

# **Novell CIFS Administration Guide**

## **Open Enterprise Server 11**

December 8, 2011

**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 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 15
- ♦ Chapter 4, “Installing and Setting Up CIFS,” on page 19
- ♦ Chapter 5, “Administering the CIFS Server,” on page 27
- ♦ Chapter 6, “Migrating CIFS from NetWare to OES 11,” on page 53
- ♦ Chapter 7, “Running CIFS in a Virtualized Environment,” on page 55
- ♦ Chapter 8, “Configuring CIFS with Novell Cluster Services for an NSS File System,” on page 57
- ♦ Chapter 9, “Working with Client Computers,” on page 63
- ♦ Chapter 10, “Troubleshooting CIFS,” on page 67
- ♦ Chapter 11, “Security Guidelines for CIFS,” on page 73
- ♦ Appendix A, “Command Line Utility for CIFS,” on page 75
- ♦ Appendix B, “Comparing Novell CIFS and Novell Samba,” on page 83
- ♦ Appendix C, “Comparing CIFS on NetWare and CIFS on Linux,” on page 85
- ♦ Appendix D, “Configuration and Log Files,” on page 87

## Audience

This guide is intended for OES 11 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).



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# 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.

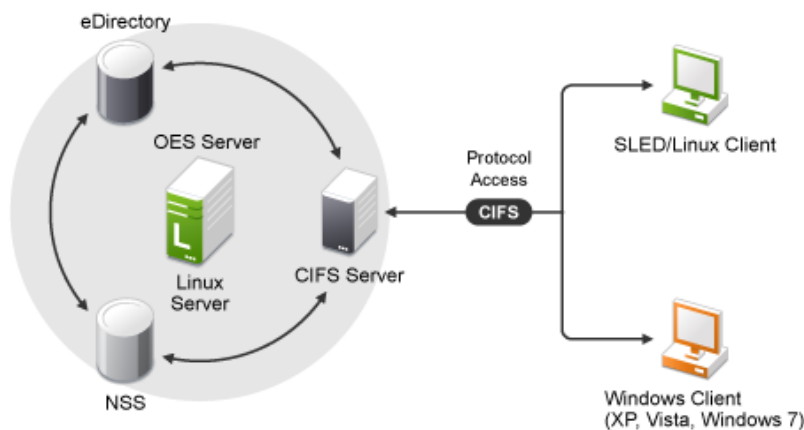
- ♦ [Section 1.1, “Understanding CIFS,” on page 9](#)
- ♦ [Section 1.2, “CIFS and Universal Password,” on page 10](#)
- ♦ [Section 1.3, “CIFS Features and Capabilities,” on page 10](#)
- ♦ [Section 1.4, “Limitations,” on page 11](#)
- ♦ [Section 1.5, “What’s Next,” on page 12](#)

## 1.1 Understanding CIFS

Novell CIFS runs on the Open Enterprise Server (OES) 11 server, uses Novell eDirectory services for user authentication, and allows Windows and Linux client users to access the server data files or other shared resources in one of the following ways:

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

**Figure 1-1** Novell CIFS Conceptual Overview



Novell CIFS enables Windows and Linux client workstations to create, copy, delete, move, save, and open files on an OES 11 server. CIFS allows read and write access from multiple client systems simultaneously. All these various file operations and sharing of resources on a network are managed from a CIFS server.

The CIFS protocol offers various services, service announcements, user authentication and authorization, and naming services that run on a CIFS server. For achieving the file sharing and other services, a CIFS Server uses NetBIOS over TCP/IP (NBT) and SMB services. CIFS file sharing is achieved by a mechanism called Browsing services or advertising.

## 1.2 CIFS and Universal Password

Universal Password helps in management of password-based authentication schemes. Each CIFS user must be Universal Password enabled to be able 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 “Novell Password Management” ([http://www.novell.com/documentation/password\\_management32/pwm\\_administration/data/allq21t.html](http://www.novell.com/documentation/password_management32/pwm_administration/data/allq21t.html)) in the *Novell Password Administration Guide* ([http://www.novell.com/documentation/password\\_management32/pwm\\_administration/data/bookinfo.html](http://www.novell.com/documentation/password_management32/pwm_administration/data/bookinfo.html)).

## 1.3 CIFS Features and Capabilities

CIFS implementation supports the following features on OES 11:

**Table 1-1** CIFS Feature List

Feature	Description
Client Support	Support for clients from Windows XP onwards.  Support for Linux clients from SLED 10 onwards (CIFS filesystem only)  Support for Mac clients from 10.5 onwards
Integration and Support for Novell Technologies	Integration with Novell eDirectory  Integration with the Novell Storage Services (NSS) file system  Support for DST shadow volume pair access. For more information, refer <a href="#">Section 5.5, “Dynamic Storage Technology for CIFS Server,”</a> on page 46.  Support for DFS junctions. For more information, refer <a href="#">Section 5.6, “DFS Junction Support in CIFS Linux,”</a> on page 47
Subtree Search	Subtree search or contextless login enables CIFS to search for a user in the entire base context of a tree.  For more information, refer <a href="#">Section 5.7, “Subtree Search,”</a> on page 50

Feature	Description
Cross-Protocol File Locking	<p>Cross-Protocol locks help prevent the same file from being concurrently accessed for modifications.</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 <a href="#">Section 5.3, “Locks Management for CIFS,” on page 43</a></p>
Migration	<p>Migration capability from NetWare to Linux. For more information, see <a href="#">Chapter 6, “Migrating CIFS from NetWare to OES 11,” on page 53</a></p>
Universal Password	<p>Support for Universal Password. For more information, refer <a href="http://www.novell.com/documentation/password_management32/pwm_administration/?page=/documentation/password_management32/pwm_administration/data/bc11ish.html">Password Management Security Considerations (http://www.novell.com/documentation/password_management32/pwm_administration/?page=/documentation/password_management32/pwm_administration/data/bc11ish.html)</a></p>
Authentication Modes	<p>CIFS supports NMASS authentication method</p> <p>Support for NTLMv1 and NTLMv2 authentication mode. For more information, refer <a href="#">Table 5-3 on page 38</a></p> <p>Support for <a href="#">Third-Party Authentication</a></p>
File Access	<p>Supports the Novell Trustee Model for file access.</p>
Client-side caching (Offline Files support)	<p>Stores frequently used information on the client's machine. For more information, see <a href="#">Section 5.8, “Enabling Offline Files Support,” on page 51</a></p>
High Availability	<p>Supported by Novell Cluster Services for high availability.</p>
Administration and Configuration	<p>Performed through <a href="#">iManager</a></p>
User Management	<p>CIFS does not require Linux User Management (LUM) enabling.</p>

## 1.4 Limitations

- ♦ SMBv2 is not supported in this OES 11 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.
- ♦ Configuring shadow volumes is only supported at the root of the volume.

In addition to the above limitations, refer the [Known Issues](#) for CIFS in this release.

## 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 15](#) to understand the implementation requirements.

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# 2 What's New or Changed in Novell CIFS

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 where 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 \(http://www.novell.com/documentation/oes11/file\\_cifs\\_lx/data/cifscluster.html\)](http://www.novell.com/documentation/oes11/file_cifs_lx/data/cifscluster.html) in the OES 11: Novell CIFS for Linux Administration Guide ([http://www.novell.com/documentation/oes11/file\\_cifs\\_lx/data/front.html](http://www.novell.com/documentation/oes11/file_cifs_lx/data/front.html))



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# 3 Planning and Implementing CIFS

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

- ♦ [Section 3.1, “Planning for CIFS,” on page 15](#)
- ♦ [Section 3.2, “Preparing for CIFS Installation,” on page 15](#)
- ♦ [Section 3.3, “CIFS System Prerequisites,” on page 17](#)
- ♦ [Section 3.4, “Co-existence Issues,” on page 18](#)
- ♦ [Section 3.5, “What’s Next,” on page 18](#)

## 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 on your enterprise servers. For details, see [“Upgrading to OES 11”](#) in the *OES 11: Installation Guide*.
- ♦ Moving from NetWare to an OES 11 setup. For details see, [Chapter 6, “Migrating CIFS from NetWare to OES 11,” on page 53](#).

## 3.2 Preparing for CIFS Installation

- ♦ [Section 3.2.1, “Prerequisites,” on page 15](#)
- ♦ [Section 3.2.2, “Required Rights and Permissions for a CIFS User/Administrator,” on page 16](#)

### 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 \(http://www.novell.com/documentation/password\\_management32/pwm\\_administration/data/allq21t.html\)](http://www.novell.com/documentation/password_management32/pwm_administration/data/allq21t.html) in the *Novell Password Management Administration Guide (http://www.novell.com/documentation/password\_management32/pwm\_administration/data/allq21t.html)*.

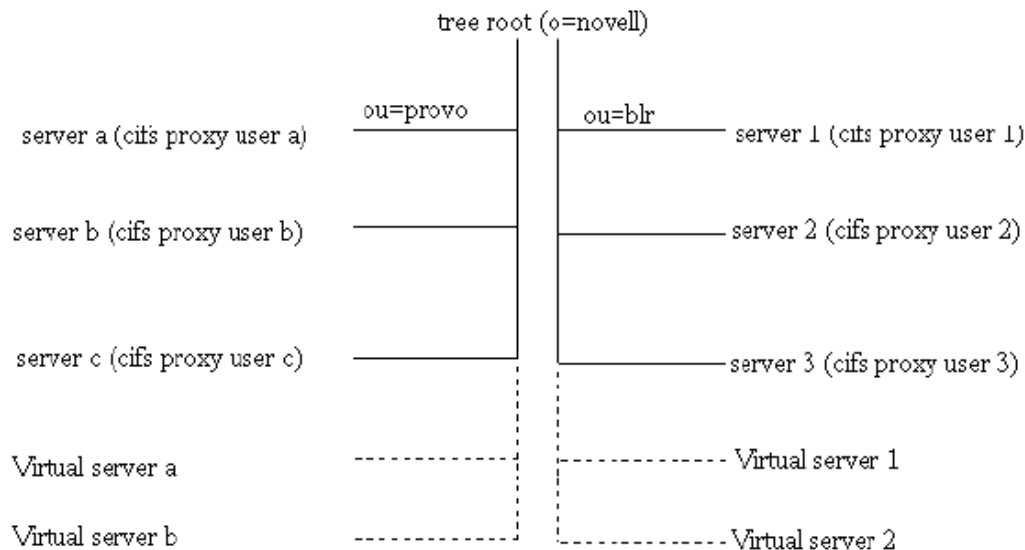
The Universal Password includes the ability to create password policies. It also removes the need to maintain two separate passwords for CIFS users.

❑ 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 holds good for hosting *Virtual server 1* too.

## 3.3 CIFS System Prerequisites

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

- ♦ [Section 3.3.1, “Server Operating System Requirements,” on page 17](#)
- ♦ [Section 3.3.2, “Server Hardware Requirements,” on page 17](#)
- ♦ [Section 3.3.3, “Client Operating System Requirements,” on page 17](#)
- ♦ [Section 3.3.4, “Package Dependencies,” on page 17](#)

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

### 3.3.3 Client Operating System Requirements

- ♦ Windows XP SP2 and SP3
- ♦ Windows Vista
- ♦ Windows 7
- ♦ Windows Vista Business SP1 and 64-bit SP1, Enterprise SP1 and 64-bit SP1, and Ultimate SP1 and 64-bit SP1
- ♦ Mac Client support from 10.5 onwards
- ♦ SUSE Linux Enterprise Desktop 10 onwards (CIFS file system only)

### 3.3.4 Package Dependencies

Use the following checklist to verify CIFS dependencies before proceeding:

- ☐ All Novell CIFS users must be in eDirectory. Linux-only users are not supported.
- ☐ Novell CIFS supports only Novell Storage Services (NSS) volumes.
- ☐ NCP should be up and running for Novell CIFS to function properly.
- ☐ If your eDirectory replica is stored on an eDirectory server earlier than 8.8.3, ensure you upgrade the server using the [Security Services 2.0.6 patch](http://download.novell.com/Download?buildid=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 server, continue with [Chapter 4, “Installing and Setting Up CIFS,” on page 19](#).

---

# 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 installation. This section also provides the CIFS installation requirements and procedures.

- ♦ [Section 4.1, “Installing and Configuring a CIFS Server through YaST,” on page 19](#)
- ♦ [Section 4.2, “Installing LSM,” on page 24](#)
- ♦ [Section 4.3, “Verifying Installation,” on page 24](#)
- ♦ [Section 4.4, “Installing the CIFS iManager Plug-In,” on page 26](#)
- ♦ [Section 4.5, “What’s Next,” on page 26](#)

## 4.1 Installing and Configuring a CIFS Server through YaST

Follow this procedure to install and configure the CIFS services on an OES 11 server in either of the following cases:

- ♦ Installing CIFS with the bundle of products during OES 11 installation.
- ♦ Installing only the Novell CIFS service and its dependencies on an existing OES 11 server.

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

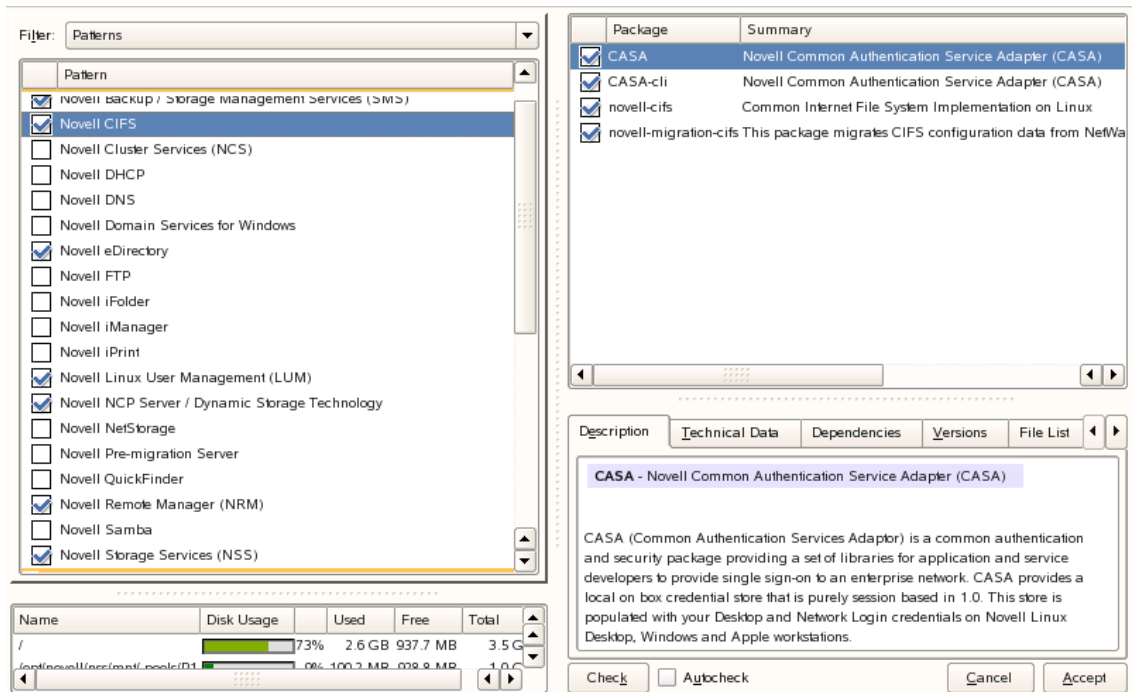
- 1 Launch YaST, using one of the following methods:

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

or

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

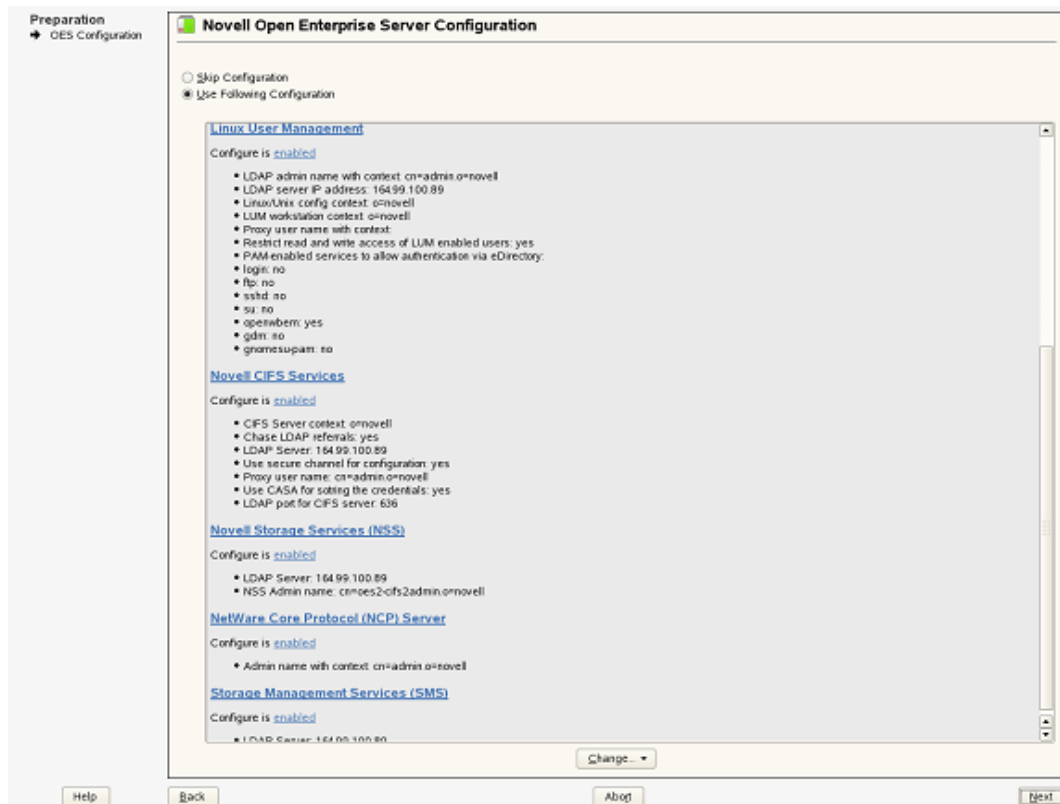
- 2 Click *Group > Open Enterprise Server > OES Install and Configuration*.
- 3 Select *Novell CIFS* from the software patterns listed.



**IMPORTANT:** By default, the CIFS dependency packages are selected: Novell eDirectory, Novell Linux User Management (LUM), NetWare Core Protocol Server (NCP), Novell Remote Manager (NRM), and Novell Storage Services (NSS), in addition to other OES 11 default dependencies or other services dependency packages.

#### 4 Click *Accept*.

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



- 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, 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.

**Novell CIFS Service Configuration**

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.  <b>NOTE:</b> If the OES 11server 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.
eDirectory Contexts	The default is displayed. Select or add a new context, indicating where the user resides. Use the <i>Add</i> and <i>Delete</i> buttons to add or delete contexts.

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

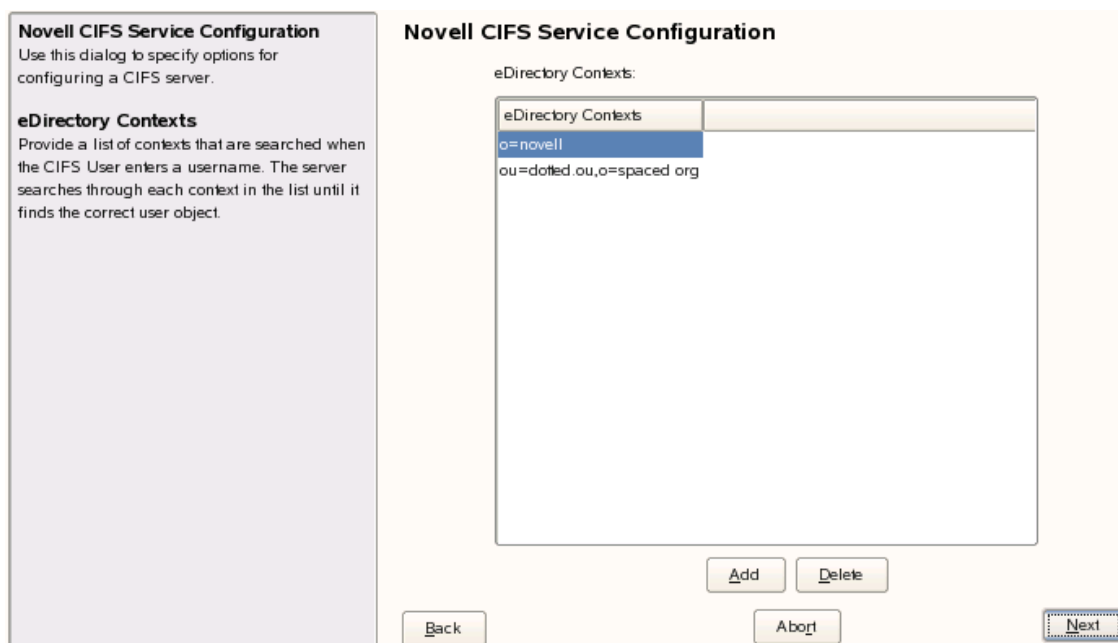
**7** Select an *eDirectory context* from the available list.

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

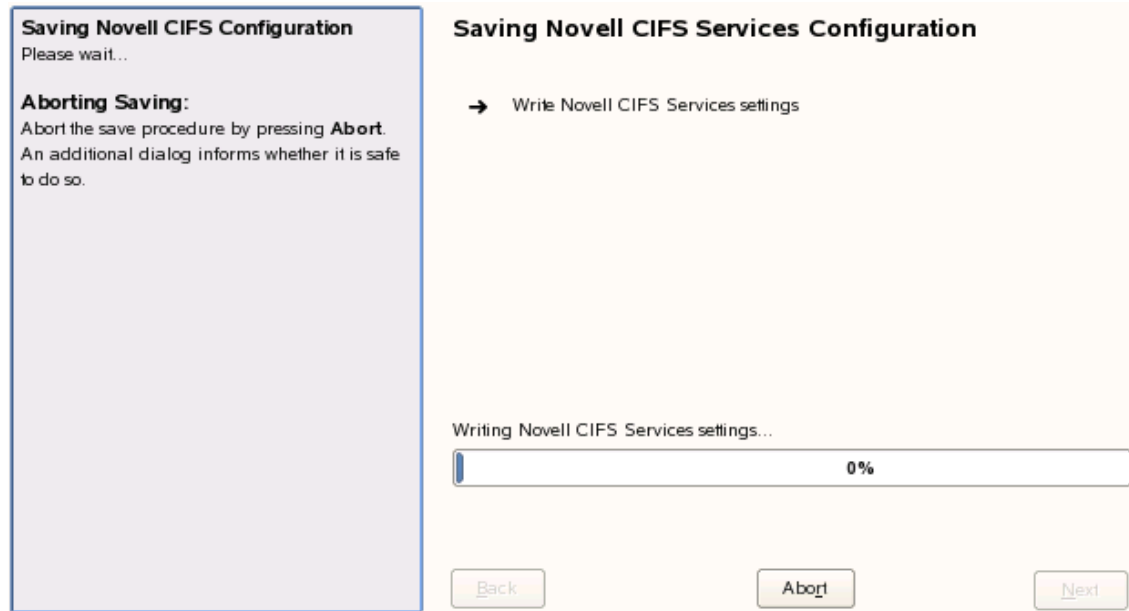
For example: `ou=eng,o=novell`

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/cifsctxs.conf`.



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



## 4.2 Installing LSM

Use one of the following methods to install LSM:

- ♦ **Fresh/Media Install:** LSM is installed with CIFS by default. LSM can be installed only once for the entire tree.
- ♦ **Upgrade:** LSM is not installed by default. Install LSM by running the YaST screen.
- ♦ **Patches:** Patches for CIFS NMAAS 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]
```

## 4.3 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 67.

- ♦ [Section 4.3.1, “Verifying Files and Folders,”](#) on page 25
- ♦ [Section 4.3.2, “Verifying the File Configuration Information,”](#) on page 25
- ♦ [Section 4.3.3, “Verifying LSM Installation,”](#) on page 26

### 4.3.1 Verifying Files and Folders

Run the following commands on the OES 11 server console:

- 1 Run the `ls /opt/novell/cifs/` command and verify that the `bin`, `schema`, and `share` folders are present.
- 2 Run the `ls /opt/novell/cifs/bin` command and verify that the following files are present:
  - ♦ `cifs-config.sh`
  - ♦ `encrypt_password`
  - ♦ `migCifsC`
  - ♦ `migcifs.pl`
  - ♦ `novcifs`
  - ♦ `retrive_proxy_cred`
  - ♦ `getpwpolicies.sh`
  - ♦ `migCifsS`
  - ♦ `migcifs.sh`
  - ♦ `readCasaC`
  - ♦ `verify-user.sh`
  - ♦ `cifs_proxy_rights_assign.sh`
  - ♦ `cifs_retrieve_proxy_cred.sh`
  - ♦ `cifs_update_proxy_cred.sh`
  - ♦ `cifs-lcm.sh`
- 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 `CASAccli -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`.

### 4.3.2 Verifying the File Configuration Information

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

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

### 4.3.3 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 both cifslinlsm method and cifslinlsm sequence are 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.

## 4.4 Installing the CIFS iManager Plug-In

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

- 1 Launch iManager from your Web browser.
- 2 Click *Configure* and go to *Plug-In Module Installation > Available Novell Plug-In Modules*.  
For details, see [Novell iManager 2.7.4 Administration Guide](#).
- 3 Select the CIFS plug-in *CIFS Management* from the list and click *Install*.
- 4 Exit iManager.
- 5 From OES 11 server console, run the following commands to complete the plug-in installation:  

```
rcnovell-tomcat6 restart
```

## 4.5 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 27.

---

# 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 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 server can be managed and administered either through iManager 2.7.4 or from the command line.

For details on how to install the CIFS iManager plug-in, see [Section 4.4, “Installing the CIFS iManager Plug-In,” on page 26](#).

For basic information on command line administration, see [Section 5.2, “Using the Command Line to Manage CIFS,” on page 40](#) or for complete details, see [Appendix A, “Command Line Utility for CIFS,” on page 75](#).

- ♦ [Section 5.1, “Using iManager to Manage CIFS,” on page 27](#)
- ♦ [Section 5.2, “Using the Command Line to Manage CIFS,” on page 40](#)
- ♦ [Section 5.3, “Locks Management for CIFS,” on page 43](#)
- ♦ [Section 5.4, “Third-Party Domain Authentication,” on page 44](#)
- ♦ [Section 5.5, “Dynamic Storage Technology for CIFS Server,” on page 46](#)
- ♦ [Section 5.6, “DFS Junction Support in CIFS Linux,” on page 47](#)
- ♦ [Section 5.7, “Subtree Search,” on page 50](#)
- ♦ [Section 5.8, “Enabling Offline Files Support,” on page 51](#)
- ♦ [Section 5.9, “Directory Cache Management for CIFS Server,” on page 51](#)
- ♦ [Section 5.10, “What’s Next,” on page 52](#)

## 5.1 Using iManager to Manage CIFS

You can manage CIFS services from iManager 2.7.4. 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 28](#)
- ♦ [Section 5.1.2, “Selecting a Server to Manage,” on page 28](#)

- ♦ [Section 5.1.3, “Setting the CIFS Server and Authentication Properties,” on page 30](#)
- ♦ [Section 5.1.4, “Managing CIFS Shares,” on page 34](#)
- ♦ [Section 5.1.5, “Configuring a CIFS User Context,” on page 38](#)
- ♦ [Section 5.1.6, “Stopping CIFS,” on page 40](#)

## 5.1.1 Prerequisites

- ♦ Install the CIFS iManager plug-in. For details, see [Section 4.4, “Installing the CIFS iManager Plug-In,” on page 26](#).
- ♦ Install CIFS on at least one OES 11 server. For details on installing CIFS, see [Chapter 4, “Installing and Setting Up CIFS,” on page 19](#).
- ♦ 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

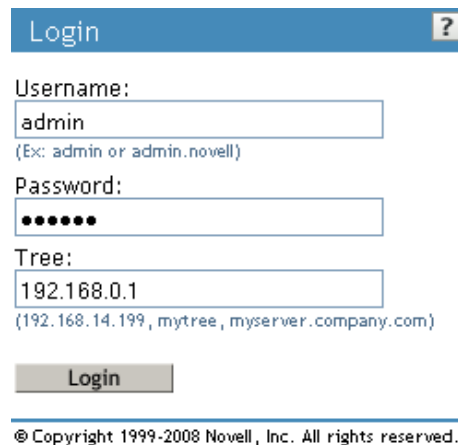
- 1 In a Web browser, specify the following in the address (URL) field:

`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 and password and 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 2.7.4 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** | **Share** | **Context**

Server | Authentication | Start | Stop

Status: Running

CIFS Virtual Server Name:

WINS IP Address:

Comment:

☐ OpLocks

☐ Distributed File Services (DFS) Support

**SMB Signature**

☒ Disabled

☐ Mandatory

☐ Optional

OK Cancel

- 4 In the *Server* field, specify the OES 11 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.

**General** | **Share** | **Context**

Server | Authentication | Start | Stop



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 68](#).

- 6 Continue with other administrative actions as necessary:
  - ♦ [Section 5.1.3, “Setting the CIFS Server and Authentication Properties,” on page 30](#)
  - ♦ [Section 5.1.4, “Managing CIFS Shares,” on page 34](#)
  - ♦ [Section 5.1.5, “Configuring a CIFS User Context,” on page 38](#)

## 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 28](#).

To change these parameters from command line, see [Section 5.2.5, “Modifying the CIFS Configuration,” on page 41](#)

- ♦ [“Setting CIFS General Server Parameters” on page 30](#)
- ♦ [“Enabling and Disabling SMB Signing” on page 31](#)
- ♦ [“Setting CIFS General Authentication Parameters” on page 32](#)

### 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

The screenshot shows the 'General' tab of the CIFS server configuration. At the top, there are three tabs: 'General' (selected), 'Shares', and 'Context'. Below these are four sub-tabs: 'Server', 'Authentication', 'Start', and 'Stop'. The 'Server' sub-tab is active. 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'.

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 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><b>IMPORTANT:</b> You should use single-byte characters in comments. Double-byte characters are not supported.</p>
<a href="#">OpLocks</a> (Opportunistic Locking)	Improves file access performance. The option is enabled by default.
<a href="#">Distributed File Services (DFS) Support</a>	This option allows Distributed File Services support in CIFS. The option is disabled by default.
SMB Signature	By default, this is set to <i>Optional</i> . Select <i>Mandatory</i> or <i>Optional</i> or <i>Disabled</i> . For details, see <a href="#">“Enabling and Disabling SMB Signing” on page 31</a> .

## Enabling and Disabling SMB Signing

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

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 pass through 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: OESBOX.novell

**General** | Share | Context

Server | Authentication | Start | Stop

**Mode**

☒ eDirectory (Local)

☐ Third Party Domain

Work Group / Domain Name: OrangeGrp

LMCompatibilityLevel: Accept LM and NTLM responses

**Primary Domain Controller**

Name:

IP Address: 0.0.0.0

OK Cancel

**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 5-2** 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"><li>♦ <b>eDirectory (Local):</b> Clients are members of a workgroup. The server running CIFS services performs the user authentication. The login credentials (username and password) on an OES 11server must match the login credentials used by the client users.</li><li>♦ <b>Third Party Domain:</b> 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.</li></ul> <p><b>IMPORTANT:</b> 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>
Primary Domain Controller Name	<p>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.</p>
Primary Domain Controller IP Address	<p>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.</p> <p><b>IMPORTANT:</b> If this is not a static address, the server running CIFS services cannot contact the PDC when the PDC reboots and the address changes.</p>

Parameters	Description
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\LSA). 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"> <li>♦ <b>Accept LM and NTLM responses (Default setting) - Level 0:</b> The server or domain controller compares the client's responses against LM, NTLM, LMv2, and NTLMv2 responses. Any valid response is accepted.</li> <li>♦ <b>Accept NTLM response/refuse LM response (NTLM authentication) - Level 4:</b> The server or domain controller accepts a valid LM, NTLM, LMv2, or NTLMv2 response.</li> <li>♦ <b>Accept NTLMv2 response /refuse LM and NTLM response (NTLMv2 required) - Level 5:</b> The server or domain controller compares the client's responses, using only LMv2 and NTLMv2.</li> </ul> <p><b>NOTE:</b> When the Accept NTLMv2 responses only option is selected and you are attempting to map a share from a Windows 7 workstation, make sure you specify the domain name alongwith the user name for the mapping to be successful.</p>

## 5.1.4 Managing CIFS Shares

The *Shares* tab on the default CIFS server page in iManager displays the CIFS share details. Use the Shares page to add a new share 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 28](#).

To manage CIFS Shares from command line, see [Section 5.2.7, "Working with CIFS Shares," on page 42](#).

Figure 5-3 CIFS Shares Page Parameters

CIFS

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

Server:

GeneralShareContext

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 35](#)
- [“Editing a CIFS Share” on page 36](#)
- [“Removing a CIFS Share” on page 37](#)
- [“CIFS Share Parameters” on page 38](#)

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 28](#).

**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 28](#).


## 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:

- 2 Specify the *Share Name*, *Volume*, *Path*, and *Comment* for the new share. For details, see [Table 5-3 on page 38](#).
- 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.

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.

---

For details on how to start the server, see [Section 5.1.2, "Selecting a Server to Manage," on page 28](#).

- 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 28](#).

## 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\*:

Path\*:

Modify

Comment:

OK

Cancel

- 2 Modify the *Share Name* or *Path* or *Comment* for the share. For details, see [Table 5-3 on page 38](#).
- 3 Click the *Modify* button to modify the *Volume* and *Path* on the pop-up screen. For details, see [Table 5-3 on page 38](#).

The dialog box has a blue title bar with the text "Modify Share Path" and a close button. It contains two text input fields: "Volume\*" and "Path\*", both with red asterisks indicating they are required. To the right of the "Volume\*" field is a magnifying glass icon. Below the "Path\*" field is a hint text "(vol: or vol:\directorypath)". At the bottom right are "OK" and "Cancel" buttons.

- 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 28](#).

- 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.

OK

Repeat Task

- 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 volume name.
Path	<p>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.</p> <p><b>NOTE:</b> Do not end the path with a backslash (<i>\</i>).</p>
Comment	<p>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.</p>

### 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 43](#).

**Figure 5-4** CIFS Context Page

**CIFS**

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

Server:   

**General** **Share** **Context**

[Add...](#) | [Remove](#)

☐ **Context**

☐ o=novell

- ♦ [“Adding a New Context” on page 39](#)
- ♦ [“Removing a Context” on page 39](#)

## 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 28](#).

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

**Figure 5-5** Add New Context

**Context** 

New

**OK** **Cancel**

- 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 75](#) or enter `man novcifs` at the command prompt.

- [Section 5.2.1, “Starting CIFS,” on page 40](#)
- [Section 5.2.2, “Stopping CIFS,” on page 40](#)
- [Section 5.2.3, “Restarting CIFS,” on page 40](#)
- [Section 5.2.4, “Monitoring CIFS,” on page 41](#)
- [Section 5.2.5, “Modifying the CIFS Configuration,” on page 41](#)
- [Section 5.2.6, “Anonymous Login for CIFS,” on page 42](#)
- [Section 5.2.7, “Working with CIFS Shares,” on page 42](#)
- [Section 5.2.8, “Configuring the CIFS Context Search File,” on page 43](#)

### 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 68](#).

---

### 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 5.1.3, “Setting the CIFS Server and Authentication Properties,”](#) on page 30.

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 sharepoint.
- ♦ In the DOMAIN / WORKGROUP section, set the domain to use.

---

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

---

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

## 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 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 42
- ♦ “Anonymous Login in a Cluster” on page 42

### 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 \(http://www.novell.com/documentation/linux\\_client\)](http://www.novell.com/documentation/linux_client)

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: 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 34](#).

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 77](#)
- ♦ [“Removing a Share Point on a Non-Clustered Volume \(Login to the node as root\)” on page 77](#)
- ♦ [“Displaying the List of Share Points” on page 77](#)
- ♦ [“Displaying Details of a Share Point” on page 77](#)
- ♦ [“Enabling or Disabling SMB Signing” on page 79.](#)

## 5.2.8 Configuring the CIFS Context Search File

The recommended method is to use iManager to configure the search context. For details, see [Section 5.1.5, “Configuring a CIFS User Context,” on page 38.](#)

## 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 ccess 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: 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 44](#)
- ♦ [Section 5.4.2, “Using iManager to Enable Third-Party Authentication,” on page 44](#)

### 5.4.1 Prerequisites

- ♦ [“Prerequisites for the Primary Domain Controller” on page 44](#)
- ♦ [“Prerequisites for the CIFS Server” on page 44](#)

#### Prerequisites for the 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 by configuring timeout value to infinity i.e 65535. For more information, 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.

---

**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 31](#).

### 5.4.2 Using iManager to Enable Third-Party Authentication

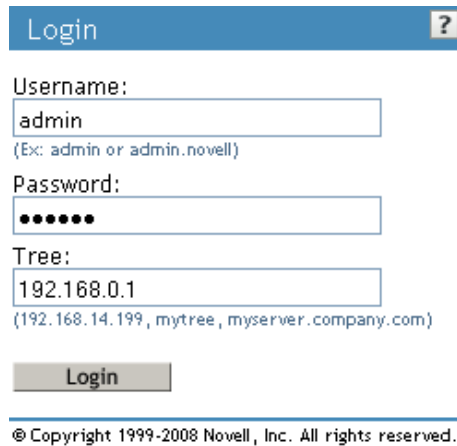
- 1 In a Web browser, specify the following in the address (URL) field:

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

For example:

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

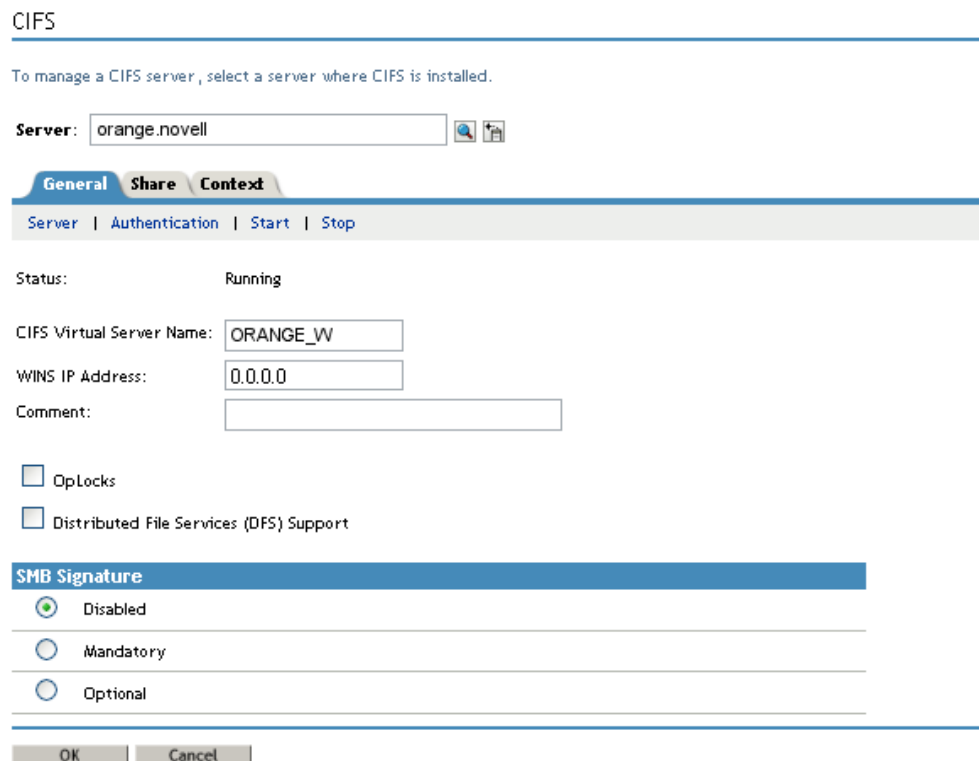
- 2 At the login prompt, specify the server administrator username and password and click *Login*.



The login dialog box has a blue header with the word "Login" and a question mark icon. It contains three text input fields: "Username:" with "admin" entered, "Password:" with masked characters, and "Tree:" with "192.168.0.1" entered. Below the fields are example strings: "(Ex: admin or admin.novell)" for username, and "(192.168.14.199, mytree, myserver.company.com)" for tree. A "Login" button is at the bottom, followed by a copyright notice: "© Copyright 1999-2008 Novell, Inc. All rights reserved."

For more information on iManager administration, see the [Novell iManager 2.7.4 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.



The CIFS configuration window has a title bar "CIFS" and a subtitle "To manage a CIFS server, select a server where CIFS is installed." Below is a "Server:" field with "orange.novell" and search/browse icons. There are three tabs: "General" (selected), "Share", and "Context". Under "General", there are sub-tabs: "Server", "Authentication", "Start", and "Stop". The "Status:" is "Running". Fields include "CIFS Virtual Server Name:" (ORANGE\_W), "WINS IP Address:" (0.0.0.0), and a "Comment:" field. There are checkboxes for "OpLocks" and "Distributed File Services (DFS) Support". A section titled "SMB Signature" has three radio buttons: "Disabled" (selected), "Mandatory", and "Optional". At the bottom are "OK" and "Cancel" buttons.

- 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 33](#).
- 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 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 “[Planning to Create DST Shadow Volumes](#)” in the *OES 11: Dynamic Storage Technology Administration Guide*.

DST for CIFS server that 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 Volumes and Policies](#)” in the *OES 11: 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 “[Providing a Merged View for Users](#)” in the *OES 11: Dynamic Storage Technology Administration Guide*.

For more information about “[Configuring Global Policies for DST](#)” see the *OES 11: 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.

- ♦ [Section 5.6.1, “Prerequisites,” on page 47](#)
- ♦ [Section 5.6.2, “Enabling DFS Support,” on page 47](#)
- ♦ [Section 5.6.3, “Limitations,” on page 48](#)
- ♦ [Section 5.6.4, “Problems Following DFS Junctions with CIFS in Windows 2000/XP Releases,” on page 48](#)

### 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 'General' tab of the CIFS configuration window. 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'. The 'Comment' field is empty. There 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:** `c:\windows\system32\drivers\etc\hosts`

If you do not have `hosts` file, create the file.

- 2 For all the host and target servers, add 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** 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 everytime 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 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.

- ♦ [Section 5.7.1, “Prerequisites,” on page 50](#)
- ♦ [Section 5.7.2, “Enabling a Subtree Search,” on page 50](#)
- ♦ [Section 5.7.3, “Subtree Search in a Cluster Setup,” on page 50](#)
- ♦ [Section 5.7.4, “Subtree Search Persistence,” on page 50](#)

### 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.

---

### 5.7.4 Subtree Search Persistence

The subtree search setting is saved in the `cifs.conf` file and is persistent even after the CIFS server or node is restarted.

## 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 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.

For more information on using 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
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 63.

---

# 6 Migrating CIFS from NetWare to OES 11

The Open Enterprise Server (OES) 11 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 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: Migration Tool Administration Guide](#).

For more information on migrating CIFS, see “[Migrating CIFS from NetWare to OES 11](#)” in the [OES 11: 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: 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, and requires no special configuration or other changes.

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

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

## 7.1 What’s Next

To learn more about what you can do with CIFS on OES 11, continue with [Chapter 5, “Administering the CIFS Server,”](#) on page 27.



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

Novell Cluster Services for Open Enterprise Server (OES) 11 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 57](#)
- ♦ [Section 8.2, “Cluster Terminology,” on page 57](#)
- ♦ [Section 8.3, “CIFS and Cluster Services,” on page 58](#)
- ♦ [Section 8.4, “Configuring CIFS in a Cluster,” on page 60](#)
- ♦ [Section 8.5, “What’s Next,” on page 61](#)

## 8.1 Benefits of Configuring CIFS for High Availability

With the OES 11 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, 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 installation. In a cluster, Novell CIFS for OES 11, 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 58](#)
- ♦ [Section 8.3.2, “Using CIFS in a Cluster Environment,” on page 59](#)

### 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 servers

For information on installing Novell Cluster Services, see [“Installing and Configuring Novell Cluster Services on OES 11”](#) in the *OES 11: Novell Cluster Services 2.0 for Linux Administration Guide*.

For information on managing Novell Cluster Services, see [“Managing Clusters”](#) in the *OES 11: Novell Cluster Services 2.0 for Linux Administration Guide*.

- ☐ Novell CIFS is installed on all the nodes in the cluster to provide high availability
- Follow the instructions in [“Installing and Configuring a CIFS Server through YaST” on page 19](#).

## 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 Cluster Resources for Shared NSS Pools and Volumes](#)” in the *OES 11: Novell Cluster Services 2.0 for Linux Administration Guide*.

For details on creating a pool using Novell Linux Manager using the `nlvm create pool` command, see “[Create Pool](#)” in the *OES 11: 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 it is already running otherwise (dead/not running) it starts a new instance and returns status.

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: Novell Cluster Services 2.0 for Linux Administration Guide*

---

**IMPORTANT:** Ensure that you set the number of *Maximum Local Failures* permitted to 0. This ensures that if the CIFS server crashes, cluster services ensure that there is an immediate failover. The cluster services does not attempt to load or unload the resource on the current node.

---

- 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.

- 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 60](#)
- ♦ [Section 8.4.2, "Creating Shared Pools and Accessing Sharepoints," on page 61](#)

### 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 61](#)
- ♦ [“Creating Using NSSMU to Create the Pool” on page 61](#)
- ♦ [“Creating Pools Using NLVM” on page 61](#)

### Creating Pools Using iManager

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

---

**NOTE:** If the cluster object is created in a container that is in a different than the one in which the nodes are present or is at a higher level than where 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 Using NSSMU to Create the Pool

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

### Creating Pools Using NLVM

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

## 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 27](#).

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 63](#).



---

# 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 63](#)
- ♦ [Section 9.2, “Mapping Drives and Mounting Volumes,” on page 65](#)

## 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 63](#)
- ♦ [Section 9.1.2, “Accessing Files from a Linux Desktop,” on page 64](#)

### 9.1.1 Accessing Files from a Windows Client

- ♦ [“Prerequisite” on page 63](#)
- ♦ [“Procedure to Access Files” on page 63](#)

#### 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 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 64](#)
- ♦ [“Using a NETBIOS Name to Access Files” on page 64](#)
- ♦ [“Using nautilus to Access Files” on page 64](#)

### 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 65](#)
- ♦ [Section 9.2.2, “Mapping Files from a Windows Vista Client,” on page 65](#)
- ♦ [Section 9.2.3, “Mounting Volumes from a Linux Client,” on page 65](#)

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

---

# 10 Troubleshooting CIFS

- ♦ [Section 10.1, “Known issues,” on page 67](#)
- ♦ [Section 10.2, “CIFS Installation and Configuration Issues,” on page 67](#)
- ♦ [Section 10.3, “CIFS Log In Issues,” on page 68](#)
- ♦ [Section 10.4, “CIFS Loading Issues,” on page 68](#)
- ♦ [Section 10.5, “CIFS Migration Issues,” on page 70](#)
- ♦ [Section 10.6, “CIFS General Issues,” on page 70](#)

## 10.1 Known issues

- ♦ In OES 11, on a Windows 7 client, opening MS Office 2007 SP2 files throws a read-only error randomly. This is a rare occurrence. Close and reopen the file till it opens in an editable mode.
- ♦ 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 67](#)
- ♦ [Section 10.2.2, “CIFS Stops After Installation and Throws an Error 669, “schema not extended,” on page 67](#)
- ♦ [Section 10.2.3, “CIFS Is Not Running With Samba,” on page 68](#)
- ♦ [Section 10.2.4, “CIFS Server Broadcasts the Browser Packets every Twelve Minutes,” on page 68](#)

### 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.

**Action:** Restart the OES 11 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 69](#)
- ♦ [Section 10.4.2, “Newly Created NSS Volumes Are Not Being Shared in CIFS,” on page 69](#)

## 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 4.1, "Installing and Configuring a CIFS Server through YaST,"](#) on page 19.

## 10.4.2 Newly Created NSS Volumes Are Not Being Shared in CIFS

**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.

Or

**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.

Or

**Description:** Trustee updation 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 70](#)
- ♦ [Section 10.5.2, “Different Tree Migration Is Not Available in the Migration Tool,” on page 70](#)

### 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 server.

**Action:** Restart OES 11 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: Migration Tool Administration Guide](#).

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

For detailed YaST configuration steps, see [Section 4.1, “Installing and Configuring a CIFS Server through YaST,” on page 19](#).

## 10.6 CIFS General Issues

### 10.6.1 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.

### 10.6.2 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 at `C:\WINDOWS\system32\drivers\etc\hosts`.

### 10.6.3 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.

### 10.6.4 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.



---

# 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.

- ♦ [Section 11.1, “Using Credentials,” on page 73](#)
- ♦ [Section 11.2, “Using CASA,” on page 73](#)
- ♦ [Section 11.3, “Using VPN Connections,” on page 73](#)
- ♦ [Section 11.4, “Using SMB Signing,” on page 73](#)
- ♦ [Section 11.5, “Other Security Considerations,” on page 74](#)

## 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 31](#).

## 11.5 Other Security Considerations

OES 11 provides Universal Password security. For details, see [Security Considerations \(http://www.novell.com/documentation/password\\_management32/pwm\\_administration/?page=/documentation/password\\_management32/pwm\\_administration/data/bc11ish.html\)](http://www.novell.com/documentation/password_management32/pwm_administration/?page=/documentation/password_management32/pwm_administration/data/bc11ish.html) in the *Novell Password Management Administration Guide* ([http://www.novell.com/documentation/password\\_management32/pwm\\_administration/data/bwjorxp.html](http://www.novell.com/documentation/password_management32/pwm_administration/data/bwjorxp.html)).

---

# A Command Line Utility for CIFS

This section describes the command line utilities that work on an Open Enterprise Server (OES) 11 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-count]

[-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]
```

## 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 the facility to map to a CIFS share without a username and password.

## 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-count]
```

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

## Enable or Disable Auditing

```
novcifs -t yes|no
```

Enables or disables auditing.

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

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## Enable or Disable 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 behaviour.

---

**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.

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## 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.

## 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.

## Authors

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## See Also

`migcifs(8)`

## Report Bugs

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



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# B Comparing Novell CIFS and Novell Samba

This section compares features and capabilities of Novell CIFS and Novell Samba on Open Enterprise Server 11 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 server. For instructions on how to setup an NSS volume see the <a href="#">OES 11: File Systems Management Guide</a> .
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



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# C Comparing CIFS on NetWare and CIFS on Linux

This section compares features and capabilities of Novell CIFS on the NetWare and Linux platforms for Novell Open Enterprise Server 11 servers.

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

Service	NetWare	OES 11
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

<b>Service</b>	<b>NetWare</b>	<b>OES 11</b>
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
/va/log/cifs/cifs.log	CIFS server run-time
/var/opt/novell/log/cifs.log	Soft link to /var/log/cifs/cifs.log

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.

