

Guide for Migrating from HP Advanced Server for Tru64 UNIX to HP CIFS Server for HP-UX

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This guide describes how to migrate user and group accounts, and file and printer shares with the security information and so on, from HP Advanced Server for Tru64 UNIX to HP CIFS Server for HP-UX.

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Preface

This guide describes migration from HP Advanced Server for Tru64 UNIX to HP Common Internet File System (CIFS) Server for HP-UX.

Intended Audience

The intended audience for this document is for customers who wish to migrate from an existing HP Advanced Server for Tru64 UNIX to an HP CIFS Server for HP-UX.

Structure of this guide

This guide is organized as follows:

- Chapter 1 discusses the various aspects which are to be considered for the migration. The chapter also discusses the prerequisites required for a successful migration.
- Chapter 2 describes the migration process for user accounts, groups, file shares and printer shares with security information.
- Chapter 3 gives a comparison of the tools/features of HP Advanced Server for Tru64 UNIX with HP CIFS Server for HP-UX.

Related Documents

The HP CIFS Server for HP-UX is an adaptation of Samba for HP-UX. As a result, the following Samba related documents were referred to in preparing this guide:

- The Official Samba 3.2.x HOWTO and Reference Guide, edited by Jelmer R. Vernooij, John H. Terpstra, Gerald (Jerry) Carter; available at www.samba.org
- Samba-3 by Example - Practical Exercises in Successful Samba Deployment, John H. Terpstra; available at www.samba.org
- Using Samba, 2nd Edition, by Jay Ts, Robert Eckstein, and David Collier-Brown; available at www.samba.org

For more information (installation and configuration) of the HP CIFS Server, refer to the following web address:

<http://docs.hp.com/en/netcom.html>

Terminology

Acronym	Description
ACL	Access Control List
ASU	Advanced Server for Tru64 UNIX
BDC	Backup Domain Controller
CIFS	Common Internet File System
PAM	Pluggable Authentication Modules
PDC	Primary Domain Controller
SAM	Security Accounts Manager
SMB	Server Message Block
SIA	Security Integration Architecture
SID	Security Identifier
SWAT	Samba Web Administration Tool

1 Introduction

1.1 Concepts

ASU and HP CIFS Server are very similar in providing UNIX file and printer sharing capabilities using native Microsoft SMB and CIFS protocols for interoperability with Microsoft operating systems. However significant differences can be seen in their implementations, particularly in the area of security. The HP CIFS Server is a Samba implementation on HP-UX. The purpose of the migration is to move the customers who are using ASU to HP CIFS with the user, file and print databases intact.

The guide discusses the various steps which have to be followed to complete the migration. Not all of the features of ASU have a corresponding feature in HP CIFS and HP CIFS will not exactly replace the ASU as there are some limitations on HP CIFS. The most prominent example of this is the Windows NT based ACLs supported by ASU when compared to the POSIX based ACLs supported by the HP CIFS Server. The guide will help users who must replace ASU with HP CIFS and want to preserve the user accounts, file share and printer information intact after the migration.

The following areas need to be considered when migrating from ASU to HP CIFS:

- User accounts and groups
- File and printer shares
- Access control information
- Feature/Tool Comparison between ASU and HP CIFS

User Accounts and Groups

User accounts and groups are stored by the ASU server in the SAM database. The SAM database cannot be directly copied from ASU to HP CIFS Server. However since HP CIFS Server is based on Samba, HP CIFS Server is able to retrieve user account and group information from a Primary Domain Controller (PDC). Therefore, the HP CIFS Server can be made a BDC to an ASU PDC and the user accounts and group information, including each user's password, can be transferred to the HP CIFS Server.

File and Printer Shares

ASU provides file and print services by advertising the file and printer shares. ASU is capable of exchanging data of file and printer shares through SMBs which are understood by all of the Microsoft Windows servers and clients. The HP CIFS Server is also capable of handling SMBs. The HP CIFS Server supports a set of commands which are used to get file and printer share information from a remote server. These commands are used for file and printer share migration.

Access Control Information

ASU provides Windows NT based ACLs to control the user access to files, directories and printer resources. The HP CIFS Server makes use of POSIX based ACLs to control the user access to files, directories and printer resources. The migration process will involve getting the ACL information from an ASU server and mapping the Windows NT based ACLs to POSIX based ACLs. The migration will also involve reassigning of group ownership of files and directories. The migration procedure will also migrate the DOS attributes along with the file time stamps, such as last access time.

Feature/Tool Comparison between ASU and HP CIFS

ASU provides lot of features and tools in addition to the file and print services. To help in the migration a comparison of the features/tools provided by ASU and HP CIFS is provided.

1.2 Prerequisites

This section outlines the different software packages which are required for the HP CIFS Server. The section also outlines the initial steps to set up the HP CIFS Server. The following software kits are required for installing the HP CIFS Server:

- 1) HP CIFS Server: B8725AA_A.02.02.01_HP-UX_B.11.23_IA+PA.depot
- 2) HP CIFS Server: B8725AA_A.02.03.02_HP-UX_B.11.23_IA+PA.depot
- 3) HP LDAP-UX Integration: J4269AA_B.04.00.03_HP-UX_B.11.23_IA+PA.depot

Note:

- a) The software kits for HP CIFS Server are to be installed on a HP-UX 11.23 machine.
- b) On the ASU side, the latest kit (V5.1B-4 ECO2) is required for migration. In the lanman.ini file please enable rc4encryption=yes under the [netlogon] section.
- c) As a first step in the migration, the user accounts and groups are migrated to HP CIFS Server A.02.02.01. The HP CIFS Server is then upgraded to A.02.03.02 and the remainder of the migration steps are carried out with the upgraded kit.
- d) The two step procedure enables a smooth migration from ASU to HP CIFS Server. In future versions of ASU, the migration would need only HP CIFS Server A.02.03.02.

The following steps have to be executed for the installation and initial setup of HP CIFS Server. Please refer to the Administrator's Guide for HP CIFS Server for more information on the system requirements and installation instructions for the HP CIFS Server.

- 1) Download the above mentioned kits and copy them to the HP-UX 11.23 machine.
- 2) As a first step, install the following kits using "swinstall" command:
 - a) B8725AA_A.02.02.01_HP-UX_B.11.23_IA+PA.depot
 - b) J4269AA_B.04.00.03_HP-UX_B.11.23_IA+PA.depot
- 3) Once the installation is done, copy the following scripts to a directory of your choice, and give the files UNIX permissions of 744. For example:

```
=====
# ls /usr/scriptsforhpcifs
modify_samba_config.pl
smbgrpadd.sh
smbaddprinter.pl
smbdelprinter.pl
=====
```

The above scripts except for smbgrpadd.sh are part of the Samba sources which get installed along with the HP CIFS Server as a tarred and zipped file. The scripts can be extracted from the Samba sources with the commands:

```
=====
# cd /opt/samba_src
# gunzip -c source.tar.gz | tar -xvf - samba/examples/scripts/perl
# cd samba/examples/scripts/perl
# mv smbdelprinter smbdelprinter.pl
# mv *.pl /usr/scriptsforhpcifs
=====
```

The script "smbgrpadd.sh" can be found in chapter 12 of "The Official Samba 3.2.x HOWTO and Reference Guide". The text of the shell script can be copied into WordPad. Save the text as "smbgrpadd.sh" and copy it to the HP-UX machine. These scripts are required for adding shares and adding groups respectively during the migration process.

- 4) Ensure the smb.conf file is similar to the following sample smb.conf file:

```
=====
# cat smb.conf
[global]
    workgroup = ASUDOMAIN
    netbios name = ASUPDC
    server string = Samba Server
    client schannel = No
    server schannel = No
    passdb backend = tdbSAM
    enable privileges = Yes
    log file = /var/opt/samba/log.%m
    max log size = 1000
    add user script = /usr/sbin/useradd -m '%u'
    delete user script = /usr/sbin/userdel -r '%u'
    add group script = /usr/scriptsforhpcifs/smbgrpadd.sh '%g'
    delete group script = /usr/sbin/groupdel '%g'
    add user to group script = /usr/sbin/usermod -G '%g' '%u'
    add machine script = /usr/sbin/useradd -m '%u'
    domain logons = Yes
    domain master = No
    wins server = 10.11.12.13, 14.15.16.17
    read only = No
    short preserve case = No
    dos filetime resolution = Yes

[homes]
    comment = Home Directories
    browseable = No

[tmp]
    comment = Temporary file space
    path = /tmp

[netlogon]
    comment = The domain logon service
    path = /var/opt/samba/netlogon
    read only = Yes

#
```

=====
"ASUDOMAIN", "ASUPDC", "10.11.12.13, 14.15.16.17" need to be replaced with the appropriate domain name, NetBIOS name and WINS server IP addresses respectively.

5) Now with this setup, create the "root" account in the HP CIFS Server user account database. A password has to be provided during the creation of "root" account. The password provided should have same value as the UNIX password for root.

```
=====
# /opt/samba/bin/smbpasswd -a root
New SMB password:
```

Retype new SMB password:

6) Now start the HP CIFS Server with the command:

```
=====
# /opt/samba/bin/startsm
=====
```

2 Migration Process

The migration process has to be started with the user account and group migration as the primary step. The user account and group migration will then enable a smooth migration of shares, ACLs and so on.

2.1 Migration of User Accounts and Groups

ASU supports Windows NT style of usage of user accounts and groups. As a result, ASU supports user account names up to 20 characters. The same holds true for group names as well. On ASU, the user account and group names could have upper and lowercase characters, as well as spaces. However, on the HP CIFS Server side, the user account and group names are restricted by the Operating System (HP-UX 11.23) which follows POSIX standards. As a result, the user account names are limited to 8 characters with no spaces, and there are similar restrictions on group names. The script `smbgrpadd.sh` works around the restriction on group names. However, for the user account names, there are two options for user account migration:

a) The user accounts which are not POSIX compliant could be cleaned up and the migration of user accounts could be completed. The cleanup operation could be done by renaming the long user names to have 8 characters or less and removing spaces to make the user names POSIX compliant.

b) The second option would be to install a patch for support of long user names on HP-UX 11.23. The patch would enable the HP CIFS Server to support long user names. For more details on the patch please contact the HP Support Center.

The following steps will accomplish user account and group migration:

1) Get the SID of the PDC and store the same in `secrets.tdb` file. The following command could be used to achieve this:

```
=====
# /opt/samba/bin/net rpc getsid -S asupdc
=====
```

2) Now join the HP CIFS Server to the ASU domain as BDC. The following command could be used to achieve this:

```
=====
# /opt/samba/bin/net rpc join -U administrator%password
=====
```

3) Now migrate the user accounts and groups to the HP CIFS Server. The following command could be used to achieve this:

```
=====
# /opt/samba/bin/net rpc vampire -S asupdc -U administrator%password
=====
```

4) The migrated accounts could be verified on the HP CIFS Server with the following command:

```
=====
# /opt/samba/bin/pdbedit -Lw
=====
```

Note:

- a) In the above steps, "asupdc" is the ASU PDC in the ASU domain, "administrator" is the administrative account and "password" is the password for "administrator". These values have to be changed appropriately during the migration.
- b) The migration of user accounts and groups assumes the current role of ASU is a PDC. For a case when ASU is a member server, the local accounts are not migrated with this approach.
- c) The machine accounts in the domain might not be migrated to the HP CIFS Server under certain cases. The machine accounts have to be created manually with the command:


```
=====
# /opt/samba/bin/smbpasswd -a -m MEMSRV1
=====
```

 where "MEMSRV1" is a domain member.
- d) Please refer to the man pages for the "net" command for more information.

2.2 Migration of File Shares

Now with the user account and group migration completed, the next step would be the file share migration. The HP CIFS Server has to be upgraded to A.02.03.02 to complete the next migration steps. An administrative account is used during file share migration. The file share migration would involve getting the share information from the ASU server with the administrative account and the share information is stored in the HP CIFS Server using the same administrative account. As a result, the file share migration could be achieved in two ways:

- a) Normally, the user "administrator" is used as an administrative account. The same user "administrator" could be used for migration, if the long user name support is enabled on HP-UX (as mentioned in previous section).
- b) However, if the long user name support is not enabled, then a POSIX compliant account has to be used as administrative account. Care has to be taken that the administrative account has sufficient permission to access the share information on the ASU server and the same administrative account has to be present on the HP CIFS Server side.

Now with the above setup, the following steps are to be followed to complete the file share migration:

- 1) On the HP CIFS Server side, privileges have to be given to the administrative account. The following commands could be used to achieve this:

```
=====
# /opt/samba/bin/net rpc rights grant 'asudomain\admin' SeAddUsersPrivilege
# /opt/samba/bin/net rpc rights grant 'asudomain\admin' SeDiskOperatorPrivilege
# /opt/samba/bin/net rpc rights grant Everyone SeTakeOwnershipPrivilege
=====
```

"asudomain" needs to be replaced with the appropriate domain name.

- 2) Now add the following smb.conf parameters in the [global] section:

```
=====
add share command = /usr/scriptsforhpcifs/modify_samba_config.pl
force unknown acl user = Yes
=====
```

It is recommended that whenever smb.conf is modified the HP CIFS Server be restarted. Please refer to the man pages of smb.conf for more information on the smb.conf parameters.

- 3) Now the file share information can be migrated with the following command:

```
=====
# /opt/samba/bin/net rpc share migrate shares sharename -S asupdc -U admin%password
```

=====

Please note that the physical directory on the HP CIFS Server has to be created manually. "sharename" needs to be replaced with the appropriate share name.

4) Now the files and directories present in the share can be migrated with the following command:

=====

```
# /opt/samba/bin/net rpc share migrate files sharename -S asupdc \  
--acls --attrs --timestamps -U admin%password
```

=====

Please note that the files and directories present in the remote share would be migrated with ACLs, DOS attributes and file time stamps. Also please note that ACLs on the HP CIFS Server are POSIX based. The ACL migration is not suitable for applications which require full support of Windows NT based ACLs. "sharename" needs to be replaced with the appropriate share name.

2.3 Migration of Printer Shares

Now with the file share migration completed, the next step would be the printer share migration. An administrative account is used during printer migration. The printer share migration would involve getting the printer related information from the ASU server with the administrative account and storing the same information in the HP CIFS Server using the same administrative account. As a result, the printer share migration could be achieved in two ways:

- a) Normally, the user "administrator" is used as a administrative account. The same user "administrator" could be used for migration, if the long user name support is enabled on HP-UX (as mentioned in previous section).
- b) However, if the long user name support is not enabled, then a POSIX compliant account has to be used as administrative account. Care has to be taken that the administrative account has sufficient permission to access the printer information on the ASU server and the same administrative account has to be present on the HP CIFS Server side.

Now with the above setup, the following steps are to be followed to complete the printer share migration:

1) On the HP CIFS Server side, privileges have to be given to the administrative account. The following command could be used to achieve this:

=====

```
# /opt/samba/bin/net rpc rights grant 'asudomain\admin' SePrintOperatorPrivilege
```

=====

"asudomain" needs to be replaced with the appropriate domain name.

2) Now add the following smb.conf parameters in the [global] section:

=====

```
addprinter command = /usr/scriptsforhpcifs/smbaddprinter.pl  
deleteprinter command = /usr/scriptsforhpcifs/smbdelprinter.pl
```

=====

It is recommended that whenever smb.conf is modified the HP CIFS Server be restarted. Please refer to the man pages of smb.conf for more information on the smb.conf parameters.

3) Now the printer information has to be migrated with the following command:

=====

```
# /opt/samba/bin/net rpc printer migrate all -S asupdc -U admin%password
```

=====

Please note that the printer information including drivers, forms, queues, settings and ACLs would be migrated to HP CIFS Server.

3 Feature Comparison

The following section does a feature comparison of ASU and HP CIFS. The comparison is aimed to provide information on features in HP CIFS which could be used as an alternative to the features provided by ASU.

Feature/Tool/Utility	On ASU	On HP CIFS
Domain Functionality	Can be a PDC, BDC, Member Server	Can be a PDC, BDC, Member Server
Trust Relationships	Supported	Supported
Cluster Feature	Supported as part of Tru64 Cluster	Cluster support is provided through Serviceguard cluster
Browsing Capability	Can become Domain Master Browser, Local Master Browser, Backup Browser	Can become Domain Master Browser, Local Master Browser, Backup Browser
Net Commands	Supported	Supported. Do not have an one-one mapping with ASU.
File Capabilities	Oplocks, ByteRange Locking, Share Modes, Large File Support and Disk Quotas are supported	Oplocks, ByteRange Locking, Share Modes, Large File Support and Disk Quotas are supported
Registry	Registry is supported	Registry is not supported. Many registry parameters have smb.conf equivalents
UNIX Authentication	SIA	Use PAM
ACL Utilities	acladm, acldump, aclload, lsacl, rmacl and chacl	Use POSIX utilities lsacl, setacl, and getacl
Client Utilities	lmshell	Use smbclient utility
Configuration Utilities	asuconfig, asusetup, chdomain, ctrsetup, fixmemsrv, joindomain, lmshare, lmxupgrade, promote, setdomainname, setservername, srvconfig	Use the SWAT utility to get the required functionality
DOS Attribute Utilities	chattr, lsattr, rmattr	Not supported
Logging Utilities	elfread	The smb.conf parameter "log level" provides for many levels of logging
Monitor Utilities	lmstat	Use smbstatus command
Other Utilities	lmat, netevent	Not supported
Print Utilities	prcheck	Use testprns command
SAM Utilities	blobadm, chaccounts, domainsids, mapuname, promote, samcheck	Not supported
	chgroup, chuser	Use net commands