

HP OpenVMS Common Internet File System (CIFS) Based on Samba

Installation and Configuration Guide

December 2007

This document describes how to install and configure the HP OpenVMS CIFS software.

Operating System:	OpenVMS Alpha Versions 8.2 and 8.3 OpenVMS Integrity servers Versions 8.2-1, 8.3 and 8.3-1H1
Software Version:	HP OpenVMS CIFS, Version 1.0 (Based on Samba, Linux Version 3.0.24)

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Preface

This document describes how to install and configure HP OpenVMS Common Internet File System (CIFS) software Version 1.0.

Intended Audience

This document is intended for OpenVMS system administrators and network administrators.

Structure of this Document

This document contains the following chapters:

- Chapter 1 describes the requirements and procedures that you must complete before installing CIFS.
- Chapter 2 describes the installation procedure and postinstallation tasks.
- Chapter 3 describes how to configure CIFS.
- Chapter 4 describes how to start and stop CIFS.
- Chapter 5 describes how to remove CIFS from your system.
- Appendix A provides sample installation and removal procedures for CIFS.

Related Documents

This document supplements the following:

- *HP OpenVMS CIFS Based on Samba Release Notes*
- *Migrating HP Advanced Server for OpenVMS to HP OpenVMS CIFS Based on Samba Migration Guide*

For more information about Samba, see the following web address:

<http://www.samba.org>

Acronyms

The following table lists the acronyms used in this document:

Acronym	Description
CIFS	Common Internet File System
SMB	Server Message Block
SMBD	SMB Daemon
NMBD	Name Server Daemon

Acronym	Description
TCP/IP	Transmission Control Protocol/Internet Protocol
PCSI	POLYCENTER Software Installation utility
UIC	User Identification Code

Reader's Comments

HP welcomes your comments on this manual. Please send comments to either of the following addresses:

Internet	openvmsdoc@hp.com
Postal Mail	Hewlett-Packard Company OpenVMS Documentation, ZKO3-4/Y02 110 Spit Brook Rd. Nashua, NH 03062-2698

Conventions

The following conventions are used in this document:

Convention	Meaning
Ctrl/x	A sequence such as Ctrl/x indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button.
...	A horizontal ellipsis in a figure or example indicates the following possibilities: <ul style="list-style-type: none"> • Additional optional arguments in a statement have been omitted. • The preceding item or items can be repeated one or more times. • Additional parameters, values, or other information can be entered.
.	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being described.
()	In command format descriptions, parentheses indicate that you must enclose multiple choices in parentheses.
[]	In command format descriptions, brackets indicate optional choices. You can choose one or more items or no items. Do not type the brackets on the command line. However, you must include the brackets in the syntax for OpenVMS directory specifications and for a substring specification in an assignment statement.
{}	In command format descriptions, braces indicate required choices; you must choose at least one of the items listed. Do not type the braces on the command line.

Convention	Meaning
Example	This typeface indicates code examples, command examples, and interactive screen displays. In text, this type also identifies URLs, UNIX commands and pathnames, PC-based commands and folders, and certain elements of the C programming language.
<i>italic type</i>	Italic type indicates important information, complete titles of manuals or variables. Variables include information that varies in system output (for example, Internal error <i>number</i>), in command lines (/PRODUCER= <i>name</i>), and in command parameters in text (where <i>dd</i> represents the predefined code for the device type).
UPPERCASE TYPE	Uppercase indicates the name of a command, routine, file, file protection code, or the abbreviation of a system privilege.
-	A hyphen at the end of a command format description, command line, or code line indicates that the command or statement continues on the following line.

Preparing to Install HP OpenVMS CIFS Software

This chapter describes the software requirements, how to prepare for installing CIFS, how to access the release notes and the preinstallation tasks for HP OpenVMS CIFS software.

1.1 About HP OpenVMS CIFS Software Kit

HP OpenVMS CIFS Version 1.0 software is a complete kit and comprises the following:

Software

- Utility to run and monitor CIFS
- Daemon process binaries
- CIFS source files (.BCK)
- Migration Utility from HP Advanced Server for OpenVMS to HP OpenVMS CIFS (.BCK)
- SWAT related files (.BCK)

Documentation

- *HP OpenVMS CIFS Based on Samba Installation and Configuration Guide*
- *HP OpenVMS CIFS Based on Samba Release Notes*
- *Migrating HP Advanced Server for OpenVMS to HP OpenVMS CIFS Based on Samba Migration Guide*

1.2 About the Release Notes

The *HP OpenVMS CIFS Version 1.0 Release Notes* document contains important information that you must know before installing the product. HP recommends that you read the release notes before starting the installation.

1.2.1 How to Access the Release Notes Before Installation

To extract the release notes before installation, follow these steps:

1. Load the installation kit on a drive.
2. Enter the following POLYCENTER Software Installation utility (PCSI) command, where *file_name.txt* is the name that you specify for the text file, and *directory-path* specifies the disk and directory name for the source drive that holds HP OpenVMS CIFS kit (for example, /SOURCE=SYS\$DEVICE:[TEST1]):

Preparing to Install HP OpenVMS CIFS Software

1.2 About the Release Notes

```
$ PRODUCT EXTRACT RELEASE_NOTES SAMBA/FILE=file_name.txt-  
_ $ /SOURCE=directory-path
```

If the file name is not specified, the release notes are written to a file called DEFAULT.PCSI\$RELEASE_NOTES in the current directory. If the destination qualifier is not specified, PCSI extracts the release notes to the current directory.

1.2.2 How to Access the Release Notes After Installation

After the installation completes, you can read the release notes or print the file from SYS\$HELP:CIFS_REL_NOTES.TXT.

1.2.3 How to Extract the CIFS Source After Installation

To extract the source files after the installation completes, enter the following command:

```
$ PRODUCT EXTRACT FILE SAMBA  
_ $ /SELECT= SAMBA$SRC.BCK/SOURCE=[TEST1]
```

The PCSI utility extracts the SAMBA\$SRC.BCK file from the kit to the [TEST1] directory, which is the default directory.

Note

The CIFS source can be extracted during installation by using the steps provided in the sample installation log. For more information, see *Appendix A, Sample HP OpenVMS CIFS Installation and Removal Procedures*.

1.3 Requirements for Installing HP OpenVMS CIFS Software

The following section describe the software requirements for installing the HP OpenVMS CIFS software.

1.3.1 Software Requirements

To install HP OpenVMS CIFS software successfully, the following software must be installed and configured:

- OpenVMS Alpha Version 8.2 or 8.3
or
OpenVMS Integrity servers Version 8.2-1 or 8.3 or 8.3-1H1
- TCP/IP Services or MultiNet or TCPware - the transport software to support the network protocols used by other servers and network clients

Note

You must install the latest CRTL ECO kits before installing the HP OpenVMS CIFS kit. The latest CRTL ECO kits can be downloaded from the following web address: ftp://ftp.itrc.hp.com/openvms_patches

1.4 Preinstallation Tasks

Table 1-1 lists the preinstallation tasks you must complete before installing HP OpenVMS CIFS software on your system. In addition, for each task a pointer is given to the section that describes it.

Table 1–1 Preinstallation Checklist

Steps	Task to perform...	Described in...
1	Ensure that the network hardware is installed and connected	Section 1.4.1
2	Log in to the system account (or another account that has all privileges enabled to run the installation procedure)	Section 1.4.2
3	Ensure that the required software is installed	Section 1.4.3
4	Read the release notes	Section 1.4.4
5	Back up the system disks	Section 1.4.5
6	Ensure that you have adequate disk space for installation	Section 1.4.6
7	Ensure that TCP/IP is running	Section 1.4.7
8	Check OpenVMS Cluster configuration	Section 1.4.8

1.4.1 Check the Network Hardware

HP OpenVMS CIFS software runs on OpenVMS Alpha or OpenVMS Integrity server systems that meet the software requirements. The PC Local Area Network (LAN) requires the following:

- A supported network controller board in the server and in each client
- Cables to connect each client and server to the network

1.4.2 Log in to the System Account

Before you install HP OpenVMS CIFS software, log in using the system account or another account that has all the privileges enabled to run the installation procedure.

To log in using the system account, follow these steps:

1. At the user name prompt, enter the following:

Username: SYSTEM

2. At the password prompt, enter the password to access the SYSTEM account.

1.4.3 Check the Required Software

HP OpenVMS CIFS software requires:

- OpenVMS Alpha operating system Version 8.2 or 8.3
or
OpenVMS Integrity servers operating system Version 8.2-1 or 8.3 or 8.3-1H1
- TCP/IP or MultiNet or TCPware transport for network communication
- Latest CRTL ECO kit must be installed.

Preparing to Install HP OpenVMS CIFS Software

1.4 Preinstallation Tasks

1.4.4 Read the Release Notes

Ensure that you have read the release notes before installing the CIFS software. For more information, see Section 1.2, About the Release Notes.

1.4.5 Back Up the System

To safeguard against the loss of valuable data, HP recommends that you back up all disks on your system (or at least the system disk) before you install any layered product.

To do a system backup, use the OpenVMS BACKUP command. For more information, see *HP OpenVMS System Management Utilities Reference Manual*.

1.4.6 Check Disk Space

To determine the number of disk blocks required for the installation, see *HP OpenVMS CIFS Based on Samba Release Notes*. To check the number of free blocks on the system disk, enter the following command:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

The OpenVMS system displays information about the system disk, including the number of free blocks. For example,

Device Name	Device Status	Error Count	Volume Label	Free Blocks	Trans Count	Mnt Cnt
NEWTON\$DKA0:	Mounted	0	OS82	45747152	629	1

1.4.7 Checking the TCP/IP Status

Verify the TCP/IP status by entering the following command:

```
$ SYS$STARTUP:TCPIP$STARTUP.COM
```

1.4.8 Check the OpenVMS Cluster Configuration

Ensure that all cluster members on which the HP OpenVMS CIFS software will run are in the same TCP/IP subnet.

Installing HP OpenVMS CIFS Software

This chapter describes how to install the HP OpenVMS CIFS software using the PCSI utility. You must follow the procedure outlined in this chapter if you are installing the HP OpenVMS CIFS server.

For information about the PCSI utility, see the *HP OpenVMS System Manager's Manual*.

Before you begin the installation procedure, ensure that you have completed the preinstallation tasks listed in Section 1.4, Preinstallation Tasks.

2.1 Installation Procedure

2.1.1 Installing the Server

When you have completed the recommended preinstallation tasks outlined in Section 1.4, Preinstallation Tasks, and have read the release notes, you are ready to install the HP OpenVMS CIFS software.

For more information on using the utility to install, manage, and remove software products on your system, see the *HP OpenVMS System Manager's Manual*.

To install the HP OpenVMS CIFS software, follow these steps:

1. Log into the SYSTEM account or a privileged account.
2. Start the PCSI utility by entering the PRODUCT INSTALL command with the directory path that is appropriate for your system as follows:

```
$ PRODUCT INSTALL <product-identifier>/DESTINATION =<directory-path>
```

where: *<product-identifier>* for the HP OpenVMS CIFS software kit is SAMBA and *<directory-path>* specifies the target disk and directory name where HP OpenVMS CIFS software kit is installed. For example, /DESTINATION=SYS\$SYSDEVICE:[000000]

If you do not specify the destination qualifier, the PCSI utility searches for the location defined by the logical name PCSI\$DESTINATION. If not defined, the utility installs the HP OpenVMS CIFS software kit in the default directory, that is, SYS\$SYSDEVICE:[VMS\$COMMON].

Note

The installation procedure will create the [..SAMBA] directory, for example, SYS\$SYSDEVICE:[000000.SAMBA]

The installation of HP OpenVMS CIFS creates four OpenVMS user accounts, namely SAMBA\$NMBD, SAMBA\$SMBD, SAMBA\$TMPLT and SAMBA\$GUEST. The UICs for these accounts are allocated dynamically based on the user input and availability in the SYSUAF database.

Installing HP OpenVMS CIFS Software

2.1 Installation Procedure

It is assumed that all cluster nodes are sharing same SYSUAF and Rightslist Database available on the node, where CIFS is installed.

Note

To stop the installation at any time, press Ctrl/Y. The installation procedure does not delete any files that were created, then exits.

2.1.2 Installing on a VMSccluster

On a VMSccluster, you must install CIFS software on the first node using the /DESTINATION qualifier. If all the nodes in the cluster, where CIFS will be run are installed with OpenVMS Version 8.3 and higher, provide a destination path pointing to the common disk which is accessible to all the nodes.

If you are installing HP OpenVMS CIFS on a cluster that does not have a common disk, you must install the CIFS software on each node separately and configure each node separately.

If you are installing HP OpenVMS CIFS on a cluster where one node is running OpenVMS Version 8.3 or earlier and the other node(s) are running, OpenVMS Version 8.3 and higher, you must install and configure CIFS software on each node separately. The destination path provided with the /DESTINATION qualifier must be node specific.

Note

CIFS is supported in a cluster only on nodes where CIFS runs on OpenVMS Version 8.3 and higher.

2.1.3 Postinstallation Tasks

After the installation completes, follow these steps:

1. Check if the SAMBA\$ROOT logical is set by entering the following command:

```
$ SH LOG SAMBA$ROOT
"SAMBA$ROOT" = "NEWTON$DKA100:[SAMBA.] "
```

If you are installing CIFS on a cluster, this logical will be defined only on the NODE where CIFS is installed.

2. Execute the SAMBA\$ROOT:[BIN]:SAMBA\$CONFIG.COM command procedure. This command procedure will set TCP/IP services such as SMBD and SWAT and the logicals required by CIFS.
3. Check if the TCP/IP services such as SMBD and SWAT exist and also ensure that SWAT service is enabled by entering the following commands:

Installing HP OpenVMS CIFS Software

2.1 Installation Procedure

```
$ TCPIP SH SERVICE SMBD
```

Service	Port	Proto	Process	Address	State
SMBD	139	TCP	SMBD	0.0.0.0	Disabled

```
$ TCPIP SH SERVICE SWAT
```

Service	Port	Proto	Process	Address	State
SWAT	901	TCP	SWAT	0.0.0.0	Disabled

Note

SMBD services will be enabled when the CIFS starts.

4. Execute @SAMBA\$DEFINE_COMMANDS.COM to define symbols for all the CIFS utilities. This command procedure also defines symbols, namely, SMBSTART, SMBSTOP, SMBSHOW and SMBVERSION.
5. Proceed to chapter 3 to configure HP OpenVMS CIFS software.

2.2 HP OpenVMS CIFS Software Installation Directories

Table 2-1 lists the HP OpenVMS CIFS installation directories and the files that are installed in each directory.

Table 2–1 HP OpenVMS CIFS Software Installation Directories

Directory	Description
SAMBA\$ROOT	Main tree
SAMBA\$ROOT:[BIN]	Binaries and command scripts
SAMBA\$ROOT:[BIN.ALPHA]	Directory containing OpenVMS Alpha executables
SAMBA\$ROOT:[BIN.IA64]	Directory containing OpenVMS IA64 executables
SAMBA\$ROOT:[LIB]	SMB.CONF, lmhosts, configuration files, and so on
SAMBA\$ROOT:[PRIVATE]	Samba-encrypted password file and TDBs
SAMBA\$ROOT:[TMP]	OpenVMS equivalent of /tmp in UNIX
SAMBA\$ROOT:[USERS]	User directory files
SAMBA\$ROOT:[VAR]	Samba log files and lock files (TDBs)
SAMBA\$ROOT:[SRC]	The .BCK file of Samba source
SAMBA\$ROOT:[UTILS]	The .BCK file of Migration Utility and SWAT Utility
SAMBA\$ROOT:[SWAT]	SWAT related files

Installing HP OpenVMS CIFS Software

2.3 Troubleshooting Installation Problems

2.3 Troubleshooting Installation Problems

This section describes the troubleshooting of any installation problem that you might encounter when you install HP OpenVMS CIFS software in an inappropriate environment.

2.3.1 Installing the HP OpenVMS CIFS Alpha Kit on an OpenVMS Integrity Servers System

If you attempt to install the Alpha kit on an Integrity server system, the PCSI utility procedure displays the following error message and terminates the installation:

```
HP AXPVMS SAMBA Version 1.0 does not run on OpenVMS I64 systems.  
You can install this product on OpenVMS Alpha systems only.
```

2.3.2 Installing the HP OpenVMS CIFS Integrity Server Kit on an OpenVMS Alpha System

If you attempt to install the Integrity server kit on an Alpha system, the PCSI utility procedure displays the following error message and terminates the installation:

```
HP I64VMS SAMBA Version 1.0 does not run on OpenVMS Alpha systems.  
You can install this product on OpenVMS I64 systems only.
```


Configuring HP OpenVMS CIFS

This chapter describes the structure of the configuration file (SMB.CONF), procedures to configure and modify users, disk shares, and provide security printing on the network.

3.1 SAMBA\$CONFIG.COM

After the installation completes, enter the following command on all the nodes where CIFS needs to run:

```
$ @SAMBA$ROOT: [BIN] SAMBA$CONFIG.COM
```

This command procedure sets TCP/IP services such as SMBD, SWAT, and the logicals required by CIFS.

3.1.1 Configuring in Cluster with Common CIFS Disk

If you are configuring CIFS for the first time, SAMBA\$ROOT logical is not defined on other nodes of cluster. The System administrator has to execute the SAMBA\$CONFIG.COM command procedure from a location that is accessible by all nodes where CIFS is installed.

For example,

If CIFS has been installed on CLUSTER1\$DKA0:[CIFS_INSTALL], then on other node say CLUSTER2, system administrator need to run this command procedure CLUSTER1\$DKA0:[CIFS_INSTALL.SAMBA.BIN]SAMBA\$CONFIG.COM to configure CIFS on that node.

Or

Define SAMBA\$ROOT logicals by pointing to the location where CIFS is installed and then run SAMBA\$CONFIG.COM command procedure to setup the TCP/IP services and other logicals.

For example,

If CIFS is installed on CLUSTER1\$DKA0:[SAMBA_INSTALL], then on other node say CLUSTER2 you can define SAMBA\$ROOT as shown:

```
$ DEFINE/SYSTEM/EXEC SAMBA$ROOT CLUSTER1$DKA0:[SAMBA_INSTALL.SAMBA.] /TRANS=CONCEAL
```

In mixed architecture cluster, you must enter the following command:

```
$ @SAMBA$ROOT: [BIN] SAMBA$MIXED_CLUSTER_SETUP.COM
```

Note

On a cluster, if you do not have common disk or if any of the CIFS nodes are running OpenVMS Version 8.3 and earlier, the configuration details mentioned in Section 3.1.1, Configuring in Cluster with Common CIFS Disk are not applicable.

Configuring HP OpenVMS CIFS

3.2 Winbind

3.2 Winbind

Winbind is used for resolving names from the NT servers. The functionality of Windbindd process is integrated with SMBD process. Hence you will not see a separate Winbindd process when CIFS is started.

On CIFS, the following Winbind functionalities are included:

- Authentication of user credentials, but does not authenticate user credentials via Pluggable Authentication Modules (PAM)
- Identity resolution, but does not use Name Service Switch (NSS)
- Winbind maintains a database called `winbind_idmap.tdb` in which it stores the UIDs, GIDs and NT SIDs mappings.

The Winbind idmapping is used only for users that do not have a local UIC and for all the domain groups. It uses the UIDs and GIDs allocated from the "idmap uid" and "idmap gid" range specified in the `SMB.CONF` file in [global] section. These UIDs and GIDs are mapped to the NT SIDs. The UID allocated by Winbindd is used for generating UIC while creating the host user. The GID is used as "gid value" while creating resource identifiers that are mapped to domain groups. There must not be any UICs and GIDs in the range "idmap uid" and "idmap gid" range specified in the `SMB.CONF` file.

For example, assume that "idmap uid" range is "10000-300000" under the [global] section in `SMB.CONF` file. When a new user logs in and if there is no corresponding host account, UID 10000 for this user ID is obtained from Winbind. Now, you can create a user `CIFS$<hexadecimal value of UID>` which is `CIFS$2710` with a UIC of [octadecimal value of UID, octadecimal value of UID] which is [23420, 23420].

Note

On OpenVMS, Windbind functionality does not support services such as telnet, FTP, OpenVMS user login, and so on.

To use Winbind functionality on OpenVMS, specify the following parameters in the `SMB.CONF` file under the [global] section:

```
idmap uid = <range of UID values>
idmap gid = <range of GID values>
```

Unlike in Samba, on the other platforms, only the following parameters related to the Winbind are supported on CIFS:

- winbind separator = [\\]
- idmap uid = 10000-30000
- idmap gid = 10000-30000
- winbind cache time = [300]

To disable Winbind functionality on CIFS, define the following logical:

```
$ DEFINE/SYSTEM WINBINDD_DONT_ENV 1
```

Note

Add the above-mentioned logical in SYS\$STARTUP:SYLOGICALS.COM command procedure to be effective across system reboots.

Caution:

- If you enable Winbind, the user and group mapping information will be stored in winbindd_idmap.tdb file. If you disable Winbind, the user and group mapping information will be lost and the corresponding security for shares, files and folder for these users will not be valid.
- In order to avoid problems, it is highly recommended to backup the winbindd_idmap.tdb file periodically.

The wbinfo Utility

The wbinfo "-u" and wbinfo "-g" commands display the user and group names and does not display the corresponding UIDs and GIDs.

3.3 Samba Web Administration Tool (SWAT)

SWAT is a web-based interface that can be used to configure CIFS from Windows.

To use this utility, you must restore the SAMBA\$ROOT:[UTILS]SAMBA\$SWAT_FILES.BCK file under SAMBA\$ROOT:[SWAT...] directory by entering the following command:

```
$ BACKUP SAMBA$ROOT:[UTILS]SAMBA$SWAT_FILES.BCK/SAVE -  
_ $ SAMBA$ROOT:[*...]*.*;*/LOG
```

For more information about SWAT, see the following web address:

<http://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/SWAT.html>

3.4 Configuration File Structure

The following is a sample configuration file structure:

```
[global]  
...  
[homes]  
...  
[<file/printer share-name>]  
...
```

The names within the square brackets delineate unique sections of the SMB.CONF file; each section names the share (or service) to which the section refers. For example, the [homes] sections are unique disk shares; they contain options that map to specific directories on the CIFS server. All the sections defined in the SMB.CONF file, with the exception of the [global] section, are available as a disk or printer share to clients connecting to the CIFS server.

Configuring HP OpenVMS CIFS

3.5 HP OpenVMS CIFS Configuration File

3.5 HP OpenVMS CIFS Configuration File

HP OpenVMS CIFS configuration file, called `SMB.CONF` by default, uses the same format as Windows `.ini` files. The `SMB.CONF` file is a plain-text file that you can edit using your preferred editing tool.

The `SMB.CONF_TEMPLATE` file is provided along with `SMB.CONF` in the HP OpenVMS CIFS software kit. The `SMB.CONF` file contains mandatory configurable parameters.

Note

The `SMB.CONF` file is a very important file. You must be cautious while editing this file. For more information on Configuration, see the following web address:

<http://www.samba.org>

3.5.1 Section Description

Each section in the `SMB.CONF` file represents a share on the CIFS server. The section "global" is special because it contains settings that apply to the whole CIFS server and not to one share in particular.

There are three special sections, *[global]*, *[homes]* and *[<file/printer share-name>]*, which are described under Special Sections.

3.5.1.1 Special Sections

[global] section

Parameters in this section apply to the server as a whole or are defaults for sections, which do not specifically define certain items.

[homes] section

This section is included in the configuration file. Services connecting clients to their home directories can be created on the fly by the server.

[<file/printer share-name>] section

This section is included in the configuration file and if the `Printable` parameter is set to YES, this share functions as a printer share. If the `Printable` parameter is set to NO, this share functions as a file or disk share.

3.5.1.2 Parameters

Parameters define the specific attributes of sections. Following are the two types of parameters:

- Global Parameters - Parameter specific to the `[global]` section. For example, `workgroup`, `security` and so on.
- Service Parameters - Parameter specific to the service specific section. They are usable in all sections, for example, `browsable`.

Note

For additional information on configuration (SMB.CONF), see the following web address:

<http://www.samba.org/samba/docs/man/manpages-3/smb.conf.5.html>

3.6 Verify the Configuration File

Enter the following command to verify whether the SMB.CONF file has all the settings (i.e. PDC, WINS, etc.) that are required to run HP OpenVMS CIFS:

```
$ testparm
```

The testparm examines the SMB.CONF file for syntax errors and reports them, if they are found, along with a list of the services enabled on your system.

Note

Run the testparm utility whenever you modify the SMB.CONF file.

3.7 Sample Configuration File (SMB.CONF)

```
[global]
server string = Samba %v running on %h (OpenVMS)
security = user
passdb backend = tdbsam
domain master = yes
guest account = SAMBA$GUEST
domain logons = Yes
log file = /samba$root/var/log.%m
log level = 0
load printers = no
printing = OpenVMS
[homes]
comment = Home Directories
browsable = no
read only = no
create mode = 0750
[file/printer share-name]
path = /var/tmp
printable = yes
min print space = 2000
[test1]
browsable = yes
writeable = yes
path = /DKA0/users/test1
```

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3.8 Supported Backend

3.8 Supported Backend

This section describes the supported backend that can be specified in the `SMB.CONF` file by setting the "passdb backend = <database>" parameter in the [global] section.

3.8.1 SMBPASSWD Backend

This backend enables you to store user name and passwords similar to UNIX (i.e. `/etc/passwd`). By default, it stores the information in the `SMBPASSWD` file. It contains the LanMan or NT password hashes, password change times, and account flags information. This is a primitive type password backend that has several disadvantages that has been overcome by the `tdbsam` and `ldapsam` password backends.

3.8.2 TDBSAM Database

This backend enables you to store user and machine account in a TDB database. By default, it stores the information in `SAMBA$ROOT:[PRIVATE]PASSDB.TDB`. The contents of the TDB file can be viewed using the `TDBDUMP` or `PDBEDIT` utility.

3.8.3 LDAPSAM Backend

This backend enables you to store both POSIX (UNIX) and CIFS user and group account information in a single repository. For more information about LDAPSAM backend, see Section 3.14, How to Configure LDAP.

3.9 How to Configure a Printer

To configure a printer, follow these steps:

Step 1: OpenVMS Print Queue Setup

a. DCPS Print Queues:

The DCPS print queues support Postscript printers. It can also support PCL printing using postscript printers. If the printer has postscript drivers, then install DCPS on OpenVMS. To do so, you must edit `DCPS$STARTUP.COM` and add the following lines as shown in the example:

```
$ @SYS$STARTUP:DCPS$EXECUTION_QUEUE -
<print-queue-name> -                ! P1 - Execution queue name
"ip_rawtcp/<printer-ip-address>:9100" - ! P2 - Interconnect protocol
DCPS_LIB -                          ! P3 - Logical name for libraries
"DATA=<data-type>" -                ! P4 - Default queue parameters
"/SEPARATE=(NOBURST,NOFLAG,NOTRAIL)" - ! P5 - Default queue qualifiers
" " -                               ! P6 - Communication speed(serial
-                                   ! devices only)
" " -                               ! P7 - Device characteristics
" " -                               ! P8 - Verify on/off
```

1. Substitute P1 with an appropriate name to create the DCPS execution queue name.
2. The "ip_rawtcp" in P2 enables DCPS to support "Raw TCP" printing.
3. The P2 can be replaced with "IP_LPD/<printer-ip-address>" if you want to use DCPS IP_LPD printing. Samba VMS is also tested with DCPS IP_LPD print queues. However, you must define the logical "DCPS\$_<print-queue-name>_ PRODUCT_NAME", which is required for the printer driver when

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3.9 How to Configure a Printer

using DCPS IP_LPD printing. For example, define DCPS\$_<print-queue-name>_PRODUCT_NAME as "HP LaserJet 8150 Series PS", if you want to use 8150 PS driver.

"9100" is the raw TCP printer port.

4. Specify "DATA=POSTSCRIPT" when PS drivers are used for printing.
5. Specify "DATA=PCL" when PCL drivers are used for printing.
6. The DCPS queues are not used when the printer supports only the PCL.

b. *TCPIP\$TELNETSYM Print Queues:*

The CIFS software on OpenVMS is bundled with a command procedure called SAMBA\$PRINT_QSETUP.COM. Using this command procedure, you can set up the TCPIP\$TELNETSYM Print Queues, as shown in the following example:

```
$ @SAMBA$ROOT:[BIN]SAMBA$PRINT_QSETUP.COM
Enter unique number for print form: 3974
The print queue name entered here should match with printer name in SMB.CONF
Enter VMS print queue name: hhh
Enter Ip address of printer: 16.138.22.23
Enter printer port: 9100
Enter print form name: xyx
```

The following logicals are used when testing the TCPIP\$TELNETSYM Print queues:

```
DEFINE/SYSTEM TCPIP$TELNETSYM_RAW_TCP 1
DEFINE/SYSTEM TCPIP$TELNETSYM_SUPPRESS_FORMFEEDS 35
```

Note

The above-mentioned logicals are defined to overcome the junk characters in the print output and must be de-assigned in case of DCPS printing.

c. *LPD Print Queues:*

Prerequisites:

The following are prerequisites for LPD print queues:

- Ensure HP TCP/IP Services for OpenVMS (or UCX) is running. For more information, refer to the *HP TCP/IP Services for OpenVMS Installation and Configuration Manual*.
- Ensure that LPD services are enabled. If not, enter the following command to start the LPD services.
 - If you are running HP TCP/IP Services for OpenVMS Version 4.0 or earlier, enter the following command:

```
$ RUN SYS$SYSTEM:UCX$CONFIG.COM
```
 - If you are running HP TCP/IP Services for OpenVMS Version 5.0 or later, enter the following command:

```
$ RUN SYS$SYSTEM:TCPIP$CONFIG.COM
```

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3.9 How to Configure a Printer

- You must add a local host name for the remote print server with IP address in TCP/IP local host database and use that as the remote system name for 'rm' parameter as explained in the section, *LPD Print Queues Setup*.

For example, to set up the print server as a local host in TCP/IP local host database:

```
DCLPROMPT> TCP/IP
TCPIP> SET HOST TEST123/ADD=16.18.54.51/ALIAS="TEST123"
TCPIP> SHOW HOST/LOCAL
      LOCAL database
Host address      Host name
127.0.0.1         LOCALHOST, localhost
16.18.54.51       TEST123, test123
```

Note

Host name can be any name chosen.

LPD Print Queues Setup:

To setup the OpenVMS LPD print queue, run the UCX or TCPIP Printcap database utility program to add a remoteprienter as shown in the example:

```
DCLPROMPT> RUN SYS$SYSTEM:TCPIP$LPDSETUP

TCPIP Printer Setup Program

Command < add delete view help exit >: add
Adding printer entry, type '?' for help.

Enter printer name to add : LPDPRINTER
Enter the FULL name of one of the following printer types:
remote local : remote
Enter printer synonym: LPDPRINTER
Enter printer synonym:
Enter full file specification for spool directory
SPOOLER DIRECTORY 'sd' : [TCPIP$LPD_ROOT:[LPDPRINTER]] ?
Set LPD PrintServer extensions flag 'ps' [] ?
Set remote system name 'rm' [] ? TEST123
Set remote system printer name 'rp' [] ? Text
Set printer error log file 'lf' [/TCPIP$LPD_ROOT/000000/LPDPRINTER.LOG] ?
Enter the name of the printcap symbol you wish to modify. Other
valid entry is :
      'q'      to quit (no more changes)
```

The names of the printcap symbols are:

```
sd for the printer spool directory
lf for the printer error log file
lp for the name of the local printer
ps for the LPD PrintServer extensions flag
rm for the name of the remote host
rp for the name of the remote printer
fm for the printer form field
pa for the /PASSALL flag
nd for the /NODELETE flag
cr for the cr flag
sn for the setup NoLF flag
p1-p8 for the /PARAMETER=(p1,...,p8) field
```


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3.9 How to Configure a Printer

Enter symbol name: q

	Symbol	type	value
	-----	----	-----
Error log file	: lf	STR	/TCPIP\$LPD_ROOT/000000/LPDPRINTER.LOG
Printer Queue	: lp	STR	LPDPRINTER
PS extensions flag:	ps	STR	
Remote Host	: rm	STR	TEST123
Remote Printer	: rp	STR	Text
Spool Directory	: sd	STR	/TCPIP\$LPD_ROOT/LPDPRINTER

Are these the final values for printer LPDPRINTER ? [y] y

Adding comments to printcap file for new printer, type '?' for help.

Do you want to add comments to the printcap file [n] ? : n

Do you want the queue to default to print flag pages [y] : n

Do you want this procedure to start the queue [y] : y

Creating execution queue: LPDPRINTER

Updating TCPIP\$LPD_SYSTARTUP.COM

Updating TCPIP\$LPD_SYSHUTDOWN.COM

```
*****
* TCPIP$LPD_SYSTARTUP.COM, the printcap file *
* and TCPIP$LPD_SYSHUTDOWN.COM *
* have been updated for this printer *
*
* Set up activity is complete for this printer *
*****
```

Command < add delete view help exit >: exit

DCLPROMPT> Print/Queue=LPDPRINTER sys\$manager:login.com

Job LOGIN (queue LPDPRINTER, entry 36) started on LPDPRINTER

DCLPROMPT> Show Queue

Server queue LPDPRINTER, busy, on MOLUSK::, mounted form DEFAULT

Entry	Jobname	Username	Blocks	Status
-----	-----	-----	-----	-----
36	LOGIN	SYSTEM	7	Processing

Batch queue SYS\$BATCH, stopped, on MOLUSK::

Generic printer queue TCPIP\$LPD_IN

Server queue TCPIP\$LPD_IN_MOLUSK_1, idle, on MOLUSK::, mounted form DEFAULT

Step 2: Create Spool Directory

To create a spool directory, follow these steps:

- Create the spool directory by entering the following command:

```
$ CREATE/DIR SAMBA$ROOT:[VAR.SPOOL]
```

- Change the ownership of spool directory by entering the following command:

```
$ SET SECURITY/PROT=(W:REW) /ACL=(DEFAULT_PROTECTION,SYSTEM:RWED,OWNER:RWED)
SAMBA$ROOT:[VAR]SPOOL.DIR
```

Configuring HP OpenVMS CIFS

3.9 How to Configure a Printer

Step 3: Setting Up Printer Without Using Printer Driver Uploading or Downloading

- Add the following parameters under [global] section in SMB.CONF file:

```
[global]
admin users = test1
load printers = no           //Print cap file is not supported on Samba VMS
printing = OpenVMS           //Only one printing style available on Samba VMS
print command = /DELETE      //For DCPS print queues
print command = /DELETE/PASSALL //For TCPIP-TELNET-SYM queues
use client driver = yes
```

- To create a printer share-name on CIFS, add the following lines to SMB.CONF file:

```
[<print-share-name>]
Printer name = <print-share-name> //<print-share-name> is the VMS queue name
printable = yes
path = <spool directory path>      //OpenVMS directory where print jobs
                                   are created
```

For example,

```
[TEST4]
Comment = This is test print share on Samba VMS
printer name = TEST4             //TEST4 is VMS print queue name
printable = yes
path = /samba$root/var/spool      //samba$root:[var.spool] on OpenVMS
```

Once you have modified the SMB.CONF file, you can view the print share TEST4 on the CIFS server from a client. Follow the procedures given below to create a printer share and install the required driver files on the client:

1. Open the Printers and Faxes folder.
2. Right-click the printer you want to share, and then select the Connect option.
3. Select the printer and driver from the Print Driver Selection dialog box.
4. Click OK.

A new printer (named TEST4) now appears in your local printer folder.

Note

The printer name and print share-name must be same.

Step 4: Setting Up Printer Using Printer Driver Uploading or Downloading

This functionality installs the printer drivers into the [print\$] share of the CIFS server. All clients get the driver installed when they first connect to this printer share. CIFS on OpenVMS also supports the driver uploading and downloading, but with little manual intervention.

To add a new driver or printer to your CIFS server, one of the following two conditions must hold true:

- The account used to connect to the CIFS server must have administrator privileges.
- The account used to connect to the CIFS server must have "SetPrintOperatorPrivilege" privileges.

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3.9 How to Configure a Printer

For example, to set the "SetPrintOperatorPrivilege" privileges for "test1" user, enter the following command:

```
$ net rpc rights grant "test1" "SetPrintOperatorPrivilege" "-U" "test3%welcome"
"-I" "16.138.185.90"
```

Note

User account TEST3 now has administrator privileges on the CIFS server.

To set up the printer using driver uploading and downloading, follow these steps:

1. Add the following service parameters in the SMB.CONF file under the [global] section:

```
admin users = test1                //User with admin/SePrintOperatorPrivilege
load printers = no
printing = OpenVMS
print command = /DELETE             //use the following print command
                                     for DCPS queues
print command = /DELETE/PASSALL     //use the following print
                                     command for TCPIP
addprinter command = OpenVMSaddprinter //Add print share in to SMB.CONF
deleteprinter command = OpenVMSdeleteprinter //Delete print share in to SMB.CONF
use client driver = no              //Use driver upload and
                                     downloading functionality
```

2. Add the following parameters under the [Print\$] section:

```
[Print$]
comment = Printer Download Area
path = /SAMBA$ROOT/PRINT/DRIVERS
write list = test1
guest ok = Yes;
read only = yes
```

Step 5: Identifying Printer Driver Files

To identify the driver files, follow these steps:

1. Install the driver locally on a Windows client, and verify the driver file names and paths it uses after they are installed.

Note

This procedure must be repeated for each client.

The following shows the procedure to identify files on windows x86_32 platform:

2. Start -> Run, type regedt32 and select the following registry key:

```
"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Environments
\WindowsNT x86\Drivers"
```

3. Under this key, select Version-3 and copy the Configuration File, Data File, Dependent Files, Driver and Help File to a temporary folder.
For example, C:\windows\system32\spool\drivers\w32x86\3

To set up the environment for a driver on CIFS, follow these steps:

1. Create the W32X86.DIR directory under /samba\$root/print/drivers.

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3.9 How to Configure a Printer

2. Copy the print driver files from client's temporary folder to `/samba$root/print/drivers/w32x86` on CIFS.
3. Create the `3.DIR` directory under `/samba$root/print/drivers/w32x86` because CIFS moves the driver files into `3.DIR` after executing the Add Printer Wizard or `rpcclient`.
4. Create the `/samba$root/var/spool` directory on CIFS because the Add Printer Wizard or `rpcclient` creates the print share with path `/samba$root/var/spool`.

Copy the driver files using one of the following methods and update the necessary TDB and SMB.CONF files:

- Running a GUI (Printer Properties and Add Printer Wizard on CIFS) from any Windows NT or 2000 or XP client workstation.
- Using the CIFS command-line utility `rpcclient` with `addprinter` and `adddriver` subcommands on OpenVMS.

The GUI (APW) procedure is exactly the same as the one you are familiar with in Windows (we assume that you are familiar with the printer driver installation procedure on Windows NT). Ensure that your connection is set up as a user with administrator privileges. The GUI enables you to select the printer name and print share-name in addition to the vendor name and printer driver.

Note:

1. The printer name and print share-name must be the same.
2. Print queue name is the same as printer name or print share-name.

After you complete the installation, you can view the print share on CIFS VMS. Right-click and select Connect on the print share; the share is copied onto the PC client along with the driver files.

If you have selected `rpcclient` command-line utility, then enter the command with `addprinter` and `adddriver` options. After executing the `rpcclient` utility, you can view the print share on CIFS. Right-click and select Connect on the print share; the share is copied onto the PC client along with the driver files.

Below is the example to upload the printer driver using the `rpcclient` utility:

```
rpcclient "16.138.185.90" "-U" "test1%welcome" "-c" "adddriver Windows NT
x86 HP LaserJet 5000 Series
PCL:UNIDRV.DLL:HPLJ5000.GPD:UNIDRVUI.DLL:UNIDRV.HLP:PJL Language
Monitor:NULL:PCL5ERES.DLL,UNIRES.DLL,HPCFONT.DLL,TTFSUB.GPD,hpcljx.hlp,STDNAMES.GPD
3"

rpcclient "16.138.185.90" "-U" "test1%welcome" "-c" "addprinter UPDOWN
UPDOWN HP LaserJet 5000 Series PCL UPDOWN"
```

The example uploads the driver "HP LaserJet 5000 Series PCL" and also creates the print share UPDOWN on CIFS.

3.10 How to Configure SMB.CONF File in Cluster Environment

To configure an SMB.CONF file in a cluster environment, follow these steps:

1. Create SMB.CONF_"nodename" file in SAMBA\$ROOT:[LIB] Directory, where "nodename" is CIFS server node name in the OpenVMS cluster.

For example, SMB.CONF_REYGON where REYGON is the server node in the OpenVMS cluster. For every CIFS server node in the OpenVMS cluster a separate SMB.CONF file with only node-specific information is maintained.

2. Configure a generic SMB.CONF file in SAMBA\$ROOT:[LIB] directory, which will be common configuration file for all the server nodes in the cluster. The common SMB.CONF file must contain cluster specific configuration option which has "include" option in it:

```
include:
    option specifies node-specific paths containing node-specific SMB.CONFs.
    For example: include = SAMBA$ROOT:[LIB]SMB.CONF_%h
```

Once you have set up CIFS server to run on all the nodes in the OpenVMS cluster, they should be able to participate in the OpenVMS cluster, i.e., they can be accessed using the cluster alias name.

3.11 How to Add a User

To add a user on the host system and the CIFS database, follow these steps:

1. Verify whether the user exists on the host system. If not, add the user to the system. For more information about adding a user to the system, see the *HP OpenVMS System Manager's Manual*.
2. Ensure that the user added to the host system has unique UIC and ADD_IDENTIFIER qualifiers, that the rights identifier matches with the user name, and that the flag is set to NODISUSER.

Note

The default template, SAMBA\$TMPLT, can be used to create a new OpenVMS user account for CIFS.

```
$ MC AUTHORIZE
UAF> COPY SAMBA$TMPLT TEST1 /UIC=[500,500]/add_identifier
```

3. Verify whether the user exists on the CIFS database. If not, add the user to the system by entering the following command:

```
$ PDBEDIT -A <USERNAME>
```

For example,

```
$ PDBEDIT -A TEST1
```

Note

Ensure that the user exists on the host system before adding the account to the CIFS database.

Configuring HP OpenVMS CIFS

3.11 How to Add a User

4. Execute the SAMBA\$GRANT_GIDUSERS.COM command procedure to grant the identifiers CIFS\$U_<username> to the users.
5. To change the password, enter the following command:

```
$ NET RPC PASSWORD <user> <oldpass> <newpass>
--user <user>%<password>
```

Note

Alternatively, the user can change the password from the Windows client.

3.12 How to Add a Share

To add a share, edit the SMB.CONF file and add the appropriate parameters under the [share] section, depending on the file location and share name as shown in the following example:

For example, to create the share "test1" with path SAMBA\$ROOT:[TMP], add the following lines in the SMB.CONF file:

```
[test1]
comment = my test folder
path = /samba$root/tmp
read only = No
guest ok = Yes
```

3.12.1 How to Configure the SMB.CONF File Using the VFS Module

VTF, VAR, and Stream_LF features are supported using the VFS facility that is available on CIFS. The configuration for the same is specified at the share level. If you specify the VFS module, then it passes the registered file operation through the loaded VFS modules.

For more information on VFS modules, see the following web address:

<http://www.samba.org/samba/docs/man/Samba-HOWTO-Collection/VFS.html>

During installation, CIFS copies the required shareable modules to the SAMBA\$ROOT:[LIB.VFS] directory. The important parameter is the vfs objects parameter, where you can list one or more VFS modules by name.

For example, assuming you need VARVFC support on a specific share, you must specify VARVFC encoding before the file processing begins.

```
[ods2]
comment = Share served by ODS2 disk
path = /dka0/ods2
writeable = yes
browseable = yes
vfs objects = varvfc
```

Note

The modules are used in the order in which they are specified.

By default, if you need only Stream_LF files to be created on a specific share, add the following parameter under the [share] section in the SMB.CONF file:

```
[share]
  vfs objects = streamlf
```

If you need Stream_LF encoding, add the following parameter under the [share] section in the SMB.CONF file:

```
[share]
  vfs objects = streamlf
```

Note

Run the testparm utility whenever you modify the SMB.CONF file. Ensure that all the VFS shareables are present in the SAMBA\$ROOT:[LIB.VFS] directory.

VTF module converts file names on Windows to VTF-7 Unicode file names on ODS-5 disk. To use VTF-7 format file names, add the following lines in the SMB.CONF file:

```
[share]
  vfs objects = vtf
```

Note

The Japanese OpenVMS supports only Japanese/VTF-7 file names on ODS-5 disk.

3.13 How to Map User Accounts

Due to a restriction in the OpenVMS SYSUAF, CIFS does not support user accounts with more than 12 characters. However, this can be overcome by modifying the "username map" service parameter under the [global] section in the SMB.CONF file.

For example, to create the user account "domainuser1", follow these steps:

1. Edit the [global] section in the SMB.CONF file, as follows:

```
[global]
  username map = /samba$root/lib/username.map
```

2. List the entry in the username.map file, as follows:

```
hostuser1= <domain-name>\domainuser1
```

where: hostuser1 is the user on the host system and domainuser1 is the user in the domain.

Configuring HP OpenVMS CIFS

3.14 How to Configure LDAP

3.14 How to Configure LDAP

Before configuring LDAP as CIFS password backend, ensure that system administrator must have knowledge in setting up the Directory Information Tree (DIT).

HP OpenVMS Enterprise Directory has been updated with Samba Schema file to support LDAP backend for CIFS on OpenVMS. This is based on the assumption that HP OpenVMS Enterprise Directory acts as LDAP backend for CIFS on OpenVMS.

For more information about configuring LDAP, see the *HP OpenVMS Enterprise Directory Management*.

To configure LDAP as the CIFS password backend, follow these steps:

1. Install and configure HP OpenVMS Enterprise Directory.
2. Invoke Network Control Language (NCL) from a privileged account, and enter the following command to create CIFS specific naming contexts:

```
$ MC NCL
NCL> CREATE DSA NAMING CONTEXT "/SAMBADOMAIN=<SAMBA_DOMAIN_NAME>"
```

where: */SAMBADOMAIN* is part of the DIT structure that is created under LDAP (X500) tree. *SAMBA_DOMAIN_NAME* is the domain name specified in the DIT structure and also defined in the SAMBA.SC Schema file.

3. Invoke DXIM, and enter the following command to create CIFS specific directory entries:

```
$ DXIM /I=C
DXIM> CREATE "/sambaDomain =<SAMBA_DOMAIN_NAME>" ATTRIBUTES -
_DXIM>objectClass=(sambaDomain),sambaDomainName="<SAMBA_DOMAIN_NAME>",
sambaSID=<SID_VALUE>
```

where: */sambaDomain* is part of the DIT structure that is created under LDAP (X500) tree. *SAMBA_DOMAIN_NAME* is the domain name specified in the DIT structure and the following *sambaDomain*, *sambaDomainName* and *sambaSID* are defined in the SAMBA.SC Schema file.

Note

You can obtain the SAMBASID value using the NET RPC command. To do so, enter the following command:

```
$ NET RPC GETSID "-S" <SERVER_NAME>
```

For example,

```
$ NET RPC GETSID "-S" NEWTON
Storing SID S-1-5-21-785286677-1050922829-3057065622-39453684 for
Domain NEWTON.DOM in secrets.tdb
```

4. Create an LDAP admin dn in the LDAP server and use the required relative distinguished name (RDN) that is available in the X500 DIT. Configure SMB.CONF file by adding the parameter "ldap admin dn" with this RDN in the [global] section.

For example,

```
LDAP ADMIN DN = SAMBADOMAINNAME=NEWTON.DOM,DC=MY-DOMAIN,DC=COM
```


5. Add the following parameters under the [global] section in the SMB.CONF file:

```
[global]
passdb backend = ldapsam:ldap: //<name or IP address of the node where LDAP
                                server is running>
ldap admin dn = <admin-dn-specified-in step 4>
ldap passwd sync = YES
```

Note

The LDAP admin RDN is used by CIFS to retrieve user account information from LDAP server. The LDAP admin RDN is used in conjunction with the admin RDN password stored in the following directory SAMBA\$ROOT:[PRIVATE]SECRETS.TDB files.

6. Enter the following command to set the password for LDAP admin dn:

```
$ SMBPASSWD -W "<PASSWORD>"
```

7. Manage CIFS users using PDBEDIT utility command. For more information about managing or adding a user, see Section 3.11, How to Add a User.
8. Start the CIFS server.

3.15 Managing Groups in CIFS Member Server

This section describes how to set up groups in a CIFS server that is configured as member server in the active directory domain.

For example, assume that you are running the CIFS server on a node called "PIANO" that is configured as a member server in an active directory domain called "CIFSDOM".

1. To execute any of the net commands that involves CIFS server management tasks, ensure that you have a privileged CIFS user account. To create a privileged CIFS user account, follow these steps:
 - a. Create 'CIFSADMIN' as the OpenVMS account, and grant full privileges to this account.
 - b. Create a CIFS account by entering the following commands:
2. In the SMB.CONF file, add "admin users = cifsadmin" under the [global] section and restart the CIFS server.
3. On the PDC emulator of the active directory domain "CIFSDOM", create an account 'CIFSADMIN'. You can either create a privileged domain account or a normal user account.
4. To add a local group on the member server PIANO, follow these steps:
 - a. Add the resource identifier CIFSUSERS in the SYSUAF database by entering the following command:

```
$ MC AUTHORIZE ADD/IDENTIFIER/ATTRIBUTE=RESOURCE CIFSUSERS
```

Configuring HP OpenVMS CIFS

3.15 Managing Groups in CIFS Member Server

- b. Map the member server local group and host group by entering the following command:

```
$ NET GROUPMAP ADD NTGROUP=CIFSUSERS UNIXGROUP=CIFSUSERS -  
_ $TYPE="L" "-W" PIANO "-S" PIANO "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

5. To list the groups in local member server on the node PIANO, enter the following command:

```
$ NET RPC GROUP LIST "-W" PIANO "-S" PIANO "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

6. To add the local member server user or group to the group CIFSUSERS, enter the following command:

```
$ NET RPC GROUP ADDMEM CIFSUSERS CATHY "-W" PIANO "-S" PIANO -  
_ $ "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

7. To list the group members of CIFSUSERS, enter the following command:

```
$ NET RPC GROUP MEMBERS CIFSUSERS "-W" PIANO "-S" PIANO -  
_ $ "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

8. To add a domain user or group to a local group CIFSUSERS, enter the following command:

```
$ NET RPC GROUP ADDMEM CIFSUSERS CIFSADMIN\CINDY "-W" PIANO -  
_ $ "-S" PIANO "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

9. To delete a group from the local group CIFSUSERS, enter the following command:

```
$ NET RPC GROUP DELMEM CIFSUSERS CIFSADMIN\CINDY "-W" PIANO -  
_ $ "-S" PIANO "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

10. To delete the local group CIFSUSERS, enter the following command:

```
$ NET RPC GROUP DELETE CIFSUSERS "-W" PIANO "-S" PIANO -  
_ $ "-U" CIFSADMIN%"PWD OF CIFSADMIN"
```

Note

If you enable Winbind, it will automatically map the domain groups to VMS resource identifiers by using the "idmap gid" range specified in the SMB.CONF file. For more information on how group mappings are automatically created by winbind, see Section 3.2, Winbind.

3.16 Configuration Setting for International Character Set

CIFS on OpenVMS supports ISO-8859-1 and UTF-8 character set for file names. The European characters are supported in ISO-8859-1 and other characters are supported in UTF-8.

For ASCII or Latin-1 character set support, configure SMB.CONF file and add the following line to the [global] section:

```
[global]  
unix charset = ISO-8859-1
```

Configuring HP OpenVMS CIFS

3.16 Configuration Setting for International Character Set

For Japanese or Chinese character set support, configure `SMB.CONF` file and add the following line to the `[global]` section:

```
[global]
dos charset = <user local codepage>
unix charset = UTF-8
vfs objects = vtf
```

Note

See the Limitations section in the *HP OpenVMS CIFS Based on Samba Release Notes* for using the VTF module.

where: `<user local codepage>` is Windows codepage of the user. The value "CP850" is the default Windows codepage for English. For Japanese Windows, the value is "SJIS" or "CP932".

By default, the `SMB.CONF` file will have the following configuration settings for character set support:

```
[global]
dos charset = CP850
unix charset = UTF-8
```

Note

The character set applies only to the characters in the file names and not the contents of the files.

3.17 Verifying the Client Connection

After installation and configuration, follow these steps to verify whether users are able to connect from a client successfully:

1. Start the NMBD process by entering the following command:

```
$ @SYS$STARTUP:SAMBA$STARTUP.COM
```

2. From the client, verify whether it has registered the name query request. Enter the following command from the command prompt:

```
C:\ NBTSTAT -A <IP ADDRESS/MACHINE NAME>
This gives the registered NetBIOS names of the server
```

For example,

Configuring HP OpenVMS CIFS

3.17 Verifying the Client Connection

```
C:\ NBTSTAT A 16.148.18.31
Local Area Connection:
Node IpAddress: [16.38.47.15] Scope Id: []

NetBIOS Remote Machine Name Table

Name   Type   Status
-----
NEWTON  <00>  UNIQUE Registered
NEWTON  <03>  UNIQUE Registered
NEWTON  <20>  UNIQUE Registered
LANGROUP <00>  GROUP  Registered
LANGROUP <1C> UNIQUE Registered
LANGROUP <1E> GROUP  Registered

MAC Address = 00-00-00-00-00-00
```

3. Ensure that "name of the services startup command file" points to the appropriate startup command procedure for the SMBD startup. To verify, enter the following command:

```
$ TCPIP SHOW SERVICE SMBD/FULL
```

For example,

```
$ TCPIP SHOW SERVICE SMBD/FULL

Service: SMBD
State: Enabled

Port:      139      Protocol: TCP,UDP      Address: 0.0.0.0
Inactivity: 0      User_name: SAMBA$SMBD Process: SMBD
Limit:     100     Active: 1      Peak: 1

File: SAMBA$ROOT:[BIN]SAMBA$SMBD_STARTUP.COM
Flags: Listen
Socket Opts: None

Receive: 0      Send: 0
Log Opts: Acpt Actv Dactv Conn Error Exit Logi Logo Mdfy Rjct
Tim0 Addr
File: SAMBA$ROOT:[VAR]SAMBA$SMBD_STARTUP.LOG

Security
Reject msg: not defined
Accept host: 0.0.0.0
Accept netw: 0.0.0.0
```

Note

Ensure that all the settings and log files are accessible.

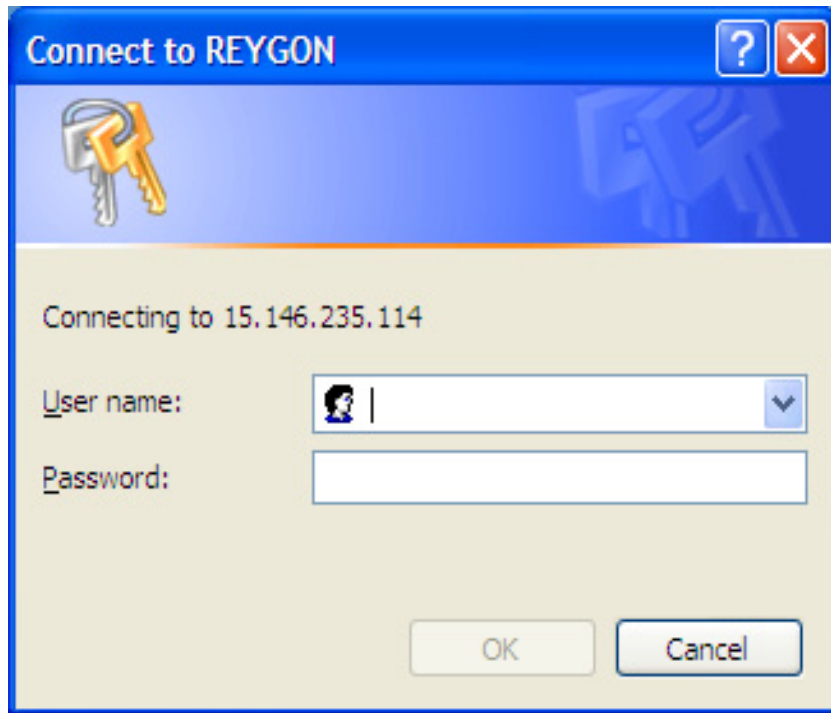
4. Connect from a client by entering the following address at the RUN prompt.

```
\\<ip-address-of-CIFS-server>/name of the server>
```

Configuring HP OpenVMS CIFS

3.17 Verifying the Client Connection

- a. The "Enter Network Password" screen is displayed.

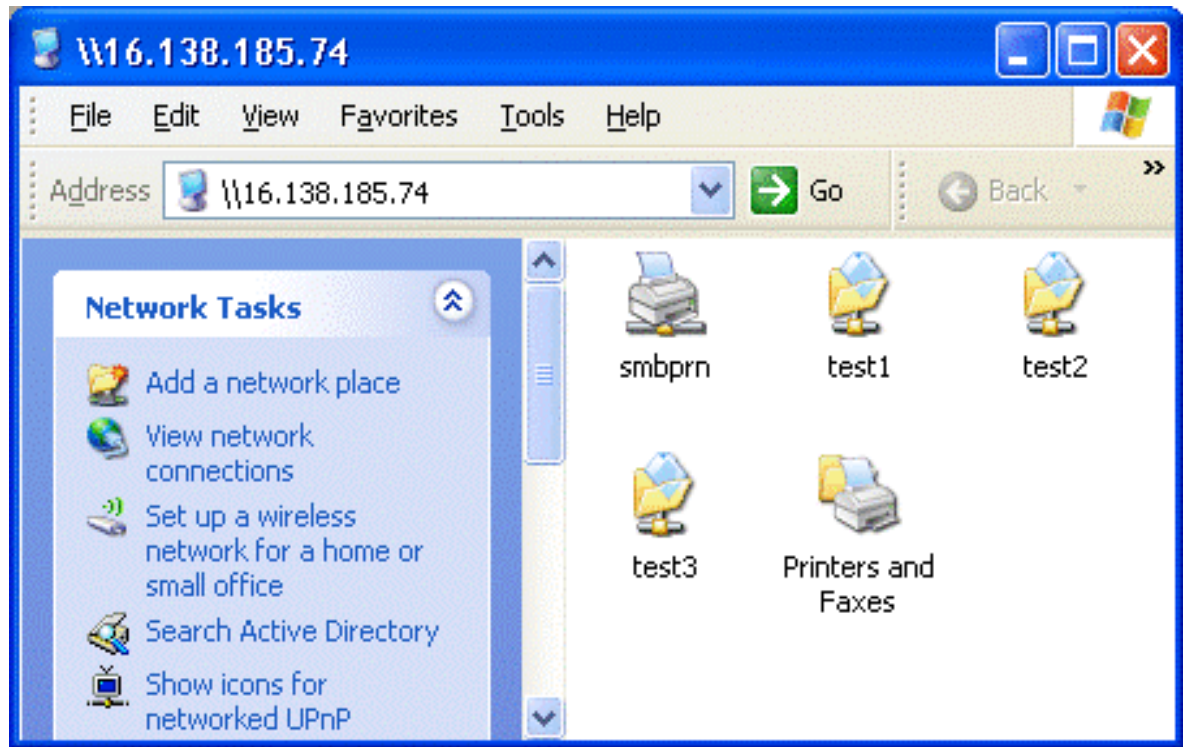


Enter the domain\user name in the 'User Name' field and the password in the 'Password' field.

Configuring HP OpenVMS CIFS

3.17 Verifying the Client Connection

- b. Click OK. A list of shared folders and files are displayed.



3.18 Troubleshooting Configuration Problems

- CIFS Utilities
 - testparm
testparm is a program to test the contents of SMB.CONF file. Whenever you modify the SMB.CONF file you need to run the testparm utility.

```
$ testparm
```
 - SWAT
SWAT is a web-based interface that can be used to configure CIFS from Windows. In addition, it provides online help for each configuration parameter. For more information, see Section 3.3, Samba Web Administration Tool (SWAT).
- Logs
 - NMBD log files will be generated after startup. The log.nmbd files are stored in SAMBA\$ROOT:[VAR].
 - SMBD log files will be generated for each client that utilizes the CIFS server. By default, these log files are stored in SAMBA\$ROOT:[VAR].

Configuring HP OpenVMS CIFS

3.18 Troubleshooting Configuration Problems

Note

- Log files will be generated based on the settings available in the SMB.CONF file.
- Log contents are dependent on the log levels specified in the SMB.CONF file.

-
- Edit the SMB.CONF file and add the following line under the [global] section to generate logs:

```
[global]
Log level = <0-10>      //specify the log level depending
                        on the amount of information
                        you require
Max log size = <size> //0 indicates infinite
Log file = <path-of-the-log-file>
```

Note

You can also generate logs for a particular component such as NMBD, SMBD, etc. For example, log level = NMBD:10 to get only NMBD log level 10.

-
- Run the executable in d10 to generate logs in verbose mode.
For example, to run SMBD process in verbose mode, follow these steps:

1. Define SMBD as foreign command:

```
$ SMBD ::= $SAMBA$ROOT:[BIN.<architecture>]SAMBA$SMBD.EXE
```

2. Execute the following command:

```
$ SMBD -i -d10
```

- When you run the executables in the "-l" interactive mode, all the debug messages will be displayed on the screen and you can also know where exactly SMBD process is hanging or aborting.
- SAMBA_ROOT:[BIN]SAMBA\$GATHER_INFO.COM - This is the Command procedure gathers information and creates a backup save set file for reporting problems.
- Ethreal, Netmon, etc. can be used to capture the network traces between the client and server.
- System Dump Analyzer can be used to set the process and analyze the process details.
- On OpenVMS Alpha Version 8.2 and OpenVMS Integrity servers Version 8.2-1 define the following logical:

```
$ DEFINE/SYSTEM SAMBA$VMS_FCNTL 1
```

This logical is required as FCNTL byte range locking feature is not available on OpenVMS Alpha Version 8.2 and OpenVMS Integrity servers Version 8.2-1.

Starting and Stopping HP OpenVMS CIFS

This chapter describes how to start and stop HP OpenVMS CIFS.

4.1 Starting CIFS

This section describes the following methods to start CIFS:

- Manually from the command line
- Automatically each time you reboot

4.1.1 How to Start CIFS Manually

To start CIFS manually, enter the following command:

```
$ @SYS$STARTUP:SAMBA$STARTUP.COM
```

Note

On a cluster with different system disks, copy the SYS\$STARTUP:SAMBA\$STARTUP.COM command procedure to the SYS\$COMMON:[SYS\$STARTUP] directory manually from a node where CIFS is installed.

The CIFS starts, and a message similar to the following is displayed:

```
Creating NMBD Process
%RUN-S-PROC_ID, identification of created process is 0000255C
```

4.1.2 How to Start CIFS Automatically

To ensure that the CIFS starts automatically each time you boot the OpenVMS system, edit the site-specific startup file, SYS\$STARTUP:SYSTARTUP_VMS.COM. Add the CIFS startup command to *below* all lines that start network transports. For example,

```
$ @SYS$STARTUP:TCPIP$STARTUP.COM
.
.
.
$ @SYS$STARTUP:SAMBA$STARTUP.COM
```

Starting and Stopping HP OpenVMS CIFS

4.1 Starting CIFS

Note

To ensure that the logicals persist across reboots and that CIFS starts automatically when the system reboots, the system administrator must include @SYS\$STARTUP:SAMBA\$DEFINE_ROOT.COM in SYS\$STARTUP:SYSTARTUP_VMS.COM before starting CIFS.

On a cluster with different system disks, copy the SYS\$STARTUP:SAMBA\$DEFINE_ROOT.COM command procedure to the SYS\$COMMON:[SYS\$STARTUP] directory manually from a node where CIFS is installed.

4.1.3 How to Start CIFS in an OpenVMS Cluster

If you have installed and configured CIFS on multiple nodes of the same OpenVMS Cluster, HP recommends that you use the SYSMAN utility to start CIFS manually and simultaneously on all cluster members.

To start CIFS on all cluster nodes at the same time, ensure that you are logged in to the SYSTEM account on one of the member nodes, and then run SYSMAN:

Enter this command...	To...
\$ RUN SYS\$SYSTEM:SYSMAN	Start the SYSMAN utility.
SYSMAN> SET ENVIRONMENT/NODE= (node1,node2, . . .)	Define the OpenVMS Cluster members on which to start the server. For example, SYSMAN> SET ENVIRONMENT/NODE= (SPEEDY , SPIN , SPAN)
SYSMAN> DO @SYS\$STARTUP:SAMBA\$STARTUP.COM	Start the CIFS on all the nodes you defined in the previous command.
SYSMAN> EXIT	Exit the SYSMAN utility.

4.2 Stopping CIFS

To stop the CIFS manually, enter the following command:

\$ @SYS\$STARTUP:SAMBA\$SHUTDOWN.COM

Note

On a cluster with different system disks, copy the SYS\$STARTUP:SAMBA\$SHUTDOWN.COM command procedure to the SYS\$COMMON:[SYS\$STARTUP] directory manually from a node where CIFS is installed.

Uninstalling the HP OpenVMS CIFS Software

This chapter describes how to remove HP OpenVMS CIFS software from your system.

To remove CIFS configuration on a particular node in a cluster, enter the following command:

```
$ @SAMBA$ROOT:[BIN] SAMBA$REMOVE_CONFIG.COM
```

This command procedure deassigns all the CIFS logicals defined on this node and also removes the TCPIP services such as, SMBD and SWAT that are set during configuration.

To uninstall the HP OpenVMS CIFS software, follow these steps:

1. Ensure that you are logged in using the privileged account.
2. Stop the NMBD and all client SMBD processes by entering the following command:

```
$ @SYS$STARTUP:SAMBA$SHUTDOWN.COM
```

3. Verify that you have removed SAMBA\$CONFIG.COM on the other nodes in a cluster.
4. Enter the following command:

```
$ PRODUCT REMOVE SAMBA
```

The removal command procedure performs the following operation:

- Prompts you if all the CIFS Server TDB files and the SMB.CONF file have to be retained on the system.
 - Entering NO at the prompt deletes the TDB files, and the SMB.CONF file and CIFS related logicals are deassigned.
 - Entering YES at the prompt retains the TDB files, and the SMB.CONF file is copied to a backup directory under SAMBA\$ROOT. The CIFS logicals will not be deassigned.
 - Removes all the HP OpenVMS CIFS accounts created during installation.

Sample Installation and Removal Procedures

This appendix provides sample procedures for installing and removing HP OpenVMS CIFS software.

A.1 Sample Installation on OpenVMS Integrity server Systems

```
$ PRODUCT INSTALL SAMBA
```

The following product has been selected:

```
HP I64VMS SAMBA V1.0          Layered Product
```

Do you want to continue? [YES]

Configuration phase starting ...

You will be asked to choose options, if any, for each selected product and for any products that may be installed to satisfy software dependency requirements.

HP I64VMS SAMBA V1.0: HP CIFS for OpenVMS I64 V8.2-1,V8.3 and V8.3-1H1.

Do you want the defaults for all options? [YES] YES

Do you want to review the options? [NO] YES

HP I64VMS SAMBA V1.0: HP CIFS for OpenVMS I64 V8.2-1,V8.3 and V8.3-1H1.

Do you want to download the Source files? : NO

Do you want to download the Migration Utility? : NO

Are you satisfied with these options? [YES] NO

Do you want to change any options? [YES] YES

If you say YES, the BCK file of the source files will be copied to SAMBA\$ROOT:[SRC] location.

Do you want to download the Source files? [NO] YES

If you say YES, the BCK file of the Migration Utility will be copied to SAMBA\$ROOT:[UTILS] location.

Do you want to download the Migration Utility? [NO] YES

Do you want to review the options? [NO]

Execution phase starting ...

The following product will be installed to destination:

```
HP I64VMS SAMBA V1.0          DISK$I6483VMS:[VMS$COMMON.]
```

Portion done: 0%...20%...30%...60%...70%...90%

User Accounts and User Identification Codes (UICs)

The HP CIFS for OpenVMS installation creates four OpenVMS accounts: SAMBA\$SMBD, SAMBA\$NMBD, SAMBA\$GUEST and SAMBA\$TMPLT. The default UIC group number for all these new accounts depends on the following:

Sample Installation and Removal Procedures

A.1 Sample Installation on OpenVMS Integrity server Systems

- o If you are installing the product for the first time, the default is the first unused UIC group number, starting with 360.
- o If any of these account already exists, then the default UIC group number will not be used to change the UIC of any existing accounts.

For more information about UIC group numbers, see the OpenVMS System Manager's Manual.

Enter UIC group number for default accounts

Group: [360]

Creating CIFS User Accounts ...

User Accounts Creation Completed Successssfully

The release notes for HP CIFS on OpenVMS,
CIFS_REL_NOTES.TXT is available at SYS\$COMMON:[SYSHLP]

To Configure HP CIFS, execute "\$ @SAMBA\$ROOT:[BIN]SAMBA\$CONFIG.COM"

...100%

The following product has been installed:

HP I64VMS SAMBA V1.0 Layered Product

\$

A.2 Sample Removal Procedure on OpenVMS Integrity server Systems

\$ PRODUCT REMOVE SAMBA

The following product has been selected:

HP I64VMS SAMBA V1.0 Layered Product

Do you want to continue? [YES] YES

The following product will be removed from destination:

HP I64VMS SAMBA V1.0 DISK\$I6483VMS:[VMS\$COMMON.]

Portion done: 0%...10%...20%

[SAMBA shutdown being executed]

[Disabling TCPIP services SMBD ...]

[Terminating client SMBD_* processes...]

[Finished terminating client SMBD_* processes]

[Trying to terminate server-level NMBD process...]

[Finished NMBD process termination]

[SAMBA shutdown complete]

!!!! WARNING !!!!

This procedure will remove all Samba configuration files.

Do you want to save them instead? [Yes] : Yes

Specify the location where you want to copy configuration files

By Default they will be copied to [SAMBA\$ROOT:[BACKUP]]::

Configuration files are copied to "SAMBA\$ROOT:[BACKUP]" directory.

This procedure will also remove CIFS Release notes available at SYS\$HELP.

Do you want to save them instead? [Yes] : No

...30%...40%...50%...60%...70%...80%...90%...100%

The following product has been removed:

HP I64VMS SAMBA V1.0 Layered Product

\$

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