 6.5 SP8: AFP, CIFS, and NFS \(NFAP\) Administration Guide](#).

To get started with migration, see the [OES 11 SP1: Migration Tool Administration Guide](#).

For more information on migrating CIFS, see “[Migrating CIFS to OES 11 SP1](#)” in the [OES 11 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 “[Man Page for Migration](#)” in the [OES 11 SP1: Migration Tool Administration Guide](#).

7 Running CIFS in a Virtualized Environment

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) 11 SP1, and requires no special configuration or other changes.

To get started with Xen virtualization, see the [Virtualisation with Xen](#).

For information on setting up virtualized OES 11 SP1, see “[Installing, Upgrading, or Updating OES on a VM](#)” in the *OES 11 SP1: Installation Guide* guide.

7.1 What's Next

To learn more about what you can do with CIFS on OES 11 SP1, continue with [Chapter 5, “Administering the CIFS Server,”](#) on page 31.

8 Configuring CIFS with Novell Cluster Services for an NSS File System

Novell Cluster Services for Open Enterprise Server (OES) 11 SP1 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 8.1, “Benefits of Configuring CIFS for High Availability,” on page 63](#)
- ♦ [Section 8.2, “Cluster Terminology,” on page 63](#)
- ♦ [Section 8.3, “CIFS and Cluster Services,” on page 64](#)
- ♦ [Section 8.4, “Configuring CIFS in a Cluster,” on page 66](#)
- ♦ [Section 8.5, “What’s Next,” on page 67](#)

8.1 Benefits of Configuring CIFS for High Availability

With the OES 11 SP1 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 11 SP1, 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.
- ♦ 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.

8.2 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 Resource 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 it is active.
- ♦ **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.
- ♦ **Monitor script:** A file that contains the cluster resource commands that allows Novell Cluster Services to detect when an individual resource on a node has failed independently of its ability to detect node failures. Monitor 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.

8.3 CIFS and Cluster Services

Novell Cluster Services can be configured either during or after OES 11 SP1 installation. In a cluster, Novell CIFS for OES 11 SP1, 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 8.3.1, “Prerequisites,” on page 64](#)
- ♦ [Section 8.3.2, “Using CIFS in a Cluster Environment,” on page 65](#)

8.3.1 Prerequisites

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

- ☐ Novell Cluster Services installed on OES 11 SP1 servers

For information on installing Novell Cluster Services, see [“Installing and Configuring Novell Cluster Services on OES 11 SP1”](#) in the *OES 11 SP1: Novell Cluster Services 2.1 for Linux Administration Guide*.

For information on managing Novell Cluster Services, see [“Managing Clusters”](#) in the *OES 11 SP1: Novell Cluster Services 2.1 for Linux Administration Guide*.

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

Follow the instructions in [Section 4.1, “Installing CIFS during the OES 11 SP1 Installation,” on page 23](#) and [Section 4.2, “Installing CIFS after the OES 11 SP1 Installation,” on page 24](#).

8.3.2 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.

NOTE: In CIFS, all the nodes should have similar server configuration, such as contexts and authentication mode.

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, the iManager tool or the Novell Linux Volume Manager utility.

For requirements and details about configuring shared NSS pools and volumes on Linux, see “[Configuring and Managing Cluster Resources for Shared NSS Pools and Volumes](#)” in the *OES 11 SP1: Novell Cluster Services 2.1 for Linux Administration Guide*.

For details on creating a pool using Novell Linux Manager using the `nlvm create pool` command, see “[NLVM Commands](#)” in the *OES 11 SP1: NLVM Reference*.

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. **Configuring Monitor Script:** Configure resource monitoring to let the cluster resource failover to the next node in the preferred nodes list.

“When `rcnovell-cifs monitor` is invoked, it:

- returns the status of CIFS, if CIFS is already running
- starts a new instance of CIFS and returns status, if CIFS is not running (dead/etc.)”

Each time the monitor script detects that the CIFS service is down and starts the service, a message in the following format is logged in `/var/log/messages` file :

```
CIFS: Monitor routine, in novell-cifs init script, detected CIFS not running, starting CIFS
```

For details on Configuring a Monitor Script for the Shared NSS Pool, see “[Configuring a Monitor Script for the Shared NSS Pool](#)” in the *OES 11 SP1: Novell Cluster Services 2.1 for Linux Administration Guide*

IMPORTANT: Set the number of *Maximum Local Failures* permitted to 0. This ensures that if the CIFS server crashes, cluster services will trigger an immediate failover of the resource.

5. **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
```

For example, novcifs --add '--vserver=".cn=CL-POOL-SERVER.o=novell.t=VALTREE."' --ip-addr=10.10.10.10

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.

IMPORTANT: If the cluster resource goes comatose on the Linux server, there might be a timing issue for loading Novell CIFS. Add a sleep command before the novcifs -add command. For example:

```
sleep 5
exit_on_error novcifs --add --vserver=.CN=NCS1_P1_SERVER.O=novell.T=TREE-188.
--ip-addr=10.10.10.205
```

-
6. **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
```

For example, novcifs --remove '--vserver=".cn=CL-POOL-SERVER.o=novell.t=VALTREE."' --ip-addr=10.10.10.10

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.

7. **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)
- ♦ nfapCIFSAttach (read access)
- ♦ nfapCIFSComment (read 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.

8.4 Configuring CIFS in a Cluster

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

- ♦ [Section 8.4.1, "Prerequisites," on page 66](#)
- ♦ [Section 8.4.2, "Creating Shared Pools and Accessing Sharepoints," on page 67](#)

8.4.1 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 disk you want to use for the pool is configured through the iSCSI or SAN software. It is marked as *Shareable for Clustering* by using NSSMU, the Storage plug-in to iManager, or the `nlvm share` command.

8.4.2 Creating Shared Pools and Accessing Sharepoints

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

- ♦ [“Creating Pools Using iManager” on page 67](#)
- ♦ [“Creating Pools Using NSSMU” on page 67](#)
- ♦ [“Creating Pools Using NLVM” on page 67](#)

Creating Pools Using iManager

For details on creating pools by using iManager, see [“Creating a Pool”](#) in the *OES 11 SP1: NSS File System Administration Guide for Linux*.

NOTE: If the cluster object is created in a container that is different from the one in which the nodes are present or is at a higher level than the context where the nodes are present, then the CIFS proxy user must be manually added to the trustee list of cluster server object and required rights must be assigned to it along with the inherited rights.

Creating Pools Using NSSMU

For details on creating pools by using NSSMU, see [“NSS Management Utility \(NSSMU\) Quick Reference”](#) in the *OES 11 SP1: NSS File System Administration Guide for Linux*.

Creating Pools Using NLVM

For details on creating pools by using NLVM, see [“NLVM Commands”](#) in the *OES 11 SP1: NLVM Reference*.

You can add Novell CIFS as an advertising protocol when you create a cluster-enabled NSS pool. For information, see [“Creating Cluster-Enabled Pools and Volumes”](#).

You can add Novell CIFS as an advertising protocol when you cluster-enable an existing NSS pool. For information, see [“Cluster-Enabling an Existing NSS Pool and Its Volumes”](#).

You can add or remove Novell CIFS as an advertising protocol for an existing cluster-enabled NSS pool. For information, see [“Adding Advertising Protocols for NSS Pool Cluster Resources”](#).

8.5 What's Next

For information about managing the CIFS services by using iManager or the command line interface, see [Chapter 5, “Administering the CIFS Server,” on page 31](#).

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 69](#).

9 Working with Client Computers

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 69](#)
- ♦ [Section 9.2, “Mapping Drives and Mounting Volumes,” on page 71](#)

9.1 Accessing Files from a Client Computer

You can access files and folders hosted on CIFS server from Windows (XP, Vista, Win7) or Linux clients. Use one of the following methods to access the CIFS server from your clients:

- ♦ [Section 9.1.1, “Accessing Files from a Windows Client,” on page 69](#)
- ♦ [Section 9.1.2, “Accessing Files from a Linux Desktop,” on page 70](#)

9.1.1 Accessing Files from a Windows Client

- ♦ [“Prerequisite” on page 69](#)
- ♦ [“Procedure to Access Files” on page 69](#)

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 will not be able to access files and directories through CIFS.

IMPORTANT: The *Search* option in Win7 mapped drive does not work as designed. You will see windows client searching for some time. However, it is not searching but the client is waiting for the server's response.

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 and XP, click *My Network Places*. In Vista and Win 7, 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) 11 SP1 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) desktop, you can also use `nautilus` to access the files.:

- ♦ [“Using an IP Address to Access Files” on page 70](#)
- ♦ [“Using a NETBIOS Name to Access Files” on page 70](#)
- ♦ [“Using nautilus to Access Files” on page 70](#)

Using an IP Address to Access Files

- 1 Run this command from the terminal:

```
smbclient://<SERVER_IP_ADDRESS>/<VOLUME_NAME or SHARE_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 terminal:

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

- 2 Enter the password when prompted.

Using nautilus to Access Files

- 1 Run this command from the nautilus address bar:

```
smb://<SERVER_IP_ADDRESS>/<VOLUME_NAME or SHARE_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, Windows Vista, or Windows 7 client and mount the volumes from a Linux client.

- ♦ [Section 9.2.1, “Mapping Drives from a Windows 2000 or XP Client,” on page 71](#)
- ♦ [Section 9.2.2, “Mapping Files from a Windows Vista Client,” on page 71](#)
- ♦ [Section 9.2.3, “Mounting Volumes from a Linux Client,” on page 71](#)

9.2.1 Mapping Drives from a Windows 2000 or XP 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 11 SP1 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 console, enter one of the three commands:

- ♦ `smbmount`

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

or

- ◆ `mount -t smbfs`

NOTE: It is not recommended to use smbfs to mount CIFS shares.

or

- ◆ `mount -t cifs`

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

10 Troubleshooting CIFS

- ♦ [Section 10.1, “Known issues,” on page 73](#)
- ♦ [Section 10.2, “CIFS Installation and Configuration Issues,” on page 73](#)
- ♦ [Section 10.3, “CIFS Log In Issues,” on page 74](#)
- ♦ [Section 10.4, “CIFS Loading Issues,” on page 74](#)
- ♦ [Section 10.5, “CIFS Migration Issues,” on page 76](#)
- ♦ [Section 10.6, “CIFS General Issues,” on page 76](#)

10.1 Known issues

- ♦ After renaming an NSS volume, both the old and new name of the volumes get listed as shares in CIFS iManager.

Workaround: Administrator must delete the share for the old volume manually.

Novell plans to address this issue in a future OES release.

10.2 CIFS Installation and Configuration Issues

- ♦ [Section 10.2.1, “CIFS is Not Coming Up After Installation,” on page 73](#)
- ♦ [Section 10.2.2, “CIFS Stops After Installation and Throws an Error 669, “schema not extended”,” on page 73](#)
- ♦ [Section 10.2.3, “CIFS is Not Running With Samba,” on page 74](#)
- ♦ [Section 10.2.4, “CIFS Server Broadcasts the Browser Packets every Twelve Minutes,” on page 74](#)

10.2.1 CIFS is Not Coming Up After Installation

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

Cause: CIFS may be installed as standalone after installing Open Enterprise Server (OES) 11 SP1.

Action: Restart the OES 11 SP1 server for the installation and configuration settings to take effect.

10.2.2 CIFS Stops After Installation and Throws an Error 669, “*schema not extended*”

Cause: Proxy user credentials in the credential store (file/CASA) are not stored correctly.

Action: Reconfigure CIFS proxy user.

10.2.3 CIFS is Not Running With Samba

Description: CIFS server does not come up if the Samba server is running.

Cause: CIFS cannot coexist with samba daemons.

Action: Login to the OES Server as root. Use the following commands to stop the Samba daemons and restart the CIFS server.

- ♦ `rcsmb stop`
- ♦ `rcnmb stop`
- ♦ `rcnovell-cifs start`

10.2.4 CIFS Server Broadcasts the Browser Packets every Twelve Minutes

Cause: It is designed to broadcast every twelve minutes.

Action: An entry with the NetBIOS Name and the respective server IP address in LMHOSTS file must be present on Windows client machine or WINS should be configured for both the server and the client.

10.3 CIFS Log In Issues

10.3.1 CIFS Does Not Log In and Throws “Password has expired” Error in the Log File

Error: Password has expired.

Cause: Password expiry is set for security purposes. The password has expired.

Action: Reset the password and try to log in again.

10.3.2 Windows Workstation Displays Only Folders Assigned with Public Trustee Rights

Error: Only folders assigned with Public Trustee rights are visible.

Cause: If you have logged into a Windows workstation and see folders assigned only with Public Trustee rights, it is either because you have logged in with an incorrect user name or have logged in as a guest user.

Action: Log in with the correct credentials.

10.4 CIFS Loading Issues

- ♦ [Section 10.4.1, “CIFS Is Not Starting,” on page 75](#)
- ♦ [Section 10.4.2, “Newly Created NSS Volumes Are Not Being Shared in CIFS,” on page 75](#)

10.4.1 CIFS Is Not Starting

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 Open YaST.
- 2 Click *Open Enterprise Server > OES Install and Configuration*.
- 3 On the Software Selection Page, click *Accept*.
The status of eDirectory service is displayed as *Reconfigure is disabled*.
- 4 To reconfigure, click *disabled* to change the status to *enabled*.
- 5 Click *Novell CIFS Service* to access the configuration dialog box.
- 6 Change the password in the *CIFS Proxy User Password* field.

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

- 7 Retype the password in the *Verify CIFS Proxy User Password* field.
- 8 Click *Next* and continue with the remaining configuration steps in [Section 4.2, “Installing CIFS after the OES 11 SP1 Installation,” on page 24](#).

10.4.2 Newly Created NSS Volumes Are Not Being Shared in CIFS

- ♦ [“Dynamic Detection Of The NSS Share Does Not Happen” on page 75](#)
- ♦ [“Cluster resource gets into comatose mode when migrating the cluster resource” on page 75](#)
- ♦ [“Trustee update is not working in CIFS” on page 75](#)

Dynamic Detection Of The NSS Share Does Not Happen

Description: When a new volume is created in a cluster/non-cluster environment, the dynamic detection of the NSS share does not happen.

Cause: eDirectory server might be restarted without restarting CIFS.

Action: Restart the CIFS service whenever eDirectory service is restarted.

Cluster resource gets into comatose mode when migrating the cluster resource

Description: Cluster resource gets into comatose mode when migrating the cluster resource.

Error: 22101. An invalid path.

Cause: eDirectory server might be restarted without restarting CIFS.

Action: Restart the CIFS service whenever eDirectory service is restarted.

Trustee update is not working in CIFS

Description: Trustee update is not working in CIFS.

Error: Users are unable to access data for which they have access.

Cause: eDirectory server might be restarted without restarting CIFS.

Action: Restart the CIFS service whenever eDirectory service is restarted.

10.5 CIFS Migration Issues

- [Section 10.5.1, “After Migration, CIFS is Not Running,” on page 76](#)
- [Section 10.5.2, “Different Tree Migration Is Not Available in the Migration Tool,” on page 76](#)
- [Section 10.5.3, “After Migration, CIFS Server Not Coming up on the Target Server by Default,” on page 76](#)

10.5.1 After Migration, CIFS is Not Running

Description: Migration is complete. However, CIFS is not running.

Cause: Configuration settings are not updated on the OES 11 SP1 server.

Action: Restart OES 11 SP1 server on the target server for migration to be effective.

10.5.2 Different Tree Migration Is Not Available in the Migration Tool

Description: 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 11 SP1: Migration Tool Administration Guide*.

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

For detailed YaST configuration steps, see [Section 4.1, “Installing CIFS during the OES 11 SP1 Installation,” on page 23](#) and [Section 4.2, “Installing CIFS after the OES 11 SP1 Installation,” on page 24](#).

10.5.3 After Migration, CIFS Server Not Coming up on the Target Server by Default

Cause: CIFS configuration points to the older proxy user available on the older target server, which do not exist after-Transfer-ID. CIFS service starts with this proxy user which now does not have rights on the final NCP server object after Transfer-ID.

Action : CIFS server needs to be started manually, so that it reads the latest Proxy user which has proper rights on the NCP server object

10.6 CIFS General Issues

- [Section 10.6.1, “Offline Files Synchronization Fails,” on page 77](#)
- [Section 10.6.2, “Synchronization of Offline Files Caching fails with the error “The process cannot access the file because it is being used by another process.”,” on page 77](#)

- ♦ [Section 10.6.3, “Junction Target Changes Require DFSUTIL Command Execution to Clear the Cache,” on page 77](#)
- ♦ [Section 10.6.4, “Unable to Access DFS Junctions on a Novell CIFS Share from Windows Client,” on page 78](#)
- ♦ [Section 10.6.5, “Temporary Files Created by Windows Office 2010 Are Not Cleared,” on page 78](#)
- ♦ [Section 10.6.6, “Users Created Using UID Qualifier Cannot Access CIFS Shares,” on page 78](#)
- ♦ [Section 10.6.7, “Authentication Failure Due to Password Mismatch,” on page 78](#)
- ♦ [Section 10.6.8, “The Mac Client does not Display a Complete List of Available Shares,” on page 78](#)

10.6.1 Offline Files Synchronization Fails

Offline file synchronization fails to complete on a computer that is running Windows 7. Additionally logging the error message, "The specified network name is no longer available" in the Sync Center.

To fix this issue, apply the hotfix available on the [Microsoft Support](#) web site.

10.6.2 Synchronization of Offline Files Caching fails with the error "The process cannot access the file because it is being used by another process."

Cause: This error occurs on a computer that is running Windows 7, when Oplocks is disabled on the CIFS server or folders are taken offline on the client machine.

Action:

1. Enable Oplocks on the CIFS Server (Oplocks are enabled by default).
2. Delete the offline copy of the folder on the Windows client system.

For more information, see [Section 5.8, “Enabling Offline Files Support,” on page 56](#) and [Section 12.3.6, “Oplocks,” on page 85](#) in the OES 11 SP1: Novell CIFS for Linux Administration Guide.

10.6.3 Junction Target Changes Require DFSUTIL Command Execution to Clear the Cache

Cause: The Windows client caches junction locations when it starts. If you modify the junction target location, the client continues to point to the old junction target path.

Action: To refresh the Windows environment, do the following:

- 1 Download the DFSUTIL utility from the Microsoft download site.
- 2 Disconnect from the mapped drive and clear the cache using the following DFSUTIL commands:

```
DFSUTIL /PKTFLUSH
DFSUTIL /SPCFLUSH
```

- 3 Map to the drive again.

10.6.4 Unable to Access DFS Junctions on a Novell CIFS Share from Windows Client

Cause: The Windows client and the Novell CIFS server might be on a different subnet.

Action: Add an entry with the CIFS server IP address and the NetBIOS name in the `hosts` file.

10.6.5 Temporary Files Created by Windows Office 2010 Are Not Cleared

Cause: This happens because the *Enable for Editing* option is enabled in MS Office 2010.

Action: To ensure the temporary files are not stored in the server, disable the Enable for Editing option in MS Office 2010.

10.6.6 Users Created Using UID Qualifier Cannot Access CIFS Shares

Cause: The users are by default created with the `cn` qualifier. If you create a user with the `uid` qualifier, the user cannot access the CIFS shares.

Action: Ensure you create a user with the default `cn` qualifier.

10.6.7 Authentication Failure Due to Password Mismatch

Error: Authentication failed due to password mismatch for user `cn=user1.ou=ou1.o=novell`, Err :- 1642

Cause: The password is incorrect.

OR

Universal password is not set for the user.

OR

The client and the server have incompatible LMCompatibility level settings.

Action: Provide the correct password.

OR

Set the universal password for the user.

OR

Check for the LMComaptibility settings. For more information, refer [“Setting LMCompatibilityLevel” on page 91](#).

10.6.8 The Mac Client does not Display a Complete List of Available Shares

Cause: The CIFS server allows the Mac clients to map shares that have sharenames exceeding 12 chars, however, the CIFS server does not respond to the `NetShareEnum` request if the client uses a older version of `NetShareEnum` verb to get the list of all available shares.

Though the LANMAN protocol authenticates the trustees of the share, it will not list the share if the sharename exceeds 12 characters.

Action: It is recommended to specify the share name less than or equal to 12 characters.

11 Security Guidelines for CIFS

You can use several protection mechanisms to counteract potential security vulnerabilities for CIFS on an Open Enterprise Server (OES) 11 SP1.

- ♦ [Section 11.1, “Using Credentials,” on page 79](#)
- ♦ [Section 11.2, “Using CASA,” on page 79](#)
- ♦ [Section 11.3, “Using VPN Connections,” on page 79](#)
- ♦ [Section 11.4, “Using SMB Signing,” on page 79](#)
- ♦ [Section 11.5, “Other Security Considerations,” on page 79](#)

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

We recommend you to select CASA as the Credential Storage Location during YaST configuration of CIFS.

11.3 Using VPN Connections

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

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 36](#).

11.5 Other Security Considerations

OES 11 SP1 provides Universal Password security. For details, see [Security Considerations](#) in the *Novell Password Management Administration Guide*.

12 Tuning the Parameters and Settings for a File Server Stack

Following are the list of settings or parameters that can have an impact on the performance of the file server while accessing the data hosted on NSS volumes.

- ♦ [Section 12.1, “eDirectory,” on page 81](#)
- ♦ [Section 12.2, “NSS,” on page 82](#)
- ♦ [Section 12.3, “CIFS,” on page 83](#)
- ♦ [Section 12.4, “NCP,” on page 85](#)

12.1 eDirectory

- ♦ [Section 12.1.1, “FLAIM Database,” on page 81](#)
- ♦ [Section 12.1.2, “Thread Pool,” on page 81](#)

12.1.1 FLAIM Database

eDirectory uses FLAIM (Flexible Adaptable Information Manager) as its database. It is used for traditional, volatile, and complex information. It is a highly scalable database engine that supports multiple readers and single writer concurrency model.

Physically, FLAIM organizes data in blocks. Some of the blocks are typically held in memory and they represent the block cache. The entry cache, at times called a record cache, caches logical entries from the database. Entries are constructed from the items in the block cache. FLAIM maintains hash tables for both caches. The hash bucket size is periodically adjusted based on the number of items.

By default eDirectory uses a block of 4 KB. The block cache size for caching the complete DIB is equal to the DIB size, and the size required for the entry cache is about two to four times the DIB size.

12.1.2 Thread Pool

eDirectory is multithreaded for performance reasons. In multithreading, when the system is busy, more threads are created to handle the load, and some threads are terminated to avoid extra overhead. Not every module uses the thread pool. The actual number of threads for the process is more than the number that exists in the thread pool. For example, FLAIM manages its background threads separately.

Use `ndstrace -c threads` command to know the thread pool statistics.

Here’s an example of a sample thread pool.

```
Summary      : Spawned 71, Died 24
Pool Workers : Idle 14, Total 47, Peak 52
Ready Work   : Current 1, Peak 12, maxWait 592363 us
Sched delay  : Min 23 us, Max 1004764 us, Avg: 5994 us
Waiting Work : Current 15, Peak 20
```

Here are some thread pool parameters:

- ♦ `n4u.server.max-threads`: Maximum number of threads that can be available in the pool.
- ♦ `n4u.server.idle-threads`: Maximum number of idle threads that can be available in the pool.
- ♦ `n4u.server.start-threads`: Number of threads started.

Run the `ndsconfig get` and `ndsconfig set` commands to get and set the thread pool size respectively.

Usually the default settings work for around 3000 to 4000 user connections unless the eDirectory is busy with some other background processing of maintenance events, like creating external references for a user object that is in a remote eDirectory replica. It is recommended to have servers having the eDirectory replicas to be reachable over fast links from the servers hosting the CIFS server.

In eDirectory 887, the max threads has been increased from 128 to 256.

Customers should monitor the output of `ndstrace -c` to see how many threads they are using. If they hit the total threads to *max-threads* value constantly, then they should consider changing the max value to a higher number. We usually recommend the eDirectory customers not to go beyond 512, but in some OES environments, we have it set to more than that as well.

To determine what factors could affect the performance of your eDirectory, see [FLAIM Database](#) and [Thread Pool](#) in the [Novell eDirectory 8.8 SP7 Tuning Guide for UNIX* Platforms](#). These sections contain information on how to tune the FLAIM database and Thread pool in order to get the optimum performance.

12.2 NSS

- ♦ [Section 12.2.1, “IDCacheSize,” on page 82](#)
- ♦ [Section 12.2.2, “Minimum Buffer Cache,” on page 83](#)
- ♦ [Section 12.2.3, “Setting the Name Cache Size,” on page 83](#)

Execute the following commands at the `nsscon` console prompt. To start the `nsscon` console, do the following:

- 1 As a root user, open a terminal console.
- 2 At the console prompt, enter `nsscon`.

12.2.1 IDCacheSize

```
nss /IDCacheSize=value
```

This sets the maximum number of entries for NSS GUID to ID and ID to GUID cache.

For example, `nss /IDCacheSize = 256000`

Default: 16384

Range: 16384 to 524288

Recommendation: The recommendation is to set the IDCacheSize to the corresponding number of users accessing the file system. For example, if the user home directories are around 4000, then it is recommended to set the IDCacheSize to 4000.

12.2.2 Minimum Buffer Cache

To set the Minimum Number of Cache Buffers to use for the kernel memory:

```
nss /MinBufferCacheSize=value
```

where value is the number of 4 KB buffers.

The default value is 30000. The maximum setting is the amount of memory in KB divided by 4 KB. For a 32-bit machine, the maximum setting is 250000 buffers.

12.2.3 Setting the Name Cache Size

The NSS Name Cache is responsible for caching the Name Tree information. This is the information that is read when you perform any kind of search by file or directory name. The Name Cache maps a name to a ZID (a unique file object ID). Directory listings do not do this as much as normal file opens that must resolve each name in the file path.

Use the *NameCacheSize* parameter to specify the amount of recently used Name Tree entries for files and directories that NSS caches. Each entry uses about 150 bytes of memory. Increasing the maximum number of Name Cache entries does not necessarily improve the performance for getting directory listing information. This happens because NSS looks up information about the file from a tree or structure outside of the name tree.

If you want to see how your name cache is performing, use the `nsscon /NameCacheStats` command in the shell prompt.

```
nsscon /NameCacheSize=<value>
```

If you are already inside NSSCON console prompt, use `/NameCacheSize=<value>` or `nss /NameCacheSize=<value>`.

Specify the maximum number of recently used Name Tree entries for files and directories to cache. Name cache grows up to the specified limit. Unlike the file system cache, it does not take the maximum amount of memory allocated from the start.

Default: 100000

Range: 17 to 1000000

Apart from the above parameters, for more information on tuning NSS performance on Linux, see [Tuning Cache Buffers for NSS](#) and [Configuring or Tuning Group I/O](#) in the [OES 11 SP1: NSS File System Administration Guide for Linux](#).

12.3 CIFS

- ♦ [Section 12.3.1, “Maximum Cached Subdirectories Per Volume,” on page 84](#)
- ♦ [Section 12.3.2, “Maximum Cached Files Per Subdirectory,” on page 84](#)
- ♦ [Section 12.3.3, “Maximum Cached Files Per Volume,” on page 84](#)
- ♦ [Section 12.3.4, “Subtree Search,” on page 84](#)
- ♦ [Section 12.3.5, “Information and Debug Logs,” on page 85](#)

- ♦ [Section 12.3.6, “Oplocks,” on page 85](#)
- ♦ [Section 12.3.7, “Cross Protocol Locks,” on page 85](#)
- ♦ [Section 12.3.8, “SMB Signing,” on page 85](#)

12.3.1 Maximum Cached Subdirectories Per Volume

This controls the maximum number of folder entries that can be cached by the CIFS server for a volume in the directory cache. The default value is 102400.

Use the following command to set the Maximum Cached Subdirectories Per Volume.

```
novcifs -k SDIRCACHE = <value for the Maximum Cached Subdirectories Per Volume>
```

12.3.2 Maximum Cached Files Per Subdirectory

This controls the maximum number of file entries that can be cached by the CIFS server for a given folder in the directory cache. The default value is 10240.

Use the following command to set the Maximum Cached Files Per Subdirectory.

```
novcifs -k DIRCACHE = <value for the Maximum Cached Files Per Subdirectory>
```

12.3.3 Maximum Cached Files Per Volume

This controls the maximum number of file entries that can be cached by the CIFS server for a given volume in the directory cache. The default value is 256000.

Use the following command to set the Maximum Cached Files Per Volume.

```
novcifs -k FILECACHE = <value for the Maximum Cached Files Per Volume>
```

NOTE: The above filecache size determines how many files or folders can be opened at a time. Although the total number of files and folders residing in a volume might be substantially larger than this number. This settings caches only the file name and related information, and it does not cache the whole file.

Recommendation: Set this value close to the number of files and folders available in a volume.

12.3.4 Subtree Search

A subtree search or contextless login enables CIFS to search for a user in the entire base context of a tree. The subtree search setting that is saved in the `cifs.conf` file stays persistent even if the system or service is restarted.

To use the subtree search feature, the CIFS proxy user should have read rights for the base context. These rights are assigned automatically from iManager when the context is added. A subtree search can be configured only at a physical server or at node level. In a cluster setup, each node should be configured with the same configuration level for consistent behavior.

Use following command to enable or disable subtree search.

```
novcifs -y yes|no
```

Subtree search performance depends on how the eDirectory replicas are spread over how the eDirectory contexts hierarchy is created.

12.3.5 Information and Debug Logs

Please keep the CIFS information and debug logs in a disabled state unless you specifically require the detailed log information.

To enable or disable the Debug Log for Developers, use the following command: `novcifs [-b yes|no | --enable-debug=yes|no]`

To enable or disable the Info Log, use the following command: `novcifs [-f yes|no | --enable-info=yes|no]`

12.3.6 Oplocks

The Oplocks or opportunistic locking improves file access performance by caching files at the client side. This option is enabled by default.

Recommendation: For better performance oplocks should be enabled (use iManager).

12.3.7 Cross Protocol Locks

The CrossProtocol locks help in using the files in the right way from different clients depending on the type of file accessed. This option is enabled by default.

Recommendation: Option should be enabled for data integrity purposes.

12.3.8 SMB Signing

The SMB signing ensures data integrity. Default option is disabled in latest CIFS releases as both client and server are in trusted corporate network and also disabling gives optimal file server performance. The SMB signing should be turned off when domain authentication is configured.

Recommendation: Option is disabled by default.

```
novcifs -g yes / no / optional / force
```

Apart from the above parameters, for more information on CIFS parameters that affect the file system performance, see [Locks Management for CIFS](#), [Enabling Offline Files Support](#) and [Directory Cache Management for CIFS Server](#) in the [OES 11 SP1: Novell CIFS for Linux Administration Guide](#).

12.4 NCP

- ♦ [Section 12.4.1, “Thread Pools,” on page 85](#)
- ♦ [Section 12.4.2, “Cache Settings,” on page 86](#)

12.4.1 Thread Pools

To manage the thread pools in NCP, see [Managing NCP Threads](#) in the [OES 11 SP1: NCP Server for Linux Administration Guide](#).

Tuning the number of asynchronous threads in NCP will help to route the NCP requests to eDirectory.

12.4.2 Cache Settings

To set the directory cache values in NCP, see [Directory Cache Management for NCP Server](#) in the [OES 11 SP1: NCP Server for Linux Administration Guide](#).

A Command Line Utility for CIFS

This section describes the command line utilities that work on an Open Enterprise Server (OES) 11 SP1 server for running the CIFS services.

To access a man page with the command information, enter `man novcifs` at the command prompt. To run this command, the user must login as root.

novcifs(8)

Name

novcifs - A client interface program that communicates with the cifs daemon. For novcifs to be running, the user must log in as root.

Syntax

```
novcifs [options]

[-sl, --share --list]

[-sln SHARENAME, --share --list --name=SHARENAME]

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

[-srn SHARENAME, --share --remove --name=SHARENAME]

[-sap PATH -n SHARENAME -m CONNECTION-LIMIT -c COMMENT -v VIRTUALSERVERFDN, --share
--add --path=PATH --name=SHARENAME --conn-limit=CONNECTION-LIMIT --comment=COMMENT
--vserver=VIRTUALSERVERFDN]

[-srn SHARENAME -v VIRTUALSERVERFDN, --share --remove --name=SHARENAME --
vserver=VIRTUALSERVERFDN]

[-b yes|no, --enable-debug=yes|no]

[-f yes|no, --enable-info=yes|no]

[-e yes|no, --guest-login=yes|no]

[-a -D DNSNAME -I IPADDR, --add --dns-name=DNSNAME --ip-addr=IPADDR]

[-r -D DNSNAME -I IPADDR, --remove --dns-name=DNSNAME --ip-addr=IPADDR]

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

[-e yes|no, --add --dns-name=DNS_NAME --ip-addr=IP_ADDR]

[-C | --Conn]

[-av VIRTUALSERVERFDN -I VIRTUALSERVERIP, --add --vserver=VIRTUALSERVERFDN --ip-
addr=VIRTUALSERVERIP]

[-rv VIRTUALSERVERFDN -I VIRTUALSERVERIP, --remove --vserver=VIRTUALSERVERFDN --
ip-addr=VIRTUALSERVERIP]

[-o | --oper-params]

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

[-L 0|4|5, --lm=0|4|5]

[-y [yes|no]]

[-k [SDIRCACHE | DIRCACHE | FILECACHE] = value, --set-cache SDIRCACHE | DIRCACHE |
FILECACHE = value]]

[-t [yes|no]]
```



```

[-S yes|no]
[--enable-range-lock-mask=yes|no]
[--csc= 0|1|2|3]
[-UT TIMEOUT-PERIOD, --block-invalid-users --timeout-period=TIMEOUT-PERIOD]
[-Uan USER-NAME, --block-invalid-users --add --name=USER-NAME]
[-Urn USER-NAME, --block-invalid-users --remove --name=USER-NAME]
[-Ul, --block-invalid-users --list]
[--dynamic-fid-pool=yes|no]
[-d fh, --dump-statistics=fh]
[-d fp, --dump-statistics=fp]
[-d dc, --dump-statistics=dc]
[-Rp FILE-PATH, --rights --path=FILE-PATH]
[--resync=VOLUME-NAME]
[--vol-stats=VOLUME-NAME]
[--info-level-passthru=yes|no]

```

Options

Displaying the List of Share Points

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

Lists all the available share points.

Displaying Details of a Share Point

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

Displays details of a specific share point.

Adding a New Share Point on a Non-Clustered Volume (Login to the node as root)

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

Adds a new share point.

Example :

```
novcifs -sap CIFS:/home/user1 -n user1home -m 0 -c "User1 home directory"
```

```
novcifs -sap CIFS: -n volumeshare -m 0 -c "Volume share"
```

Removing a Share Point on a Non-Clustered Volume (Login to the node as root)

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

Removes an existing share point.

Example :

```
novcifs -srn user1home
```

Adding a New Share Point on a Clustered Volume (Login to the node hosting resource as root)

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

Adds a new share point on a clustered volume

Example :

Assuming the resource name of the clustered volume SHAREDV is
.cn=PROJECT.ou=CL1.ou=Service.o=CT.t=NOVELL

```
novcifs -sap SHAREDV:/home/user1 -n user1home -m 0 -c User1 home directory -v  
PROJECTS.CL1.Service.CT.NOVELL
```

Removing a Share Point on a Clustered Volume

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

Removes an existing share point.

Example :

```
novcifs -srn user1home -v PROJECT.CL1.Service.CT.NOVELL
```

Enabling or Disabling the Debug Log

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

Enables or disables the debug log.

Enabling or Disabling the Info Log

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

Enable this option to log all informative messages from the CIFS server.

Enabling or Disabling Anonymous(guest) Login

```
novcifs [-e yes|no | --guest-login=yes|no]
```

Enables or disables guest user login.

Adding or Removing DNS Names (other than hostnames) for Advertising

```
novcifs [-a -D DNSNAME -I IPADDR | --add --dns-name=DNSNAME --ip-addr=IPADDR]  
novcifs [-r -D DNSNAME -I IPADDR | --remove --dns-name=DNSNAME --ip-addr=IPADDR]
```

This option associates DNS names with cluster resource IP address in the CIFS server. You can assign more than one DNS name to the same cluster resource and access it using the CIFS client.

Displaying Active Connection Count

```
novcifs [-C | --Conn]
```

Displays the number of active connections.

Adding a Virtual Server

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

Adds a virtual server to CIFS.

Removing a Virtual Server

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

Removes a virtual server from CIFS

Displaying Operational Parameters

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

This option displays the current settings of the CIFS server.

Enabling or Disabling SMB Signing

```
novcifs [-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.

Setting LMCompatibilityLevel

```
novcifs [-L 0|4|5 | --lm=0|4|5]
```

This option sets the LAN Manager authentication level.

0 for Accept LM and NTLM responses.

4 for Accept NTLM response/refuse LM response.

5 for Accept NTLMv2 response/refuse LM and NTLM responses.

Enabling or Disabling Subtree Search Capability

```
novcifs -y [yes|no]
```

Enables CIFS to search for the user in the entire base context.

Changing the Cache Settings

```
novcifs -k [SDIRCACHE | DIRCACHE | FILECACHE] = value | --set-cache SDIRCACHE |  
DIRCACHE | FILECACHE = value]
```

Changes the cache value. The following are the default cache values:

Maximum cached subdirectories per volume (SDIRCACHE)=102400

Maximum cached files per subdirectory (DIRCACHE)=10240

Maximum cached files per volume (FILECACHE)=256000

Enabling or Disabling Auditing

```
novcifs [-t yes|no]
```

Enables or disables auditing.

IMPORTANT: Make sure `novell-vigil` service is running before you enable this option.

Enabling or Disabling File Synchronization

```
novcifs [-S yes|no | --sync=yes|no]
```

Enables or disables file synchronization. This parameter ensures that all the data previously written to a CIFS share has been written to disk.

Enabling or Disabling Mask Behaviour for Range Locks

```
novcifs [--enable-range-lock-mask=yes|no]
```

Enables or disables range lock masking behavior.

IMPORTANT: If you enable or disable this parameter, make sure you restart the CIFS server using the `rcnovell-cifs restart` command for the changes to take effect.

Enabling or Disabling Client-side Caching

```
novcifs [--csc= 0|1|2|3]
```

Enables or disables client-side caching feature that can be used to store frequently used information on the client's machine.

0 Caches files for offline use. Does not permit automatic file-by-file re-integration.

1 Caches files for offline use. Permits automatic file-by-file reintegration.

2 Caches files for offline use. Clients are permitted to work from their local cache even while online.

3 Disables offline caching.

Enabling Invalid User Caching

CIFS will now be able to cache the invalid user logins for a specific timeout period. Further authentication requests from the same user name will be ignored based on the configured timeout period.

```
novcifs [-UT TIMEOUT-PERIOD | --block-invalid-users --timeout-period=TIMEOUT-PERIOD]
```

Specifies the amount of time a user should be considered as invalid to ignore authentication requests. Specify the timeout period in minutes and the range should be between 0 and 525600.

```
novcifs [-Uan USER-NAME | --block-invalid-users --add --name=USER-NAME]
```

Adds the specified user to the list of default invalid users whose authentication requests needs to be ignored permanently.

```
novcifs [-Urn USER-NAME | --block-invalid-users --remove --name=USER-NAME]
```

Removes the specified user from the list of cached invalid users to start considering authentication requests.

```
novcifs [-Ul | --block-invalid-users --list]
```

Lists all the cached invalid users whose authentication requests are currently ignored.

Enabling CIFS File Id Pool

Enables CIFS to increase the file id pool from 65k to 600k. By default, this option is disabled.

```
novcifs [--dynamic-fid-pool=yes|no]
```

Dumping File Handle Statistics

Dumps statistics of Linux file handles opened.

```
novcifs [-d fh | --dump-statistics=fh]
```

Dumps statistics of Linux file handles and CIFS protocol file Ids opened.

```
novcifs [-d fp | --dump-statistics=fp]
```

Dumping Directory Cache Statistics

Dumps cache statistics used to store file and directory names.

```
novcifs [-d dc | --dump-statistics=dc]
```

Viewing the Trustees Associated with a File or Folder

Displays the list of trustees associated with the specified file or folder as per the CIFS cache record.

```
novcifs [-Rp FILE-PATH | --rights --path=FILE-PATH]
```

Synchronizing the Trustee List for a Volume

Imports the trustee information from the `trustee_database.xml` file associated with the specified volume into the CIFS cache.

```
novcifs [--resync=VOLUME-NAME]
```

Viewing Statistics of Trustees for a Volume

Displays the count of new, modified, and removed trustees for the specified volume. Run this command after synchronizing the trustee list.

```
novcifs [--vol-stats=VOLUME-NAME]
```

Enabling or Disabling the Pass-through Information Levels Capability

Enables or disables the pass-through information levels capability on the server.

The option is disabled by default. Enabling this option can cause differences in client behavior. Restart the CIFS server any time you modify this option.

```
novcifs [--info-level-passthru=yes|no]
```

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/log/cifs/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.

B Comparing Novell CIFS and Novell Samba

This section compares features and capabilities of Novell CIFS and Novell Samba on Open Enterprise Server 11 SP1 servers.

Table B-1 *Novell CIFS and Novell Samba Comparison*

Parameter	Novell CIFS	Novell Samba
Authentication	Password policy is required to allow cifs users to authenticate to eDirectory.	A Samba-compatible Password Policy is required for compatibility with Windows workgroup authentication.
Client-side Caching	Yes. Configurable at server-level	Configurable at share-level
DST	Yes	No
File system support	NSS is the only file system supported for this release.	It is recommended (but not required) that you create Samba shares on NSS data volumes. NSS is fully integrated with eDirectory for easy management, and using an NSS volume allows you to take advantage of the rich data security model in NSS. You can use either iManager or the nssmu utility to create an NSS volume on an OES11 SP1 server. For instructions on how to setup an NSS volume see the OES 11 SP1: File Systems Management Guide .
LUM and Samba enablement	LUM enablement is not required.	Users must be enabled for LUM and Samba and assigned to a Samba group.
NetBIOS support	Yes. SMB over Netbios(139)	SMB over Netbios (139) and SMB over TCP/IP (445)
Novell Trustee Rights	Yes	No
Scalability	Higher when compared with Samba	Lower when compared with CIFS
Subtree Search	Yes	No

C Comparing CIFS on NetWare and CIFS on OES 11 SP1

This section compares features and capabilities of Novell CIFS on NetWare and Novell Open Enterprise Server 11 SP1 servers.

Table C-1 CIFS services on NetWare and OES 11 SP1

Service	NetWare	OES 11 SP1
64-Bit Support	No	Yes
NSS Support	Yes	Yes
Distributed File Services	Yes	Yes
OpLocks	Yes	Yes
Cross Protocol Locking	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	Yes
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	No	Yes
Dynamic Storage Technology Support	No	Yes

Service	NetWare	OES 11 SP1
LDAP User (Subtree) Search	No	Yes

D Configuration and Log Files

Table D-1 CIFS Configuration Files

Path	Description
/etc/opt/novell/cifs/cifs.conf	CIFS server
/etc/opt/novell/cifs/cifsctxs.conf	List of eDirectory contexts having CIFS users
/etc/opt/novell/cifs/cifslogrotate	Initiates the rotation using the <code>cifslogrotate.conf</code> file
/etc/opt/novell/cifs/cifslogrotate.conf	Hourly rotation of CIFS log file
/etc/opt/novell/cifs/logrotate.d/novell-cifs-hourly	Customized hourly rotation of CIFS log file
/opt/novell/cifs/share/nmasmthd/ntlm/config.txt	Used by installation of CIFS NMAS method into eDirectory tree.

Table D-2 CIFS Log Files

Path	Description
/var/log/cifs/cifs.log	CIFS server run-time
/var/opt/novell/log/cifs.log	Soft link to <code>/var/log/cifs/cifs.log</code>

With the CIFS logrotate function you can now administer your log files on an hourly basis. The cron job checks the size of the log file on a hourly basis to see if it exceeds the predefined quota. If the quota is crossed, the existing file will be rotated and logging information is written to a fresh file.

This operation continues till there are 10 cifslog files. When the last cifslog file reaches the predefined quota, then the 1st log file will be rotated.

To implement this feature, copy the `cifslogrotate` file to `/etc/cron.hourly/` and remove the `/etc/logrotate.d/novell-cifs` configuration file.

E Documentation Updates

This section contains information about documentation content changes made to the *Novell CIFS Administration Guide* since the initial release of Novell Open Enterprise Server 11 SP1.

This document was updated on the following dates:

- ♦ [Section E.1, “May 2014 \(OES 11 SP1\),” on page 101](#)
- ♦ [Section E.2, “January 2014 \(OES 11 SP1\),” on page 102](#)
- ♦ [Section E.3, “November 2013 \(OES 11 SP1\),” on page 102](#)
- ♦ [Section E.4, “April 2013 \(OES 11 SP1\),” on page 102](#)
- ♦ [Section E.5, “November 2012 \(OES 11 SP1\),” on page 103](#)
- ♦ [Section E.6, “September 2012 \(OES 11 SP1\),” on page 103](#)
- ♦ [Section E.7, “April 2012 \(OES 11 SP1\),” on page 104](#)

E.1 May 2014 (OES 11 SP1)

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

- ♦ [Section E.1.1, “What’s New,” on page 101](#)

E.1.1 What’s New

Location	Change
Section 2.1, “What’s New (OES11 SP1 May 2014 Patches),” on page 13	This section is new.

E.2 January 2014 (OES 11 SP1)

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

- ♦ [Section E.2.1, “What’s New,” on page 102](#)

E.2.1 What’s New

Location	Change
Section 2.2, “What’s New (OES 11 SP1 January 2014 Patches),” on page 13	This section is new.

E.3 November 2013 (OES 11 SP1)

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

- ♦ [Section E.3.1, “What’s New,” on page 102](#)

E.3.1 What’s New

Location	Change
“Pass-through Information Levels Capability” on page 14	This section is new.
Section 10.6.1, “Offline Files Synchronization Fails,” on page 77	This section is new.
Section 10.6.2, “Synchronization of Offline Files Caching fails with the error “The process cannot access the file because it is being used by another process.”,” on page 77	This section is new.

E.4 April 2013 (OES 11 SP1)

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

- ♦ [Section E.4.1, “What’s New,” on page 102](#)

E.4.1 What’s New

Location	Change
Section 2.4, “What’s New (OES 11 SP1 April 2013 Patches),” on page 14	This section is new.

Location	Change
“Viewing the Trustees Associated with a File or Folder” on page 93	This section is new.
“Synchronizing the Trustee List for a Volume” on page 93	This section is new.
“Viewing Statistics of Trustees for a Volume” on page 94	This section is new.

E.5 November 2012 (OES 11 SP1)

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

- ♦ [Section E.5.1, “What’s New,” on page 103](#)

E.5.1 What’s New

Location	Change
“What’s New (OES 11 SP1 November 2012 Patches)” on page 17	This section is new.
“Enabling CIFS File Id Pool” on page 93	This section is new.
“Dumping File Handle Statistics” on page 93	This section is new.
“Dumping Directory Cache Statistics” on page 93	This section is new.

E.6 September 2012 (OES 11 SP1)

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

- ♦ [Section E.6.1, “What’s New,” on page 103](#)

E.6.1 What’s New

Location	Change
“What’s New (OES 11 SP1 September 2012 Patches)” on page 17	This section is new.
“Enabling Invalid User Caching” on page 93	This section is new.

E.7 April 2012 (OES 11 SP1)

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

- ♦ [Section E.7.1, “What’s New,” on page 104](#)

E.7.1 What’s New

Location	Change
Chapter 2, “What’s New or Changed in Novell CIFS,” on page 13	This section is new.