Readme Before Installing or Updating to HP-UX 10.20

HP 9000 Computers

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Printing History

New editions of this manual will incorporate all material updated since the previous edition.

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What's in this Document

This document contains information about last-minute changes to HP-UX
release 10.20 and to the procedures for install and update. Read it in its
entirety before reading any other 10.20 documentation, and before taking any
steps to install or update to 10.20.

- **If you are currently running 10.x:**

  Find the manual *Installing HP-UX 10.20 and Updating from HP-UX 10.0x to
  10.20* and read it next after reading this *Readme*.

- **If you are currently running 9.x:**

  - *You must upgrade the system and its applications to 10.01 before you can
    update to 10.20.*

    This involves some pre-upgrade preparation in addition to the upgrade
    itself. For this you need the package "HP-UX Upgrade Tools for 9.* to
    10.*", which you should have received along with HP-UX 10.20. The
    package includes the manual *Upgrading from HP-UX 9.x to 10.x*, which
    you should find and read next after reading this *Readme*.

    - If you already have a package labelled "Upgrade Preparation Media", *do
      not load it.*

      Instead, load the software in the package labelled "HP-UX Upgrade
      Tools for 9.* to 10.*".

      (The "Upgrade Preparation Media" package was issued with the initial
      release of 10.01, and did not contain the tools and documentation needed
      to upgrade all the systems 10.x supports.)

    - Find and read the *Readme First* that comes with the 10.01 software; it
      contains information that could affect any of the upgrade or pre-upgrade
      tasks.

Series Numbers

HP-UX documentation (including this *Readme*) sometimes distinguishes between Series 700 and Series 800 systems, so you need to know which series you system belongs to.

In most cases the Series number, or a model number beginning with a 7 or 8, or both, is marked on the CPU, but on some recent models the series identity is not clear. In these cases, use the following table to identify your system's series number:

If Your System is a Model . . .	Then Your System is a . . .
"C" or "J"	Series 700
"D", "E", "F", "G", "H", "I", "K", "T500", "T520"	Series 800

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Late-Breaking News

This chapter provides information that could seriously affect your system when you install, update to, or run HP-UX 10.20. Because 9.x systems must be upgraded to 10.01 before they can go to 10.20, problems affecting the 9.x-to-10.01 upgrade are included as well.

The chapter is divided into sections; use the following table to decide which you need to read:

If you are ...	Read
"Cold-installing" 10.20	"News Affecting 10.20 Install and Update" (page 2-15) "Configuration Problems on 10.x" (page 2-25) "Configuration Problems on 10.20" (page 2-30) "Miscellaneous Notes for 10.x" (page 2-31)
Updating from 10.x to 10.20	"News Affecting 10.20 Install and Update" (page 2-15) "Problems Affecting 10.x-to-10.20 Update" (page 2-17) "Configuration Problems on 10.x" (page 2-25) "Configuration Problems on 10.20" (page 2-30) "Miscellaneous Notes for 10.x" (page 2-31)
Upgrading from 9.x to 10.20 (via 10.01)	The entire chapter.

Within a section, read every item and either:

■ Satisfy yourself that this item does not apply to your particular system; *or*

■ Follow the directions to fix or avoid the problem.

Problems Affecting 9.x-to-10.x Upgrade

All 9.x systems must be upgraded to 10.01 before they can update to 10.20. Items in this section may affect you if you are upgrading 9.x system; they do not affect you if you are already running a 10.x release, or if you are "cold-installing" 10.20.

If you are upgrading to 10.01 in order to get to 10.20, read this section and all the other sections in this chapter.

If you are upgrading from 9.x to 10.01, but do not intend to proceed to 10.20 right away, read this section, and all the other sections that have "10.01" or "10.x" in their titles; you can skip sections specific to 10.20 for now, but keep this *Readme* in a safe place so you can come back to it when you do decide to update to 10.20.

Before You Start

If you have not already done so, find and read the *Readme* document issued with the 10.01 software, *Readme Before Installing or Updating to HP-UX 10.01*.

Dumps and Swap Sections Not Specified (Series 800)

This item applies to you if you are planning to upgrade a Series 800 system from 9.x and you are using hard-partitioned disks. This item *does not* apply to you if you are using LVM (Logical Volume Manager) on the disk that contains the primary swap and dump space (usually the root disk).

Problem

The problem occurs when dumps and primary swap are on a hard-partitioned disk (a disk divided into sections, each with its own device file) and you have not specified a section number for both dumps and primary swap.

Caution	If this above is true of your system, **do not attempt to upgrade it to 10.x** without first following the procedure later in this chapter. You risk serious data corruption if you do.

How To Diagnose the Problem

Look at the dumps and swap statements in your S800 file. This is the file from which the kernel is generated; you will find it in /etc/conf/gen and it is usually called simply S800 (that is, /etc/conf/gen/S800).

The following is an example of primary-swap and dumps entries that will cause problems and need to be changed:

Example 1 (problem):

```
dumps on cio_ca0.hpib0.disc1 at 4.1.0;


swap on cio_ca0.hpib0.disc1 at 4.1.0;
```

Either or both of these entries would cause a problem.

The following are examples of statements that *do not* need to be changed:

Example 2 (ok):

```
dumps on cio_ca0.hpib0.disc1 at 4.1.0  section 10;


swap on cio_ca0.hpib0.disc1  at 4.1.0  section 10;
```

Example 3 (ok):

```
dumps on default;


swap on default;
```

Example 4 (ok):

```
dumps on default;


swap on cio_ca0.hpib0.disc1  at 4.1.0  section 10;
```

Example 5 (LVM; ok):

```
dumps on lvol;


swap  on lvol;
```

How To Fix the Problem

If your `swap` and `dumps` statements specify a disk but no section, as in the statements in Example 1 earlier in this section, follow the procedure below. Do this on the 9.x system. The procedure involves a reboot; you may want to wait to do it until immediately before the upgrade, when you have already brought the system down to single-user mode.

1. Log in as root.

2. Run `swapinfo`:

       /etc/swapinfo

   Write down the output.

3. Run dmesg:

       /etc/dmesg

   Write down the output for `SWAP` and `DUMP`.

4. Edit the `S800` file (usually `/etc/conf/gen/S800`).

   Before making changes, make a backup copy of the existing file, for example,

       cd /etc/conf/gen
       cp S800 S800.BCKUP

   Now edit the file:

   ■ Change statements such as those in Example 1 earlier in this section to specify section 15, which is the default section.

     You would change the statements in Example 1 to read:

         dumps on cio_ca0.hpib0.disc1 at 4.1.0 section 15;

         swap on cio_ca0.hpib0.disc1 at 4.1.0 section 15;

5. Regenerate the kernel.

   Use `uxgen(1M)`. If you need help, or if it's been a while since you rebuilt a Series 800 kernel, follow directions beginning on page 2-32 of the 9.0 version of the Series 800 *HP-UX System Administration Tasks* manual.

6. Reboot the system.

7. Run `swapinfo` and `dmesg` again.

   Results should be identical to the output from steps 2 and 3 above.

What Problem Are You Solving?

In 9.x, the default section for primary swap and dumps is 15; that is, if you do not specify a section, as in Example 1 above, the 9.x system will use section 15.

But in 10.x, the default is section 0, and in 10.x section 0 identifies the whole disk. So if you do not change statements such as those in Example 1 to mention section 15 explicitly, the 10.x system will come up swapping to the beginning of the disk, overwriting your data.

Reminder: Only One Swap Device in Kernel

Whereas 9.x systems allow you to configure more than one swap device into the kernel, 10.x systems allow only one.

Because of this, `upgrade` will retain only the first swap statement it finds when it configures a new kernel for 10.01. For example, a swap statement such as this in the 9.x S800 file,

```
swap on default
        cio_ca0.hpib0.disc1 at 8.0.0 section 1
        cio_ca0.hpib0.disc1 at 8.0.1 section 1;
```

will be converted to the following statement in the **/stand/system** file from which the 10.01 kernel is built:

```
swap default s15
```

Password Files on Trusted Systems

This item applies to you if you are running a 9.x Trusted System and intend to upgrade it to 10.x.

Problem

The `upgrade` program will convert 9.x Trusted Systems to 10.01 (*so long as they are not part of an HP-UX cluster*) but `upgrade` may not successfully convert the password file.

Caution	If your Trusted System is an HP-UX ("DUX") Cluster, the `upgrade` program will upgrade the system to 10.01 if, and only if, you first "unconvert" the system using `tsconvert -r` as described in chapter 4 of the manual *Upgrading from HP-UX 9.x to 10.x*.

"Standalone" systems (those that are not part of an HP-UX Cluster) do not need to be "unconverted", though you have the option of doing this (see the last two paragraphs under "To Avoid the Problem, Before You Upgrade from 9.x", later in this section). But you may run into a problem when `upgrade` tries to convert the password file.

The problem occurs if:

- There are non-alphabetic characters in the first field of a login name in `/.secure/etc/passwd`; *or*

- There are inconsistencies between `/etc/passwd` and `/.secure/etc/passwd` .

Either of these conditions will prevent the conversion of the 9.x password files to the new 10.x trusted format.

Caution	Even though the rest of the upgrade to 10.x may successfully complete, the result of this portion failing is that no one, not even root, will be able to log in.

If you and all other administrators of this system have always used SAM to add and delete users, you are much less likely to have password-conversion

problems when you upgrade, but you should still follow the steps under "To Avoid the Problem, Before You Upgrade from 9.x", to make sure.

If you have used the editor or `vipw(1)` to make changes to your password files after converting to a Trusted System, `/.secure/etc/passwd` and `/etc/passwd` files may not be synchronized; follow the steps under "To Avoid the Problem, Before You Upgrade from 9.x" to find and fix inconsistencies.

The remainder of this section explains both how to *avoid* the problem, before you upgrade from 9.x, and how to *recover* if you do not discover the problem until after you have already upgraded to 10.01.

- To avoid the problem, follow the instructions under "To Avoid the Problem, Before You Upgrade from 9.x".
- To recover after the problem has occurred, follow the instructions under "To Recover, After Upgrading To 10.01".

To Avoid the Problem, Before You Upgrade from 9.x

1. Check that `/etc/passwd` and `/.secure/etc/passwd` have the same number of entries:

   ```
   wc -l /etc/passwd
   wc -l /.secure/etc/passwd
   ```

   Resolve any discrepancies `wc` reports. (For example if entries are missing from `/etc/passwd`, add them.)

2. Verify that the fields in each file are valid using:

   ```
   /etc/pwck -s > /tmp/secure.log 2> /tmp/passwd.log
   ```

   `-s` is an undocumented option which will check for the existence of the secure password file.

Note   This option does work on 10.x Trusted Systems.

Check `/tmp/secure.log` and `/tmp/passwd.log`.

There should not be any `#` signs (used to comment out users, for example) nor should there be any missing field delimiters.

Once you have eliminated all discrepancies you can proceed with the upgrade.

If you can't resolve the discrepancies, you may want to consider "unconverting" your system or restoring the original **/etc/passwd** (the one you used before converting the system to a Trusted System) before proceeding with the upgrade.

To "unconvert" a Trusted System to a regular system, and "reconvert" it after the upgrade, follow the directions for a Trusted System Cluster in chapters 4 and 7 of *Upgrading from HP-UX 9.x to 10.x*.

To Recover, After Upgrading To 10.01

1. Cycle power (shut down the system and then turn it off and on) and boot into single-user mode (enter **hpux -iS boot** at the **ISL>** prompt).

2. The 9.x shadow password file, **/.secure/etc/passwd**, is still on your system. Use it to modify **/etc/passwd** so users can log in.

   Either:

   - Replace the "*" in the password field of **/etc/passwd** with the corresponding entry from the shadow password file.

   Or:

   - Replace the "*" in **/etc/passwd** with ",.." which will force users to enter a new password.

Caution   This will allow users to log in without entering their old password.

---

3. Try converting to a Trusted System:

   a. Save a copy of **/etc/passwd** and **/.secure/etc/passwd** and verify that both files at least have the same number of entries by performing step 1 under "To Avoid the Problem, Before You Upgrade from 9.x", earlier in this section.

   b. Verify that the fields in **/etc/passwd** are valid:

      ```
      /usr/sbin/pwck  /etc/passwd 2> log
      ```

Unfortunately you cannot now check your `/.secure/etc/passwd` with `pwck`.

c. Try to convert to a 10.x trusted system:

```
/usr/lbin/tsconvert -dv > /tmp/tsconvert.log 2> /tmp/stderr.log
```

As long as `/.secure/etc/passwd` still exists, `tsconvert` will still use it in conjunction with `/etc/passwd` to do the conversion to a 10.x Trusted System.

The `-dv` option logs the progress of `tsconvert` to `tsconvert.log` If the conversion fails, you should be able to isolate the problem user(s) by reviewing `/tmp/tsconvert.log` and `/tmp/stderr.log` .

`stderr.log` should contain the actual command that failed, for example:

```
tsconvert: dopswd: putprpwnam(#pwinklE) failed
           Can't write protected database;
           password file unchanged.
           tsconvert: main: dopswd() failed
```

In this case, the user `#pwinklE` was the culprit.

You can keep running `tsconvert` until all problem entries have been identified.

4. Once the conversion succeeds, password aging will be enabled, which is not the default when you convert a system by running SAM. To disable password aging, you can either go into SAM and select `Auditing and Security` then `System Security Policies` then `Password Aging Policies`; or run:

```
/usr/lbin/modprdef -m mintm=0,lftm=0,exptm=0,expwarn=0
```

5. Restore `audnames` file.

When you go into the `Auditing and Security` section of SAM, you will see a message such as:

```
          Confirmation  (your-system-name)

 SAM cannot retrieve any auditing information because the file
 /.secure/etc/audnames does not exist or is corrupt.  SAM cannot
 continue until this file is restored.  Would you like SAM to
 reconstruct this file?

 [Yes]                                                   [No]
```

Select [Yes].

Upgrade Failure Because of Asterisk in /etc/group

This item applies to all systems upgrading from 9.x, but it is particularly likely to affect Trusted Systems.

Problem

If the entry for lp in /etc/group has an asterisk (*) in the encrypted-password field, the upgrade will fail with the following error:

```
ERROR: the 'lp GID in /etc/group is not 7'
```

If this is a Trusted System and you have changed the default value of lp's password (*null*) to *, or to an encrypted password, then you will see this error.

To Fix the Problem

If you encounter this problem, do the following.

1. Exit the **upgrade** program.

2. Check /etc/group:

   ■ If the entry for lp in /etc/group has an asterisk in the encrypted-password field (the second field) remove it; or add a password for lp.

   ■ If the entry for lp in /etc/group does not have a 7 in the group id field (the third field) change the entry so it does have a 7 in this field.

   Fields in /etc/group are delimited by colons; see group(4) for details.

3. Re-run **upgrade**.

Once the upgrade has succeeded, you can put the asterisk back into
`/etc/group` if you need to.

What if You Do Not Fix the Problem?

The upgrade will fail. If you see this error, you must fix it before the upgrade
can succeed.

Upgrade Failure Because of Missing X11 Fileset on 9.07

This item affects only those systems being upgraded from 9.07.

If X11 (X11-SERV) is on your HP-UX 9.07 system, the system must have all
the filesets listed below. If any of these filesets are missing, the upgrade from
9.07 to 10.01 will fail.

Caution	This problem is *not* detected by the `snoop` tool!

Filesets required if X11 is present:

```
X11-SERV
DDX-ENTRY
DDX-LOAD
DDX-SLS
DDX-UTILS
DDX-VRX
DDX-ADVANCED
XEXT-MBX
XEXT-DBE
AGRM
DDX-FREEDOM
DDA-SHLIBS
```

Check for these by looking in `/etc/filesets`. Check for `DDA-SHLIBS` in
particular.

Recovery

If the upgrade has failed because an X11 fileset is missing, do the following:

1. Back *all the way* out of the upgrade.
2. Use `/etc/update` to install the missing fileset or filesets.
3. Restart the upgrade.

Reboot Problem on Systems Being Upgraded from 9.07

This item affects only those systems being upgraded from HP-UX 9.07.

When upgrading from 9.07 to 10.20 you must temporarily use an intermediate 10.01 HP-UX (see *Upgrading from HP-UX 9.x to 10.x* for details). When you use `swinstall` (or `swcluster` for an NFS Diskless cluster) to go from 10.01 to 10.20, the system should reboot; but sometimes the reboot fails.

If the system tells you it is rebooting and then does not, you can safely reboot by using the following command:

```
/usr/lbin/sw/bin/reboot
```

You do not need to run `fsck` as well.

Automounter Configuration May Not Be Converted Correctly

When you upgrade to 10.01, certain customizations to your 9.x automounter configuration may not be properly upgraded. As a result, the automount daemon may not be configured the way you wanted.

This can happen on any HP-UX 9.x system that is being upgraded to 10.01: Series 800 systems, standalone Series 700 systems, Series 700 HP-UX ("DUX") Cluster servers and Series 700 "DUX" clients. But the problem occurs only if you have edited the automounter command-line options in the 9.x file `/etc/netnfsrc2` to use the construct `-Denvar=`*val*.

How To Fix the Problem

Do this on the 10.01 system (after the upgrade from 9.x):

1. Log in as root.

2. Examine the `/etc/netnfsrc2` file as saved in the system's private save area, under `/etc/upgrade/save/`*hostname*.

   Find the line which runs the automount command and and make a note of the command line options.

3. Edit the file `/etc/rc.config.d/nfsconf` and find the line starting with `AUTO_OPTIONS=`

   If the options following the equal sign do not match your 9.x options, edit that line so that the options do match. If your option string has spaces in it, you must enclose the entire option value in double quotes, like this:

   ```
   AUTO_OPTIONS="-v -Dfoo=bar -f $AUTO_MASTER"
   ```

What Problem Are You Fixing?

In 9.x `/etc/netnfsrc2` starts parts of the NFS/NIS subsystem, including the the NFS automount daemon. In 10.x, this file is broken into two parts, one containing configuration information, and a second that executes the commands required to start NFS and NIS.

One of the NFS transition scripts run during the 9.x-to-10.01 upgrade sometimes fails to properly extract your automount options from `/etc/netnfsrc2`. If it fails, you will see error messages in `/etc/rc.log` and the automounter will not function as you expect.

Errors in Upgrade Manual

This section corrects errors discovered after the manual *Upgrading from HP-UX 9.x to 10.x* went to press.

Incorrect Format for Fast/Wide SCSI

The format for a Fast/Wide SCSI device file is given incorrectly on page 4-69 of *Upgrading from HP-UX 9.x to 10.x*. The correct information is as follows:

```
Type of Card      Device-File Name           Example
-------------------------------------------------------------

Fast/Wide SCSI:                              (for Fast/Wide
                                             SCSI in slot 1)
9.05              c[ABCDEF]0d<disk_addr>s0   /dev/dsk/cA0d0s0
9.07              c[abcdef]0d<disk_addr>s0   /dev/dsk/ca0d0s0
```

Note	For Fast/Wide SCSI, if *disk_addr* is greater than 9, the disk address will be represented in hexadecimal upper case for 9.05 and in hexadecimal lower case for 9.07:

```
            Device-File Name        Example
-------------------------------------------------------------

9.05        c[ABCDEF]0d[ABCDEF]s0    /dev/dsk/cA0dBs0
9.07        c[abcdef]0d[abcdef]s0    /dev/dsk/ca0dbs0
```

Incorrect Option for Unattended Upgrade

The *Upgrading from HP-UX 9.x to 10.x* manual gives the following command-line example for unattended upgrade (page 6-28):

```
/usr/sbin/upgrade -o -s petunia:/mydepot -x autoreboot=true
```

The -o option is not valid. The command for the example in question should be:

```
/usr/sbin/upgrade -s petunia:/mydepot -x autoreboot=true
```

News Affecting 10.20 Install and Update

Read all the items in this section before installing or updating to HP-UX 10.20.
You do not need to read them if your system came from the factory with the
10.20 operating system already installed on the system disk.

New "Extension Software" CD or Tape

In addition to the tapes or CDs holding the operating system, the 10.20 release
includes a tape or CD labelled "HP-UX Extension Software". This tape or
CD is included as a means of delivering fixes for any problems that may be
discovered after 10.20 has been packaged for shipment.

There may be no such problems, in which case *the "HP-UX Extension
Software" tape or CD will be empty.* This is not an error; in fact it is good
news.

What To Do

After you have installed or updated your system to 10.20, do the following:

1. Load the CD or tape into the drive.

2. In the case of a CD, make sure the drive is mounted:

   `/usr/sbin/mount`

   If there is no entry for the CD-ROM drive, mount it; for example

   `/usr/sbin/mount /dev/dsk/c0t2d0 /cdrom`

3. In the case of a CD, check to see if there is anything in the `/cdrom`
   directory:

   `ll /cdrom`

   If the `/cdrom` directory is empty, take no further action; the update is
   complete. Otherwise, go on to the next step.

4. Run the SD utility `swinstall` (or `swcluster`) just as you did to update the
   system.

- If you are loading from tape and SD reports there is nothing on the tape, simply exit the program.

- Otherwise load the patches, choosing `Match What Target Has` as instructed under "Using HP-UX Extension Software" in chapter 3 of the manual *Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20*.

  If you need more information about the patches before loading them, you'll find a description either in a file on the tape or CD, or possibly in an accompanying printed *Readme*.

Problems Affecting 10.x-to-10.20 Update

Read all the items in this section before updating from 10.x to 10.20. They apply whether you are in the process of upgrading a system from 9.x (or 10.0) to 10.20 via 10.01, or updating a system originally installed with 10.01 or 10.10. They *do not* apply if you are "cold-installing" 10.20.

Caution	■ **All 10.0 systems must be updated to 10.01 before they can be updated to 10.20. Do not try to update a 10.0 system directly to 10.20.** ■ **Everyone updating from 10.x MUST do this:** Before you can update to 10.20, you must load the new 10.20 version of SD (Software Distributor). **You cannot use the 10.x version of SD that is currently on your system to load HP-UX 10.20.** The update will fail if you try. You must first load a utility called `swgettools` onto your system, then use `swgettools` to get the new version of SD. Follow directions in chapter 3 of *Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20*. See also "Patch May Be Needed To Run SD" below. The only case in which you do not need to pre-load 10.20 SD is if you are *installing* HP-UX 10.20 onto a new system that has no operating system on it (or if you are "re-installing"— wiping out your system disk and starting over). You do not need to load SD first in that case because the installation program will do it for you.

Patch May Be Needed To Run SD

This item applies to you if you are updating from 10.01. It *does not* apply if you are updating from 10.10, or if you will be using the Terminal Interface version of the `swinstall` program as opposed to the Graphical User Interface (for example, if you will be running the update from the terminal console of a Series 800, you can ignore this item).

Problem

The Graphical User Interface (GUI) version of `swinstall` may not function correctly if your system has the original version of `/usr/lib/X11R5/libX11.1`. The symptom is incorrectly labeled buttons on the screens.

How To Diagnose the Problem

You can find out whether your system has the original or the patched version of the file by entering the command

```
what /usr/lib/X11R5/libX11.1
```

You will see something like this:

```
/usr/lib/X11R5/libX11.1:
        X Window System, Version 11 HP-UX 10.* SRC_MLP R5+
        (build date: Wed Mar  1 19:51:03 PST 1995)
```

In this case, the `build date` indicates that this is the original version of the file, and so you would need the patch; but if the date you see is October 24, 1995 or later, then you already have the patched version of the file and don't need to take any further action.

What Patch Do You Need?

If the build date for `/usr/lib/X11R5/libX11.1` is earlier than October 24, 1995, and you intend to run `swinstall` in Graphical User Interface (GUI) mode (that is, using a mouse for pointing and clicking) on a 10.01 system, then you need to install patch PHSS_7131, "s700_800 10.X X11R5/Motif1.2 Runtime May Periodic Patch".

What To Do

Install the patch from HP SupportLine, or obtain it by whatever method you usually use. Install the patch before you run `swgettools` to get the new version of SD.

Note	■ When you run `swgettools`, you will see a message similar to what you have just read, but giving a different patch number. Use the patch number in this *Readme;* the patch referred to in the `swgettools` message has been superseded by PHSS_7131.
	■ By the time you read this, it is possible that PHSS_7131 itself may have been superseded, but if you request PHSS_7131 you will be referred to the most current patch.

/usr **Logical Volume May Be too Small**

This item applies to you if you are using LVM (the Logical Volume Manager for disks). You may need to increase the size of the /usr volume.

Problem

In previous releases, the default size for the /usr volume was 300 Mb. Depending on what software you choose to load when you upgrade to 10.20, this may not be enough.

How Do You Know if You Will Need More Space?

Unless you have plenty of disk space to spare (in which case you may want to increase the /usr volume before you run the update; see "How To Fix the Problem" below) you should simply run SD and select the software you want to load; the program will tell you whether or not the software will fit before it tries to load it.

If you do not have enough space in /usr, you will see an error such as this:

```
ERROR:   The used disk space on filesystem "/usr" is estimated to
         increase by 57977 Kbytes.
         This operation will exceed the minimum free space for this
         volume.  You should free up at least 10854 Kbytes to avoid
         installing beyond this threshold of available user disk space.
```

In this example you need to extend the /usr volume by 10Mb, which actually needs to be rounded up to 12Mb.

How To Fix the Problem

Do the following:

1. Log in as root.

2. Find out if any space is available:

   `/sbin/vgdisplay`

   You'll see output something like this:

   ```
   --- Volume groups ---
   VG Name                    /dev/vg00
   VG Write Access            read/write
   VG Status                  available
   Max LV                     255
   Cur LV                     8
   Open LV                    8
   Max PV                     16
   Cur PV                     1
   Act PV                     1
   Max PE per PV              2000
   VGDA                       2
   PE Size (Mbytes)           4
   Total PE                   249
   Alloc PE                   170
   Free PE                    79
   Total PVG                  0
   ```

   The `Free PE` entry indicates the number of 4Mb extents available, in this case, 79 (316 Mb).

3. Change to single user state:

   `/sbin/shutdown`

   This will allow **/usr** to be unmounted (see below).

4. Check to see where **/usr** is mounted (**/dev/vg00/lvol7** by default):

   `/sbin/mount`

   You'll see output such as:

```
/ on /dev/vg00/lvol1 defaults on Sat Jan 28 23:19:19 1995
/usr on /dev/vg00/lvol7 defaults on Sat Jan 28 23:19:28 1995
```

5. Extend the logical volume:

   `/sbin/lvextend -L` *new_size* `/dev/vg00/lvol7`

   For example,

   `/sbin/lvextend -L 332 /dev/vg00/lvol7`

   increases the size of this volume to 332Mb.

6. Unmount `/usr`:

   `/sbin/umount /usr`

   This is required for the next step, since `extendfs` can only work on unmounted volumes.

7. Extend the file system size to the logical volume size.

   `/sbin/extendfs /dev/vg00/rlvol7`

8. Remount `/usr`:

   `/sbin/mount /usr`

9. Return the system to its normal run level:

   `exit`

   The system will prompt you for a new `init` state; enter 3 or 4.

Networking Products Not on "Core" CD or Tape

If you are using certain networking products that are not the "Core" CD or tape, and you are updating from a remote server over a network, you may run into problems: after the "core" operating system is loaded and the system boots the new 10.20 operating system, you may no longer be able to reach the network server because the networking capabilities required to do so are not yet on your system.

How To Tell if Your System Is Likely To Be Affected

Networking products that are not on the "Core" tape or CD include FDDI, Token-Ring and 100VG AnyLan; these are on the HP "Applications" CD-ROM or tape and will not be on your system after the initial boot.

If HP provides you with a set of "custom" tapes as as part of your software support contract, then you probably *will not* have a problem because HP combines the optional networking with the "Core" software.

What To Do

Your two main options are:

- Install the optional networking products from a local CD-ROM drive, tape drive or disk depot.

- Use the SD utility `swcopy` to create a combined "Core" and "Applications" depot and do the entire update from that depot.

See *Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20* (under "Networking Products on Additional Media" near the end of chapter 3) for further explanation. See the manual *Managing HP-UX Software With SD-UX* (HP part number B2355-90107), and the `swcopy(1M)` and `swpackage(1M)` manpages for information on building a software depot.

Run-Time Software License Server Change

This item applies to you if you use runtime software licensing (the LSSERV product, or iFOR/LS) on your pre-10.20 system. The `i4lmd` daemon will not automatically start after you update to 10.20, and you will have to re-configure the runtime licensing on your system after it boots.

Your System Is Affected If ...

You need to take the actions described under "What To Do" below if your current system uses software runtime licensing—as a client or server or both. If this is true you should have a license daemon (`i4lmd`) running, and license database files at `/var/opt/ifor/cur_db` and `/var/opt/ifor/lic_db`.

What To Do

1. Before you begin the update to HP-UX 10.20, find out the system's licensing role (client, server, or both) and its configuration.

   Use the `i4tv` command to identify the remote server(s), and `i4lbfind` for cell information.

   You must have this information in order to re-configure the system after it has been updated.

2. Update the system to 10.20.

3. After the update completes and the system boots on 10.20, run

   `/opt/ifor/bin/i4config`

   ■ Use the information you got in step 1 to respond to the questions about whether the system will be a license client or if it will also be a license server.

   ■ Respond to the question about the licensing configuration method.

   You should almost certainly respond **2**, to indicate compatibility with pre-10.20 capability. The "Basic" configuration is not compatible with pre-10.20 server functionality.

   ■ Respond to the question about cell configuration.

   The program will ask you if you want to remain in the currently assigned cell. Respond **y** unless you want to change your cell configuration.

For more information consult the document HP provides as part of the 10.20 system in the file `/opt/ifor/ls/doc/i4qsguide`.

Notes
1. You will not need to reinstall the software licenses.

2. A client system on 10.20 does not need the `i4lmd` daemon, so a daemon will only be started if the system is configured as a license server.

What Problem Are You Solving?

iFOR/LS configuration processes and file formats have changed considerably for the 10.20 release; configuration files created before 10.20 are incompatible with the configuration files used in 10.20. The steps under "What To Do" rebuild the configuration.

Harmless Errors for CDE

When you update to 10.20, the SD utility `swverify` will report errors for CDE and related products which in fact are harmless and can be ignored.

CDE errors: When you update a 10.10 system 10.20, `swverify` will report errors for the CDE fileset `CDE-LANGS` and the files `/usr/dt/app-defaults/`*LANG*`/Dtksh`. These errors have no impact on the operation of HP-UX, CDE or `dtksh`.

VUE errors: When you update a 10.01 or 10.10 VUE desktop to a 10.20 CDE desktop, `swverify` will report errors regarding 10.01 or 10.10 versions of VUE and SharedPrint. These errors have no effect on HP-UX or CDE. They are meant as a reminder that previous versions of VUE and SharedPrint still exist on the updated system.

X11 warning: When you update a 10.10 VUE desktop to a 10.20 CDE desktop, `swverify` (and `swlist`) will issue a warning regarding X11 filesets. This warning relates to the 10.10 version of X11 and has no effect on HP-UX 10.20 or the 10.20 version of X11.

Configuration Problems on 10.x

Everyone installing or updating to 10.x should read the items in this section.

100VG-LAN

This item applies to you if you have a 100VG LAN card and are configuring an NFS Diskless cluster server (that is, if client workstations will be booting over the LAN from a 10.x system).

How Do You Know if You Have a 100VG LAN Card?

100VG-LAN is an optional product, not part of the base system provided by HP, so you probably know if you have this kind of LAN card or not. But if you're not sure do the following:

1. Run `lanscan`:

   ```
   /usr/sbin/lanscan
   ```

2. Check the last column of the output, under the heading,

   ```
   Mjr
   Num
   ```

   The major number 176 identifies a 100VG LAN card. For example, the last entry in the list below is a 100VG card:

   ```
   Hardware Station       Crd Hardware Net-Interface   NM  MAC    HP DLPI Mjr
   Path     Address       In# State    NameUnit State  ID  Type   Support Num
   2/0/9    0x08000932023B 1  UP       lan1     UP     4   FDDI       Yes 111
   2/0/2    0x0800093526EE 0  UP       lan0     UP     5   ETHER      Yes 52
   4/0/1    0x0000F6000315 2  UP       lan2     UP     6   802.5      Yes 102
   4/0/3    0x0800091816EC 3  UP       lan3     UP     7   ETHER      Yes 52
   4/0/4    0x0800090D5145 4  UP       lan4     UP     8   ETHER      Yes 176
   ```

What To Do

Before trying to boot NFS Diskless clients to a 10.01 or 10.20 system, do the following:

1. Log in as root.

2. Edit the file `/etc/rc.config.d/netdaemons`.

   Find the line

   ```
   RBOOTD_DEVICES=
   ```

   There is probably nothing after the equal sign (`=`). Change this line so it specifies every LAN card on your system *except* the 100VG card.

   For example, given the `lanscan` output shown in the example above, edit the `RBOOTD_DEVICES=` statement to say

   ```
   RBOOTD_DEVICES="/dev/lan0 /dev/lan1 /dev/lan2 /dev/lan3"
   ```

3. Restart `rbootd`.

   You can do this either by rebooting the system, or by simply running `rbootd`.

   Once you reboot, `rbootd` will get the information you have just entered into `/etc/rc.config.d/netdaemons` and start up and run correctly, but if you run `rbootd` yourself without rebooting, you need to supply this information explicitly on the command line:

   ```
   /usr/sbin/rbootd /dev/lan0 /dev/lan1 /dev/lan2 /dev/lan3
   ```

What Problem Are You Fixing?

`rbootd` enables Series 700 clients that use HP's proprietary `RMP` boot protocol to boot remotely. (`RMP` is being phased out in favor of the standard `BOOTP/TFTP` protocol, but many Series 700 models still use `RMP`, so you should assume you will need to fix this problem on any server with a 100VG card.)

When `rbootd` starts up, it tries to open all LAN cards on the system (the default behavior, indicated by `RBOOTD_DEVICES=`, is to open everything). Because it does not recognize the 100VG LAN card, `rbootd` exits with an error. This means that NFS Diskless clients that need `rbootd` will not boot.

By telling `rbootd` explicitly which devices to open (as described above) you prevent the problem.

Graphics Driver Configuration

This item applies to you if you are installing new graphics hardware on a 10.x system that supports plug-in graphics cards (Series 700 or S800), but the system did not previously have graphics hardware.

How Do You Know if You Do Not Have the Graphics Driver Configured Properly?

Your system will hang during the boot process if the system console is set to the graphics hardware via the boot ROM `console` command and the graphics driver is not configured into the kernel.

What To Do

Before you can use the new graphics hardware, you must configure the graphics `graph3` driver.

Use SAM to configure the graphics driver into the HP-UX kernel. Open the `Kernel Configuration` menu item and select `Drivers`. If the `graph3` driver's current state is `In`, the driver is already configured into your kernel. If the current state is `Out`, select the `graph3` driver entry. Open the `Actions` menu item and select `Add Driver to Kernel`. You can now reconfigure the kernel and reboot.

What Problem Are You Fixing?

Before HP-UX 10.0, the graphics driver was always configured into the operating system kernel. But as of 10.0, the graphics driver can be removed on systems that do not have graphics display hardware.

If graphics hardware is installed later, you must configure the graphics driver into the kernel before you can use the new graphics hardware.

UUCP in a Cluster

On a 9.x system, a UUCP command can be run from an HP-UX ("DUX") cluster client, but UUCP actually uses the server's UUCP configuration, physical ports and device files.

This does not happen in 10.x NFS Diskless clusters for the following reasons:

- In a client/server environment, configuration files are specific to the host.

  This means that each host initiating a UUCP command or receiving remote files via UUCP will have its own set of configuration files in `/etc/uucp` as well as its own workspace, lock files and "public receive" directories.

- References to serial port devices (e.g. `/dev/ttyXpY`) in `/etc/uucp` configuration files are local references.

  A uucp command will access physical ports and device files on the system where the command is executed.

To configure a client for UUCP after upgrading to 10.x, do the following:

1. Configure the client for UUCP operations.

   After upgrade the client will have default 10.x UUCP configuration files in `/etc/uucp`.

2. For direct transmission, physically connect the client and any system to which a UUCP command will be initiated or from which a UUCP file will be received.

   This connection must exist whether or not the server is physically connected.

To use the server's physical port, device files and UUCP configuration from a client, the user must log in remotely to the server (via `telnet(1)` or `rlogin(1)`) and issue the UUCP requests.

Patch for 9.x-to-10.x Interoperability

This item applies to you if you need to make 9.x and 10.x systems work together.

The "HP-UX 9.x/10.x Interoperability Guide" refers to interoperability links that are available via a patch for HP-UX 10.x.

To obtain these links, request patch `PHSS_5666` from your HP Customer Engineer or via HP SupportLine.

Configuration Problems on 10.20

Everyone installing or updating to 10.20 should read the items in this section.

Applications on Trusted Systems

This item applies to you if you are running a Trusted System and you intend to use applications or libraries that were compiled on a previous version of 10.x (10.0, 10.01 or 10.10). Code compiled on earlier versions of HP-UX is not affected.

How Do You Know if You Have a Trusted System?

You probably know if you do or not, but if you are not sure, check for the directory **/tcb**. If it exists, and if your **/etc/passwd** file has an asterisk (*) in the password field for each entry, this is probably a Trusted System.

Problem

HP has expanded 16-bit user IDs (used by Trusted Systems) to 32 bits. These IDs are used by the **setprpwent(3)** and **getprpwent(3)** library routines (specifically, they are defined in the **prot.h** file used by these calls). Applications that use these calls and were compiled on an earlier version of 10.x will not run correctly on 10.20. This is true whether the library routines were linked "shared" (bound at run-time) or "archived" (bound at link time).

What To Do

Applications compiled on an earlier version of 10.x and using **setprpwent** or **getprpwent** must be recompiled on a 10.20 system before you can run them.

- For code developed in-house, and for which you own the source, pass this information on to your programmers so they can check their code and fix it if necessary.

- For third-party applications, you will need to contact the software supplier.

By no means all applications that can run on a Trusted System will call **setprpwent** or **getprpwent**, but those that check the user's ID, explicitly or silently, probably do.

QIC Tape and Drive No Longer Supported

As of 10.20, QIC tape, and QIC tape drives, are no longer supported. If your system depends on QIC tape for critical services such as backup, do not update to 10.20 until you have replaced the drive (or made alternative arrangements).

Note   The manual *Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20* mentions the possibility of installing or updating from QIC tape; this is an error.

Miscellaneous Notes for 10.x

Name Change for Support Media Manual

The correct name for the manual that accompanies the "Support Media" is the *Support Media User's Guide* (HP part number 92453-90010).

The "Support Media" includes diagnostic tools, and the `COPYUTIL` tool for making a recovery system and doing a recovery.