

**Advanced Server/9000
Version B.04.04/B.03.04
Release Notes**

HP-UX 11.00/10.20



**Manufacturing Part Number: J2715-90002
E0699**

U.S.A.

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Hewlett-Packard's Advanced Server/9000 is based on AT&T's Advanced Server for UNIX Systems.

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Announcements

Advanced Server/9000 is based on AT&T's Advanced Server for UNIX and enables HP 9000 servers and workstations to operate as enterprise servers to standard Microsoft clients such as LAN Manager 2.2c clients, Windows 95, Windows 98, Windows for Workgroups, and Windows NT clients.

Patches

HP-UX 11.0

AS/U version B.04.04 requires the following operating system updates:

- 32/64-bit HP-UX 11.0 Extension Pack 9806 or later
- HP-UX 11.00 STREAMS PATCH: Patch TBD

Please contact your HP Support Representative and reference SR# 4701-423590 to obtain a patch that will resolve an HP-UX Streams problem.

To resolve other known problems, the following patch may also be necessary:

- HP-UX 11.0 VIRTUAL MEMORY PATCH: PHKL_18141 or later.

This patch resolves a HP-UX memory mapped files problem when using the VxFS filesystem. Running AS/U utilities that manipulate the ACL database with /var as a VxFS file system may result in system hangs if this patch is not installed. Please refer to the section "Controlling ACL File Size" below.

HP-UX 10.20

AS/U version B.03.04 requires the following operating system updates:

- ANSI C++ PATCHES

AS/U version B.03.* requires updated ANSI C++ shared libraries NOT initially provided with HP-UX B.10.20. Install the following patch (or patch versions that may have superseded it) to obtain the correct aC++ libraries:

- PHSS_16585 HP aC++ runtime library components (A.01.18)

As a convenience, the AS/U product installation process will automatically copy a subset of the aCC++ patch files if the aCC++ patches are not found; however, this is intended only as a temporary measure and it is strongly recommended that the latest aC++ patches

be formally installed via SD prior to the installation of AS/U.

SWINSTALL on HP-UX 32-bit and 64-bit 11.0

When selecting the J2715A or J2714BA bundle for installation, the “marked” status will always be “partial.” This is due to both 32- and 64-bit components being supplied in the RFC-NETBIOS product and is considered normal.

AS/U Configuration Backup Procedure

It is recommended that a backup of the current AS/U environment be made before proceeding with a new installation. The SD install and `asu_inst` installation programs may alter or replace your current configuration files. Therefore, in order to be able to restore your current configuration, all files under `/var/opt/asu/lanman` and `/etc/opt/asu/lanman` must be backed up. In the following example, “\$” represents the command prompt, and commands that are too long to fit on this printed page are indicated with “\” as the line-continuation character:

```
$ net stop server
$ mkdir /tmp/asu_save
$ tar -cvf /tmp/asu_save/asu_backup_var.tar \
  /var/opt/asu/lanman
$ tar -cvf /tmp/asu_save/asu_backup_etc.tar \
  /etc/opt/asu/lanman
```

To ensure that correct file-ownership data is preserved, do not use the `-o` option to `tar`.

If a problem occurs with the upgrade, you can then run `asu_rm` to remove the entire AS/U product, use SD to reinstall your current AS/U version, restore the saved configuration files--for example:

```
tar -xvf /tmp/asu_save/asu_backup_var.tar
tar -xvf /tmp/asu_save/asu_backup_etc.tar
```

and then run `asu_inst` to complete the restoration.

Note: This simple procedure is not a replacement for a comprehensive backup strategy that also includes user data files.

Option to Disable NT-Style Printing

Please review the “NT-Style Printing Notes” section in chapter 4 of this document for more information on choosing this option.

3 **What's New in this Release**

The following subsections describe the changes and enhancements that were made to the Advanced Server/9000.

New Features and Changes

Features and changes as of this release (version B.04.04/B.03.04):

- The HP-UX 10.20 and 11.00 versions of AS/U have both been updated in this release and share the same functionality
- 64-bit HP-UX 11.00 is now supported.
- Member or 'Stand-Alone' server role has been added.
- Print spooling now features automatic printer device recovery and printer status time-outs.
- Euro symbol support.
- High Availability (HA) support. RFC_NetBIOS now includes HA capability on all OS platforms so patch PHNE_16579 is no longer required on 11.0 platforms. In addition, changes have been made to the AS/U monitor template, found at `/opt/asu/HA/asu.mon`, to prevent unwarranted AS/U switch-overs. If you are using AS/U HA scripts, you should update your `asu.mon` with the new `/opt/asu/HA/asu.mon`.
- Please refer to the Operational Notes chapter for more information on the above.

For HP-UX 10.20 users the following changes are also new:

- Blobadm utility option added to shrink large database files such as the ACL database (`blobadm -qA`). Note that a HP-UX patch is required for safe operation of this utility option.
- File access performance when using large ACL databases has been improved.

Resolved SRs

Features and changes as of this release (version B.04.04/B.03.04):

- SR# 1653-282939 - 'acladm -P' command improperly deletes acs for files with mixed case names when AS/U is down.
- SR# 4701-414524 - Print jobs intermittently disappear and/or leave zero-length job files.
- SR# 4701-384719 - Network install of NT printer driver to AS/U fails and removes all other AS/U print drivers.
- SR# 1653-238386 - Utility needed to shrink the ACL database file.
- SR# 5003-436816 - Moving a file between directories in the same share creates an ACL entry.
- SR# 1653-281790 - Acladm -U can remove acl entries for users that are still valid.
- SR# 1653-278085 - Users w/o 'Print Operators' rights cannot view printer properties.
- SR# 5003-442236 - AS/U print spooler should timeout to avoid hangs when the HP-UX spooler hangs.
- SR# 5003-445213 - AS/U print spooler should automatically detect re-started HP-UX printers.
- SR# 4701-421123 - HA asu.mon scripts should be more robust to avoid false failovers.
- SR# 1653-264655 - Default value for registry parm MaxFileSizeInKB is too small (20Mb).
- SR# 1653-279133 - asu_rmv can remove wrong dir. structure on non-standard file layout.
- SR# 4701-417337 - File read requests sometimes return data past EOF; ex. Excel used to import a text file.
- SR# 1653-290510 - Cannot grant permissions on printer shares if uplevel print is disabled.

What's New in this Release

Resolved SRs

- SR# 1653-291948 - 'net user /ACTIVE:YES' command does not unlock a locked out account.
- SR# 4701-419697 - Net commands and/or lmx.* processes sometimes hang.
- SR# 1653-279588 - New files created by NT clients do not have the archive bit set.

For HP-UX 10.20 users the following changes have also been fixed:

- SR# 1653-278705 - Large ACL database file can cause performance reduction.
- SR# 4701-387969: zombie (defunct) lmxsvc processes sometimes appear
- SR# 4701-390724: "net user /times" fails on 12/31/99.
- SR# 1653-261966: Registry parameter SyncAclFileOnWrite does not work properly.
- SR# 4701-379594: Directory searches on JFS filesystems do not show all files .
- SR# 4701-388868: ASU utility 'regdump' does not work if \$PATH does not include /opt/asu/lanman/bin.
- SR# 4701-401521: ASU utility 'samcheck -r' (repair option) sometimes fails.
- SR# 4701-401943: ASU utility 'blobadm -K' (dump key table option) sometimes fails .
- SR# 1653-260547: NT clients cannot use > 7 Explorer windows to peruse ASU shares.
- SR# 4701-388793: Default file permissions for ASU created files restored to 0664.
- SR# 4701-402701: Registry parameter 'NumSERVER_SESSION' default value changed from 100 to 1024 in order to accommodate the maximum number of NT clients .
- SR# 1653-239707: NetBIOS should not send session keepalive packets

Resolved SRs

- SR# 1653-248849 - 'net user /ACTIVE:YES' command does not unlock a locked out account.
- SR# 4701-389841: Increasing kernel tunable nrfc_nb causes NetBIOS panic when WINS enabled .
- SR# 1653-267492 - 'net user /ACTIVE:YES' command does not unlock a locked out account.

Configuration Changes

- LANMAN.INI parameters added.
 - statpollint
 - statjtimeout
 - copyinheritedacl
 - forcearchivebit
- Registry parameter maxfilesizein kb default increased from 20000 to 200000.

4 Migrating ASU

The following procedures provide guidelines for special migration scenarios.

Version A.xx to Version B.xx on HP-UX 11.0

This procedure should be followed for updating an old ("A" version) of ASU to the latest "B" version on HP-UX 11.0. If you are not sure what version you have, enter "swlist", "net ver" or "asu_ver". If the version start with "A", use this procedure.

1. Stop ASU and NetBIOS.
2. Back up your system.
3. From the applications CD, upgrade to the latest "B" version of ASU for HP-UX 10.20. The system will be automatically rebooted upon completion.
4. Run "asu_inst" (which will ultimately start ASU) to ensure that step 3 succeeded. The server and its shares should be available to clients on the network.
5. Stop ASU and NetBIOS and upgrade the system to HP-UX 11.0 (detailed instructions are in your HP-UX documentation).
6. From the applications CD, install the latest "B" version of ASU for HP-UX 11.0. The system will be automatically rebooted.
7. Run "asu_inst" to complete the procedure.

Migrating an AS/U Environment to a New Server

This procedure provides a method to add a new ASU server to a network with an existing ASU server, such that the new server inherits the old server's environment (users, data and shares) and becomes a backup domain controller in an existing domain.

1. Stop the old server and create 'tar' archives of the directories `/var/opt/asu` and `/etc/opt/asu`. These directories contain shared directories, configuration and other data.
 - Establish a target location for the 'tar' files, for example:

```
$ mkdir /ASU-BACKUPS
```
 - Create the 'tar' files:

```
$ tar -cvf /ASU-BACKUPS/asu_var.tar /var/opt/asu
$ tar -cvf /ASU-BACKUPS/asu_etc.tar /etc/opt/asu
```
2. Similarly (if appropriate), create 'tar' archives of user datafiles that may exist in shared directories outside those referenced in Step 1. To ensure that correct file-ownership data is retained in the migrated environment, do not use the "-o" option to 'tar' when creating the archive.
3. Note that it is unnecessary (and not recommended) to preserve the AS/U or NetBIOS executables or libraries. The latest versions of these binaries will be placed on the new server when you install AS/U.
4. Restart the old server.
5. If necessary, install HP-UX on the new server.
6. Copy the 'tar' files to the new server, login and extract the data:

```
$ tar -xvf asu_var.tar
$ tar -xvf asu_etc.tar
```
7. Use 'swinstall' to install AS/U. This procedure, and 'asu_inst' in Step 11 below, are described in detail in the AS/U installation

Migrating ASU

Migrating an AS/U Environment to a New Server

manual. When 'swinstall' completes, it will reboot the system.

8. After the reboot, login to the new server.
9. Edit the file `/opt/asu/lanman/bin/lmpaths`: change the line `"ALLOW_UNAME_SERVER="` to `"ALLOW_UNAME_SERVER=yes"`. On most systems, this will be the last line in the file.
10. Run `/opt/asu/lanman/bin/setservername` and change the name of the new server such that it is different from the old server. You will need to enter the new server's administrator account name and password. After you have entered this information, answer "no" to the question "Do you want to start the server now [y/n]?"

The interaction with 'setservername' will look like this:

```
This utility...allows you to change... etc. [long message]
Do you want to continue [y/n]? y

The current name of this server is (old-server-name).
Would you like to change this name now [y/n]? y

Enter the new servername (15 characters or less):
new-server-name

Enter the name of an administrator account on
'new-server-name' or press Enter to select 'administrator':

Enter the password for 'administrator':
Re-enter password:

Confirm choices:   New servername           : new-server-name
                  Administrator account     : administrator
Is this correct [y/n]? y

Updating the accounts database ... Database updated
successfull
Do you want to start the server now [y/n]? n
The name change will not take effect until the server has
been started.
```

11. Run 'asu_inst'. Answer "yes" when you see the following:

```
Configuration files from a previous installation of LAN
Manager or AS/U are present on this computer. This
installation can either upgrade these files, or delete them.
```

```
Do you want to upgrade these files [y/n]? y
```

Migrating an AS/U Environment to a New Server**12. Stop the server:**

```
$ net stop server
```

Note that the 'net' program resides both in /opt/asu/lanman/bin, and as a symbolic link in /usr/bin. It should be in your path at this point.

13. Run 'joindomain' to change the role of the new server to Backup Domain Controller (BDC):

```
$ joindomain
```

```
[Long introductory messages...]
```

```
The current name of this server is (new-server-name).
Would you like to change this name now [y/n]? n
```

```
This server is configured as a 'primary' domain controller.
Would you like to change the role of this server to 'backup'
[y/n]? y
```

```
[More messages...]
```

```
Enter the name of the primary domain controller:
old-server-name
```

```
Enter the name of an administrator account on
'old-server-name'
or press Enter to select 'administrator':
```

```
Enter the password for administrator:
Re-enter password:
```

```
Contacting the server 'old-server-name' ... Success
```

```
Confirm choices:          servername   : new-server
                          role             : backup
                          domain           : old-domain-name
                          primary         : old-server-name
```

```
Is this correct [y/n]? y
```

```
Creating Advanced Server for UNIX Systems accounts database.
```

```
Do you want to start the server now [y/n]? y
```

```
Starting the Advanced Server for UNIX Systems ...
```

Migrating ASU

Migrating an AS/U Environment to a New Server

Documentation Errata

- In the *Advanced Server/9000 Administrator's Guide* (pg. 128), the second bulleted item should read:

AS/U Japanese character support is only available on HP-UX 10.20 and later. This capability does not require additional disk space or memory.
- In the *Advanced Server/9000 Administrator's Guide* (pg. 130) the section starting with "AS/U cannot handle the following characters as file or directory names from Windows 95(J) clients" should be replaced by the following:

AS/U cannot handle the characters 8470 - 8491 (SJIS code) in file or directory names from any client, including Windows 95(J), Windows 98(J), Windows NT 3.51(J) and Windows NT 4.0(J). There is no workaround.
- In the *Advanced Server/9000 Administrator's Guide* (pg. 147) the description for the Registry parameter 'UnixFilePerms' should be appended with the following line:

"With AS/U release B.04.03 and later, the default value was changed from 02664 to 0664."
- In the *Advanced Server/9000 Administrator's Guide* (pg. 147) the description for the Registry parameter 'UnixQuotas' reads:

"Two quotas are supported: i-node and block quotas for HFS file systems. This is true to the extent of the ability of these file systems to support UNIX system quotas".

With AS/U release B.03.02.02 and later, support for HP-UX disk quotas is extended to JFS filesystems as well (there should not be a distinction between HFS and JFS.)
- In the *Advanced Server/9000 Administrator's Guide* (pg. 152) the description for the Registry parameter *NumSERVER_SESSION* should be appended with the following line:

"With AS/U release B.04.02 and later, the default value was increased from 100 to 1024."
- Setting the *statpkey* parameter to 'Printer' in the [spooler] section of the *lanman.ini* file will prevent the AS/U spooler from recognizing

HPDPS printers. This is due to limitations in the AS/U *lanman.ini* parsing function. The “AS/U Support of HPDPS Spooler” section of the *Advanced Server/9000 Administrator's Guide* erroneously lists the suggested value for *statpkey* as ‘Printer.’ The correct suggested value for *statpkey* is ‘Print.’

Below is an example of the suggested *lanman.ini* entry:

```
[spooler]
statpkey= Print
```

- The *MaxFileSizeInKB* parameter in the AS/U registry places an upper limit on the size of files that can be created from the client. The default value in previous releases was 20000KB. If clients wish to create files larger than the default, the System Administrator must change *MaxFileSizeInKB* using *regedit* on a NT client or *reconfig* on the HP-UX command line. AS/U must then be restarted to make the changes effective. With AS/U release B.0x.04 and later, the default value was increased from 20000KB to 200000KB.

For more detailed information, refer to the “File Service Parameters Entries” Section in Appendix A of the *Advanced Server/9000 Administrator's Guide*.

Note, the similar sounding parameter *MaxFileSize* in the *lanman.ini* file does not affect the maximum file size for files created by clients.

Additional Registry Keywords

The following AS/U Registry keywords were added after the last manual revision. Unless otherwise noted AS/U must be restarted for keyword changes to take effect.

The following keywords have been added to the Advanced Server Registry under the key:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services

[Net Logon Service Parameters]

RefusePasswordChange REG_DWORD 0 or 1

Specifies whether to disable the ability to accept machine account password changes. Machine account password changes normally occur weekly. Disabling automatic machine password changes reduces account replication occurrences and can reduce network traffic between primary and backup domain controllers.

Default: 0 (Password changes are allowed).

[Lanman Server Parameters]

NullSessionShares REG_MULTI_SZ List of shares

List of file shares the client is allowed to access by using the null session. If a share is not on this list, the request to access it will be denied. NullSessionShares is not updated automatically to the server if any changes are made; you must stop and re-start the server.

Default: None

EnableSecuritySignature REG_DWORD 0 or 1

Specifies whether SMB signing is enabled on the server. SMB signing provides mutual authentication which prevents man-in-the-middle attacks. SMB signing imposes a performance penalty on the system. Although it does not consume any additional network bandwidth, it does use more CPU cycles on the client and server side.

Default: 0

RequireSecuritySignature REG_DWORD 0 or 1

Specifies whether a server requires all of its clients to use SMB signing.

If a client does not have security signatures enabled, it will not be able to connect to a server that requires security signatures.

Default: 0

[Advanced Server Parameters]

BigEndianLuidCompatibilityMode REG_DWORD 0 or 1

When the value of this keyword is set to 0, AS/U will return security privilege information to the client only in Intel byte order. If the value of this keyword is 1, then this information is returned in both Intel and big-endian byte orders. Setting this parameter to 1 allows Windows NT Version 3.51 clients to administer AS/U servers. Windows NT Version 4.0 or later clients can administer Advanced Server regardless of the setting of this keyword. The value of this keyword must be set to 0 in order to install Microsoft Exchange Server correctly on a Windows NT Version 4.0 Server that is a backup domain controller to an AS/U primary domain controller.

Default: 1

[Browser Service Parameters]

WinsServer REG_SZ Text string

If WINS is being utilized in an Advanced Server environment, the Computer Browser service queries the WINS server specified in this keyword for domain names to augment the browse list. The value of this keyword is an ASCII string containing the IP address or DNS name of the WINS server. The Computer Browser service must be restarted after changing the value of this keyword.

Default: None

Additional lanman.ini Parameters

The following AS/U parameters were added after the last manual revision. Unless otherwise noted AS/U must be restarted for parameter changes to take

effect.

- SPOOLER Section

statjpollint - Specifies how often the print job status command is checked for completion. The interval is specified in seconds.

Default:5

statjtimeout -- Maximum time in seconds that a print job status command is allowed to run before a timeout is declared and the command is terminated.

Default: 600

- HPPARMS Section

copyinheritedacl - Determines if an ACL should be created when a file without an ACL is moved to a new directory. If set to yes, a new ACL is always created for the moved file in order to maintain the same access control permissions as it previously had. If set to no, no ACL is created and the moved file merely inherits access control permissions from its new parent directory.

Default: yes

forcearchivebit - Determines if the archive bit will automatically be set on new files created by AS/U. If set to yes, the archive bit will always be set for new files ignoring file attributes supplied in the client open request. If set to no, archive bit will be set as per the supplied file attributes.

Default: yes

Configuring AS/U as a Member Server

Starting with this version of AS/9000, the AS/9000 server can be configured as a Member Server, in addition to the Primary Domain Controller and Backup Domain Controller roles previously supported. This is the same functionality that is available for Windows NT servers and is also known as "Stand-Alone Server".

A Member Server is a server that operates more independent of the domain than Primary or Backup Domain Controllers. A Member Server can be a member of a domain or can be independent of any domain, similar to the way a Windows NT workstation can be. This relative independence from the domain allows the Member Server to avoid tasks like logging client systems into the domain and sending/receiving synchronization information to/from other servers in the domain. It also allows the Member server to administrate more local resources independent of the domain (although domain administrators may be allowed administrative access also). For more detailed information consult Microsoft Windows NT Server documentation on the topic of "Member Server" or "Stand-Alone Server".

There are two ways for a system with AS/9000 to become a Member Server. When you first install AS/9000 on the system and execute the "asu_inst" command you can choose for the system to be a Member Server. If your AS/9000 system has already been installed, you can change it's role to Member Server by executing the "joindomain" command and following the prompts. If your AS/9000 system is already a Member Server, it's role can be changed to Primary or Backup Domain Controller with the "joindomain" command.

You can verify the role of an AS/9000 server with the "getrole -r" command, which returns "primary" (Primary Domain Controller), "backup" (Backup Domain Controller) or "member" (Member Server). The "net trust" and "net group" commands are not applicable on Member Server systems and will return an error if they are executed on a Member Server system. Administrative commands like "net localgroup" or "net access" can be used to administer local and domain accounts, such as users and groups.

Supporting the Euro Symbol

- Client Support

Microsoft has chosen to support the euro symbol on only its newer operating systems (Windows 98, Windows 95 with euro patch, and Windows NT 4.0 with euro patch). It also appears that Microsoft does not yet support the euro symbol on Japanese clients. Hewlett Packard only supports the euro symbol on AS/9000 with euro-enabled clients (Windows 98, Windows 95 with euro patch and Windows NT 4.0 with euro patch).

- HP-UX Support

Patches are required to euro enable HP-UX. Please refer to this web page to find information on the patches required:

<http://www.software.hp.com/products/EURO/index.html>

Much AS/9000 functionality does not depend on the euro support being present on HP-UX. This will be detailed below.

- AS/9000 EURO Support

Starting with this release, AS/9000 supports the euro symbol. The euro symbol is not supported on any previous versions, except for some very basic operations detailed below.

In general AS/9000 (as of this release and later) will behave as well as a Windows NT server with respect to handling the euro symbol. The few cases where Windows NT server fails to handle the euro will also fail on AS/9000.

For example, if an administrator does a "net send ..." command to send a message to a euro enabled client, any euro symbols in that message do not get displayed correctly on that client. This is true if the "net send ..." command is executed on a Windows NT system or on an AS/9000 server. In fact, if a Windows NT system with the euro patch installed sends itself a message with the "net send ..." command, the euro symbol will not be displayed in the message correctly. In cases like this the problem is outside of the AS/9000 software and it is not possible for HP to support that action or fix the problem. Print job titles and text parameters for the net command are two known problem areas.

Operational Notes

Supporting the Euro Symbol

- **Specific Configurations**

All clients are assumed to be euro enabled in all configurations.

All B.*.* versions of AS/9000 support the following regardless of whether or not HP-UX is euro enabled:

- Storing/retrieving the euro symbol from a client in a data file on the AS/9000 server.
- Printing the euro symbol in the body (not title) of a print job printed on a printer defined on the AS/9000 server. (The client and HP-UX printer drivers must handle Euro characters properly for this to work, of course.)

Version B.03.03 or higher of AS/9000 supports the following, regardless of whether or not HP-UX is euro enabled (in addition to everything above):

- Manipulating (creating, reading, deleting, etc.) files from the PC client with the euro character in the file name.

* Note: there are problems with the euro character in print job titles for both AS/9000 and Windows NT.

Version B.03.03 or higher of AS/9000 in combination with euro-enabled HP-UX supports the following (in addition to everything above):

- Manipulating shared files from HP-UX with the euro symbol in the file name.
- Viewing or writing data containing the euro symbol to shared files from HP-UX.
- Entering the euro symbol into text fields of AS/9000 related HP-UX commands such as "net localgroup <groupname> /comment:<text field>".

* Note: One exception to this rule is that if there is a euro symbol in the message field of the "net send..." command it will not be displayed properly on the client. This is the case for Windows NT as well as for AS/9000.

- Viewing the euro symbol in the output of AS/9000 related HP-UX commands, such as viewing the comment for a group with the net command.

AS/9000 supports the euro character for the activities described

above. If you have a specific need for the euro character that falls outside of this support, please contact your HP support representative to have an enhancement request placed to make us aware of your need.

Automatic Printer Device Recovery

If a printer device gets into an error state and the problem which caused the error state is resolved, the printer device will now automatically be reset and get back to a normal state. This allows printing to resume with no user intervention when a printer problem is resolved.

When a printer device is in an error state AS/9000 will keep checking to see if the problem has been resolved. How often it checks is controlled by the "maxworkint" keyword's value in the "spooler" section of the lanman.ini file. This can be set with the "srvconfig -s spooler,maxworkint=<value>" command or viewed with the "srvconfig -g spooler,maxworkint" command.

AS/9000 will check the printer device every "maxworkint" seconds, so after a printer problem is resolved it may take up to "maxworkint" seconds for the printer device to get back to a normal state and for printing to resume. The default value for "maxworkint" is 600 (five minutes). If you wish to make sure that printing resumes more quickly after a printer problem is fixed, you can lower the "maxworkint" value. However, the lower this value is, the more CPU cycles and system resources will be consumed by AS/9000 printing processes.

Every time AS/9000 checks to see if a printer device is still in an error state a message "Printer <printer_name> was set." will be sent to the event log. (The event log can be viewed with the "elfread -do system" command.)

Time-Out for Printer Status Command

The AS/9000 printing subsystem checks on the status of print jobs that it sends on to the HP-UX printing subsystem. It does this using a command defined in the "spooler" section of the lanman.ini file using the keyword "statjcmd". By default this command is "lpstat".

Previously, if this print job status command hung, it caused problems with the AS/9000 printing subsystem and eventually with AS/9000 in general. As of this release, if the print job status command doesn't return within a specified amount of time it is terminated and AS/9000 recovers automatically.

To support this new feature and make it flexible, two new keywords have been added to the "spooler" section of the lanman.ini file. First, the amount of time that the print job status command is allowed to run before AS/U times out and terminates the command can be specified with the "statjtimeout" keyword. Second, you can specify how often AS/U checks to see if the print job status has completed with the "statjpollint" keyword ("pollint" meaning polling interval). The AS/U printing subsystem can't make any progress on print jobs until it checks and finds that the print job status command completed. So whatever the polling interval is, AS/U could wait up to that long after the command completes before it checks and resumes processing. For example, if the "statjpollint" is set to 60 (seconds) and the "statjcmd" completes in 3 seconds, 57 more seconds will pass before AS/U checks to see if the command completed and resumes processing. If the "statjpollint" command is set too high, it will likely lower the maximum possible throughput of the AS/U printing subsystem, and conversely, lowering this value may increase the maximum possible throughput for the AS/U printing subsystem. However, the lower this value is, the more CPU cycles and system resources will be consumed by AS/U printing processes.

Both of the new keywords ("statjtimeout" and "statjpollint") are integer values in the "spooler" section of the lanman.ini file and specify seconds. The minimum value for "statjtimeout" is 1, the maximum value is 2147483648 and the default value is 600 (5 minutes). The minimum value for "statjpollint" is 1, the maximum value is 600 and the default value is 5.

Controlling ACL File Size

Advanced Server (AS/U) implements NT style file system permissions which are not part of the HP-UX file system. This is done through an Access Control List (ACL) database. For every file or directory open, the ACL database must be queried to determine if the user/group making the request has permission to perform the operation. If too many ACLs are created, the ACL database grows to an excessive size and AS/U performance may be impacted.

An ACL is **not** required for each directory or file. If an ACL is not present, permissions are inherited from the parent directory. By default, an ACL is created for each new directory, but not for new files. An ACL has one or more Access Control Entries (ACE) each of which specifies the permissions that a particular user or group has to that directory or file.

As ACL entries are created, the ACL database file (*/var/opt/asu/lanman/datafiles/acl*) is automatically extended from its initial size; the ACL file does not automatically contract as ACL/ACE entries are deleted. Since limiting the physical size of the ACL file is important for good performance, every effort should be made to minimize the number of ACL/ACEs used.

Here are some steps you can take to avoid creating unnecessary ACL/ACEs:

- Use inherited access control entries rather than explicit access control entries whenever possible. Permissions are passed down from parent directories to child directories and to the files in the child directories, thus only one set of ACEs are required at the root directory.
- Put users with the same permissions in the same group and give permission to the group as a whole and not to individual users. In this way, one ACE for the group can replace many ACEs necessary for individual users.
- Set both the ForceDirectoryAcl and ForceFileAcl registry values to off using the regconfig command on the server or the regedt32 utility on the client. When you set these values to off, newly created directories and files get their permissions through inheritance and no new ACLs are created. If you later move a directory or file, ACLs will be created to assure the permissions stay the same as they were before the file or

directory was moved. By setting the registry values to off, effective permissions will not be different.

- Avoid using the Replace Permissions on Existing Files and Replace Permissions on Subdirectories in the Security/Directory permissions tab of Explorer. These options may create unnecessary ACLs, so use them only when they are needed and worthwhile.
- Restrict Change Permissions permission to administrative users who understand the ACL concepts. Educated users will be less likely to create unnecessary ACLs.

If the ACL database file is already too large, use the *acladm* utility to identify and eliminate unnecessary ACL/ACE entries:

- Use the *acladm -E* option to list all file paths with ACL entries so that redundant or obsolete ACLs can be deleted using the *net perms /revoke ASU* command.
- Use the *acladm -P* (prune) option to eliminate ACLs that refer to files or directories that have been removed by UNIX users.
- Use the *acladm -S* (squeeze) option to combine related ACEs into a single ACE.
- Use the *acladm -U* (unknown) option to remove ACEs that refer to deleted or unknown AS/U users.
- Removing ACL/ACEs will not reduce the ACL data file size; however, entries are freed so that new ACL/ACEs can be added without growing the physical size of the file.

After all unnecessary ACL/ACE entries have been removed use the *blobadm* utility to physically shrink the ACL database file, *blobadm -qA*. The server must be stopped in order to use this option.

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Controlling ACL File Size

WARNING

Safe use of the utility options that manipulate the ACL file (*blobadm -qA*, *acladm -P*, *acladm -S*, *acladm -U*, and *acladm -C*) requires a fix to a HP-UX 11.0 VxFS memory mapped files problem. Please ensure that the PHKL_18141 or later patch has been applied to your system before attempting to run these utilities with those options. If */var/opt/asu* is in a VxFS filesystem then this patch is required.

Running any of these commands without the proper HP-UX patch may seriously impact HP-UX operations system-wide.

SMB Security Signatures

SMB signing is a feature that was added to NT 4.0 in Service Pack 3. This feature has two main improvements: it supports mutual authentication, which closes a “man-in-the-middle” attack, and it supports message authentication, which prevents active message attacks. SMB signing provides this authentication by placing a digital security signature into each SMB, which is then verified by both the client and the server.

In order to use SMB signing, you must either enable it or require it on both the client and the server. If SMB signing is enabled on a server, then clients that are also enabled for SMB signing will use the new protocol during all subsequent sessions and clients that are not enabled for SMB signing will use the older SMB protocol. If SMB signing is required on a server, then a client will not be able to establish a session unless it is enabled for SMB signing.

Two new registry parameters have been added to the “*LanmanServer\Parameters*” section of the AS/U registry that control server side SMB signing (e.g., signing with NT clients). *EnableSecuritySignature* controls whether AS/U will negotiate the use of SMB signing with NT clients. *RequireSecuritySignature* controls whether AS/U requires the use of SMB signing. If *RequireSecuritySignature* is set, AS/U will refuse connections from clients and servers who do not have *EnableSecuritySignature* set. Server side SMB signing is disabled by default in AS/U.

Client side SMB signing in AS/U (i.e., the UNIX redirector) is not configurable. The settings are “enabled” but not “required”. For more information on how to configure SMB signing on Windows NT, see to Microsoft Knowledge article Q161372 -- How to Enable SMB Signing in Service Pack 3.

Also, SMB signing will impose a performance penalty on your system. Although it doesn't consume any more network bandwidth, it does use more CPU cycles on the client and server side.

SMB Security Signature Bug

The current implementation of security signatures in AS/U 4.0 contains a bug that also exists in the Microsoft implementation introduced in NT

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SMB Security Signatures

4.0 Service Pack 3. This bug will cause *SessionSetupAndX* SMBs from NT clients to be falsely rejected as incorrectly signed under certain circumstances.

The following scenario demonstrates the bug:

1. Create an account for a new user on AS/U 4.0 or NT 4.0 SP3
2. Log on to the server using a downlevel client (e.g., Lanman 2.2c) and set the user's password from the downlevel client.
3. Create an account for the user on an NT 4.0 SP3 workstation with the same password. This might happen when, for example, the user's downlevel client is retired and replaced with an NT workstation.
4. Log on to the NT workstation as that user and try and connect to a share on the server. The user will see an access denied error. A network monitor trace will show the *SessionSetupAndX* SMB being rejected as incorrectly signed.

When this situation occurs, the only way to permit access to the server for the user is to either change the users password from the AS/U console or an NT client or to disable security signatures on either the client or server. Microsoft has acknowledged the bug.

NT-Style Printing Notes

This release of AS/U fully supports Windows NT-style printing protocols. A.*.* versions of AS/U only supported "down-level" print protocols that limited support for NT clients. With support for "up-level" printing, AS/U now allows centralized administration of AS/U printers from a Windows NT 4.0 client. Administrators may load all printer drivers for various operating systems (Windows 95, Windows NT 3.51, Windows NT 4.0) on the AS/U server which are then downloaded to clients when required.

Note, however, that with uplevel printing enabled, Windows NT 4.0 and Windows 95 clients will NOT be able to connect to a printer UNTIL an administrator has loaded the correct print driver for that printer.

Printers originally shared when AS/U did not have uplevel printing enabled (or shared using previous versions of AS/U) do not have any printer drivers associated with them; thus, administrators must first upload printer drivers for each formerly "down-level" printer before clients may access them as "up-level" printers.

For these reasons, there is an option to disable NT-style printing during installation.

Installation Option to Disable NT-Style Printing

If migrating from a previous release of AS/U, the installation routine will provide an option to disable uplevel printing support. If uplevel printing is disabled, the following uplevel printing features will not be available:

- Administration of AS/U printers from Windows NT 4.0 clients
- Upload printer drivers from Windows NT 4.0 clients
- Automatically down load printer drivers to clients connecting to AS/U printers

With uplevel printing disabled, all clients will still be able to use printers on the AS/U server, but they will appear as downlevel printers.

NT-style printing can be enabled later by setting a registry keyword.

Enabling/Disabling NT-Style Printing

You may enable or disable uplevel printing functionality on an AS/U server at any time by setting the AS/U registry entry:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\AdvancedServer\Parameters\DisableUpLevelPrinting
```

Setting this registry key to 0 enables uplevel printing support; setting it to 1 disables uplevel printing support. The AS/U server must be restarted for the entry change to take effect.

Alternate Procedure to Add a Printer

In addition to the procedure specified in the AS/U manuals, you may also use the "Add Printer" wizard to add printers to an AS/U server:

- Select Start, Run..., type in `\\asuserver`, and then click OK
- In the `asuserver` window, double click Printers, and then double click Add Printer.
- Follow steps specified in the wizard

If an existing HP-UX lp spooler destination (*lpdest* for example) does not appear as an AS/U printer port, execute the following on the AS/U server:

```
# net device lpdest
```

General Printing Notes

Print Job Titles

- Print job titles may vary depending on client interface used. Titles of print jobs sent to an uplevel printer may be different (usually more descriptive) when sent from the Windows GUI than from MS-DOS prompts. Therefore, banner pages which prominently display the title may look different on this release of AS/U than on previous releases.
- Print job titles may have client computername prepended to them. Titles of print jobs sent to an uplevel printer will now have the client computername prepended to them and enclosed in braces, e.g.

Job Title: [computername] Text of the Job Title

This will help to identify jobs submitted by users who are not in the AS/U accounts database since these jobs will be printed by the HP-UX user *lmxguest*.

HP-UX Spooler Conflicts with Print Job Titles

Special characters in print job titles may cause HP-UX spooler problems. If a print job title contains characters that are considered 'illegal' by a HP-UX spooler, then the print job will be rejected and the ASU printer device will put into an error state.

A workaround is to modify the 'lptitleopt' *lanman.ini* parameter to always send a fixed string to the HP-UX spooler:

- for the standard HP-UX lp spooler: `asu_config -s spooler, lptitleopt='-t"ASU PRINT JOB"`
- 'for Open Spool: `asu_config -s spooler,lptitleoptT='-\'T"ASU PRINT JOB"`

Miscellaneous Printer Issues

- If a Windows NT 4.0 client has a connection to a down level printer, and that printer is migrated to an uplevel printer (by upgrading AS/U), you must remove that client's connection to the printer and

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General Printing Notes

reboot that client before you are able to administer that specific (now) uplevel AS/U printer from that specific client. Alternatively, you can administer that printer from a different Windows NT 4.0 client that does not have an existing down level connection to that printer.

- If you are adding a new printer to an AS/U server using Windows NT 4.0 "Add Printer" wizard, the printer name must be 12 characters or less and must not have embedded spaces or invalid characters.
- Jobs submitted to AS/U printers from Windows NT clients from a user not in the AS/U accounts database will be printed by the HP-UX user *lmxguest*. This may result in different banner pages than expected.
- If the Windows NT 4.0 interface is used to set AS/U printers' start/stop time, the actual time set on the printers will be 7 hours ahead of that displayed on the Windows NT 4.0 interface.
- Print jobs submitted by a Win95 client to an AS/U uplevel printer will have a job name that matches the client computer name throughout the life of the job. Print jobs from WinNT40 clients take on the document name after the job finishes spooling from the client
- Print jobs submitted by a Win95 client will be displayed properly and dynamically updated when viewed by the printer manager except for the "amount processed" field, which will always be 0.
- Up-level printers on AS/U may be managed from Windows NT 4.x workstations and servers. Windows 95 clients cannot manage up-level printers on AS/U (or Windows NT) servers.
- Jobs listed as spooling in AS/U print queues show up on WinNT40 as printing, but will spool and print fine.
- AS/U printers will not have their status refreshed automatically when viewed from Windows NT. Press F5 to refresh explicitly.
- Print device errors are not indicated by AS/U queues or jobs.
- The "take ownership" operation on an AS/U printer does not work
- Print queues can not be routed to multiple destinations via the NET command
- Processor script printer queues will ignore paused status and print all jobs.
- In the *NET PRINT /PARMS* command, the *[EJECT]* and *[BANNER]* options are not supported.

Converting European Filenames from LM/U to AS/U

If you are upgrading from LM/U to AS/U, files stored on LM/U shares from MS-DOS and Windows for Workgroup 3.11 clients with European characters will not be accessible from AS/U. This is due to the fact that LM/U stored filenames in the client codepage (PC850 for German), while AS/U stores filenames in ISO8859-1 codeset.

To make these files accessible, you must execute the *asu_pcuxconv* script after the migration to AS/U on all directories and files with European characters in their names. The following example demonstrates usage of the script to convert files saved from clients running in PC850 codepage to an LM/U share into ISO8859-1 codeset, thus usable after migration to AS/U.

To convert a directory (and all subdirectories) from LM/U PC850 codeset to AS/U ISO8859-1 codeset, do the following:

1. Save a copy of the directories to be converted

```
# tar cvf /tmp/save.tar /home/german_user
```
2. Stop the AS/U server

```
# net stop server
```
3. Set the shell locale to that which AS/U runs under. For German, it is *de_DE.iso88591*, for example.

```
# export LANG=de_DE.iso88591
```
4. Convert directories from LM/U PC850 to AS/U ISO8859, and save a copy of the logfile in */tmp/logfile*

```
# asu_pcuxconv -vs /home/german_user 2>&1 | tee /tmp/logfile
```
5. Start the AS/U server and verify correctness via MS-DOS client

```
# net start server
```
6. If all is correct, accept the conversion:

```
# asu_pcuxconv -A /home/german_user 2>&1 | tee -a /tmp/logfile
```

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Converting European Filenames from LM/U to AS/U

If all is not correct, you may reverse the conversion operation:

```
# asu_pcuxconv -R /home/german_user 2>&1 | tee -a  
/tmp/logfile
```

Or alternatively, restore from backup

```
# tar xvf /tmp/save.tar
```

You may also execute *asu_pcuxconv* with the `-p` (preview flag) to see what the script will do. No changes will be made to the specified files and directories. You may also combine the `-A` flag with the `-s` call.

For more information about *asu_pcuxconv* and parameters, execute:

```
# asu_pcuxconv -h
```

Using PFS to Access CDROMS

The use of Portable File System (PFS) to provide access to multivendor CDROMS is increasing, particularly as 3rd parties often recommend use of PFS to allow access to their particular format CD (RockRidge, ISO9660 and so on).

PFS mounts made with the default mount configurations can hang ASU, as PFS will retry a failed file system request indefinitely without indicating there is a problem. Using PFS with "soft" mounted file systems resolves this by having PFS report an error back to ASU allowing it to proceed with other activity.

The following example shows how you might use the "pfs_mount" program with the AS/U server. It assumes that the *pfs mount* daemons and RPC server have already been started:

```
pfs_mount -x unix -t iso9660 -o ro,soft /dev/dsk/c0t4d0  
/cdrom
```

CAUTION

It is important to use the 'soft' mount option in this command. The default setting specifies a 'hard' mount and can result in hangs of *lmx.srv* processes, if there are failures of the PFS mount being used as an AS/U share. Refer to the description in Chapter 5, section "Using NFS Mounted Resources with Advanced Server/9000" for more details.

HP-UX Large File Support

AS/U has been enhanced to support HP-UX large file capabilities. Clients that can handle file sizes larger than 4 gigabytes (GB) can now use AS/U servers to store and access very large database or backup files.

Clients such as MS WIN95 and WFW/DOS which do not support files larger than 4 GB must be used carefully when accessing files larger than 4G. Please note the following issues with Win95 and WFW/DOS clients and files > 4G :

- File sizes will not be displayed correctly.
- Read operations are possible, but only up to the first 4 GB.
- Append operations will not operate properly and may instead truncate the file causing data loss.
- Record locking is only possible within the first 2 GB.

Note also, that some DOS commands on NT only support files up to 4 GB. For example, BACKUP can not back up a file which is greater than 4 GB.

Directory replication with files larger than 4G is not recommended.

AS/U Registry Considerations

The `MaxFileSizeInKB` parameter in the AS/U registry places an upper limit on the size of files that can be created from a client. The default value in previous releases was 20000KB. If clients wish to create files larger than the default, the System Administrator must change `MaxFileSizeInKB` using `regedit` on a NT client or `regconfig` on the HP-UX command line. AS/U must then be restarted to make the changes effective.

With AS/U release B.0x.04 and later, the default value was increased from 20000KB to 200000K.

For more detailed information, refer to “File Service Parameters Entries” section in Appendix A of the *Advanced Server/9000 Administrator's Guide*.

Note, the similar sounding parameter `MaxFileSize` in the `lanman.ini` file

does not affect the maximum file size.

Enabling Large File Support on HP-UX

In order to create large files (> 4G) on HP-UX system, a HFS file system must be enabled to contain large files. That can be accomplished by the following steps:

1. Unmount the volume.

```
/usr/sbin/umount <path name>
```

```
ex: /usr/sbin/umount /newdisk
```

2. Configure it to contain large files.

```
fsadm -F hfs -o largefiles <volume name>
```

```
ex: fsadm -F hfs -o largefiles /dev/vg00/lvol1
```

3. Mount it back to be able to create large files.

```
/usr/sbin/mount -F hfs -o largefiles <volume name> <path name>
```

```
ex: /usr/sbin/mount -F hfs -o largefiles /dev/vg00/lvol1 /newdisk
```

Directory Replication Notes

To the *Concepts and Planning Guide* on page 123 please consider the following qualifications:

- AS/U B.*.* import servers will down-shift mixed-case filenames.
- If A.*.* version AS/U servers are to be used for replication with B.*.* version servers, file names should be limited to the 8.3 format and A.*.* replication patches applied (A.03.04.01 or greater for OS B.10.20 and A.02.05 or greater for OS B.10.10).
- An AS/U import server cannot handle more than 2000 files in a single imported subdirectory. Exceeding this limit may cause the directory replication service (*lmx.repl*) to fail.

RFC NetBIOS Configuration and Major Numbers

The NetBIOS device files `/dev/netbios`, `/dev/netbiosdg`, and `/dev/lmxloop` may have their kernel major numbers reassigned when a kernel device or psuedo driver is installed or removed from the system kernel. When this occurs, NetBIOS and/or AS/U will fail to start.

The following are some examples of error messages reported by NetBIOS and AS/U when incorrect NetBIOS device files major numbers exist

- NetBIOS startup may fail from the command line.

```
$/opt/lmu/netbios/bin/nbutil -N start
```

```
Starting NetBIOS
```

```
netdemon: error opening module /dev/netbios: errno=19
```

- If AS/U fails to start, an event will be logged. Use `elfread` to view the AS/U system event log.

```
$/elfread -d system
```

```
.  
. .
```

```
DATE:      12/17/97          EVENT ID: 6038  
TIME:      12:46:54PM       SOURCE:   SERVER  
USER:      N/A              TYPE:    Error  
COMPUTER:  HPNTCPH          CATEGORY: None
```

```
DESCRIPTION: Unable to post name for class 2 mailslot msgs  
on any network DATA:
```

If NetBIOS or AS/U fails to start use the instructions listed below to check if the NetBIOS device files have been assigned correct major numbers:

Do a full listing of the NetBIOS device files `/dev/netbios`, `/dev/netbiosdg`, and `/dev/lmxloop`:

```
$/ls -l /dev/netbios /dev/netbiosdg /dev/lmxloop  
crw-rw-rw- 1 root sys 72 0x00004d Dec 17 15:38 /dev/lmxloop  
crw-rw-rw- 1 root sys 72 0x00004b Dec 17 15:38 /dev/netbios  
crw-rw-rw- 1 root sys 72 0x00004c Dec 17 15:38 /dev/netbiosdg
```

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RFC NetBIOS Configuration and Major Numbers

In this example, the major number for *lmxloop* is 0x4d(77), *netbios* is 0x4b(75), and *netbiosdg* is 0x4c(76)

Use *lsdev* to check if the major number listed in the device files match the major number that the kernel assigned to the pseudo device drivers *netbios*, *netbiosdg*, and *lmxloop*:

```
$lsdev | egrep -i 'netbios|netbiosdg|lmxloop'
    76          -1          netbios          pseudo
    77          -1          netbiosdg         pseudo
    78          -1          lmxloop          pseudo
```

If the major numbers don't match, then the NetBIOS device files need to be recreated by using either method listed below. First ensure AS/U and NetBIOS are stopped.

```
$net stop server #Ensure AS/U is stopped
$/opt/lmu/netbios/bin/nbutil -N stop #Ensure NetBIOS is stopped
```

Rerun the NetBIOS product SD configure script. This script will create the device numbers using the current device major number provided by *lsdev*.

```
$swconfig -x reconfigure=true RFC-NETBIOS
```

Or, manually remove and re-create the NetBIOS device files using the major number provided from *lsdev*.

```
$rm /dev/netbios /dev/netbiosdg /dev/lmxloop
$mknod /dev/netbios c 72 76
$mknod /dev/netbiosdg c 72 77
$mknod /dev/lmxloop c 72 78
```

Known Limitations

- On the 10.20 version, the following netbios warning messages will appear at system boot time at the system console, also visible via the `dmesg` command for “root” users.

Warning: netbios configured w/sync value, but not
SQLVL-ELSEWHERE

Warning: netbiosdg configured w/sync value, but not
SQLVL-ELSEWHERE

These warnings can be ignored and do not effect the proper operation of netbios.

- Directory Timestamps. Adhering to the underlying HP-UX filesystem behaviour, AS/U will update the modification timestamp of a directory whenever its contents are changed. This differs from native NT servers which do not update the directory timestamp during file additions. Utilities such as `nmake` which depend on relative timestamp differences may be impacted.
- The Japanese Unicode code pages for HP-UX and for the Microsoft clients do not exactly match, so there are several ranges of code points (characters) that are supported by Microsoft clients, but not by HP-UX. For example, code points 8740-875D are supported by Windows NT 4.0, but 87XX code points are not supported by HP-UX. AS/U cannot properly handle file or directory names with characters that are not in HP-UX's code pages, even though the clients may support these characters. Be sure to limit the characters in file and directory names to those supported by HP-UX.
- The `NET` command on the HP-UX console accepts Japanese text in the comment, remark, and message fields, except in the case of the `NET USER` command. If Japanese text is entered into the `/COMMENT`, `/FULLNAME` or `/USERCOMMENT` field of the `NET USER` command, it will not work properly.
- AS/U does not support HP-UX filesystem ACLs.
- An ASU user is limited to a maximum of eleven HP-UX group memberships when mapped to a HP-UX user. ASU automatically assigns a mapped HP-UX user to nine ASU pre-defined HP-UX

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Known Limitations

groups. Since HP-UX limits a single- user to 20 groups, only eleven *free* groups remain.

- Event log entries are not overwritten as configured.
- Account lockout is not available for WFW clients.
- The utility *lms* *share -q* does not display printer queues.
- The UIDRULES parameter is ignored.
- The del command, when executed from an MS-DOS PROMPT window on a Windows NT 4.0 client, will not work on files on AS/U servers that are not in 8.3 format if the *namespacemapping* registry entry is not 1 or 3. Use the Windows NT Explorer to delete these files.
- The *netrun* and *nvalert* services are not supported in AS/U.
- RFC NetBIOS on TCP/IP is the only transport protocol supported. The NetBEUI and OSI transports are not available.
- AS/U, LM/X, and LM/U can reside on the same system, but CAN NOT be run simultaneously. See the *Advanced Server/9000 Installation Guide* for procedures on how to toggle between products.
- The NT Server / Administrative tools cannot be used to administer Lan Manager for Unix 2.2 (LM/U) or Lan Manager/X (LM/X) servers.
- Lan Manager servers should not reside in the same domain as AS/U or Windows NT servers. If a Lan Manager server resides in the same domain as an AS/U or Windows NT server, the NT Domain Security Database will be replicated to the Lan Manager server, corrupting the User Accounts Database on Lan Manager.

If you are migrating multiple Lan Manager servers in the same domain to AS/U, either migrate all servers at once, or move the AS/U servers to a different domain during migration. Clients are able to access servers in multiple domains.

- When Advanced Server/9000 is operating in a NIS environment, the registry keyword *CreateUnixUser* should NOT be used to create UNIX user accounts automatically on the server. When NIS is enabled, the *CreateUnixUser* keyword should be set to "no". The UNIX user should be created using standard UNIX commands and the AS/U user should be mapped to the UNIX user using *mapuname*.
- The net accounts /role command is not available with AS/U. Use the Server Manager from a PC to change a server's role within a domain.

- The promote utility in `/opt/asu/lanman/bin` can also be used to change the role of the server (B.*.04 or later).
- The join domain utility in `/opt/asu/lanman/bin` can also be used to change the role of the server.
- Filenames created with European characters by ms-dos/win16 clients are not preserved when migrating from LM/U to AS/U. A conversion script (`asu_pcuxconv`) is provided to convert filenames after migration. (Refer to the section "Converting European filenames from LM/U to AS/U" above.)
- Windows 95 and German umlauts You cannot administer resource permissions on shares that contain German umlauts in their names from the Explorer. Permissions can be administered if the resource is accessed through the Network Neighborhood. Microsoft has acknowledged this behavior but has indicated that it is by design and no fixes will be forthcoming.

Operational Notes
Known Limitations

Clients and Administration

Following are the latest notes on AS/U compatibility:

- AS/U supports the following clients:
 - Windows 98
 - Windows NT 4.0
 - Windows NT 3.51 (with Service Pack 4 or later installed)
 - Windows 95
 - Windows for Workgroups 3.11 with 32 bit TCP/IP
 - LAN Manager 2.2c
- You can administer AS/U using any of the following:
 - `net` commands from the HP-UX command prompt,
 - Windows NT 4.0 running the Windows NT Server Administrative Tools,
 - Windows NT 3.51 (with Service Pack 4 or later installed) running the Windows NT Server Administrative Tools, or
 - Windows 95/98 running the NT Server tools.

The PC client tools listed above are provided in platform-specific directories in the built-in *astools* share on the AS/U server. Administrators who use a Windows 98 client should use the Windows 95 tools. Microsoft has not provided new versions for Windows 98 but has stated that the current Windows 95 versions can be used with Windows 98.

The *win98* directory under *astools* is a symbolic link to the *win95* directory (see 'man 1 link' for a discussion of this capability of Unix).

Refer to the *Advanced Server/9000 Installation Guide* for instructions on installing the administration tools.

NOTE

You cannot use Windows 95/98 to edit the AS/U registry.

NOTE Not every aspect of administration is available from every client. For example, while Windows 95 clients can be used for many operational activities, they cannot be used to edit the registry or to upload printer drivers. NT 4.0 clients provide the most complete set of administrative functionality.

The PC client tools listed above are provided in the built-in ASTOOLS share on the AS/U server. Refer to the *Advanced Server/9000 Installation Guide* for instructions on installing the administration tools.

NOTE Microsoft article Q175093 documents a problem with these versions of User Manager not recognizing February 2000 as a leap year. The problem prevents setting an account expiration date of February 29, 2000. Updated versions of the User Manager utility can be obtained from Microsoft or your Microsoft support provider. This problem does not occur with the Advanced Server net command line utility.

- Using AS/U as the PDC and Windows NT 3.51 as the BDC requires Service Pack 4 to be installed on the NT 3.51 Server to avoid problems with User Accounts Database Synchronization.

Native Language Support

Please refer to the *Advanced Server/9000 Administrator's Guide* for details on enabling on European and Japanese character support.