

Installing and Updating HP-UX 11.0 Additional Core Enhancements, November 1999

HP 9000 Computers



Manufacturing Part Number: B3782-90785

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HEWLETT-PACKARD COMPANY
Mailstop 11
3404 E. Harmony Road
Fort Collins, CO 80525 U.S.A.

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Revision History: November 1999, Edition 1.

This edition documents material related to the HP-UX 11.0 Additional Core Enhancements, November 1999 media.

This guide's printing date and part number indicate its current edition. The printing date changes when a new edition is printed. (Minor corrections and updates which are incorporated at reprint do not cause the date to change.) The part number changes when extensive technical changes are incorporated.

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

Typographic Conventions

This manual uses the following typographic conventions:

Boldface	Words defined for the first time appear in boldface. For example, an argument is the part of a command line that indicates what file or directory the command is to act on.
Computer	Computer font indicates literal items displayed by the computer. For example: <code>file not found</code>
User input	<p>Bold, computer text indicates literal items that you type. For example, enter:</p> <p><code>cd</code></p>
<i>Italics</i>	<p>Manual titles, variable in commands and emphasized words appear in italics. For example, you would substitute an actual directory name (such as <code>mydir</code>) for <i>directory_name</i> in this command:</p> <p><code>cd <i>directory_name</i></code></p>
Enter	Text in this bold, sans serif font denotes keyboard keys. A notation like Ctrl-Q indicates that you should hold the Ctrl key down, then press Q .

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Introduction

HP-UX 11.0 Additional Core Enhancements (ACE), November 1999 delivers hardware enablement patches, software functionality, and general-release patches without creating a new release. This manual shows how to apply the contents of the HP-UX 11.0 ACE 9911 Install and Core OS Software CD to update or cold-install your system to the latest version of HP-UX 11.0.

This manual accompanies the HP-UX 11.0 ACE 9911 Install and Core OS Software CD, which includes:

- Latest version of the HP-UX 11.0 operating system.
- New version of the HP-UX 11.0 install kernel.
- Current HP-UX 11.0 patch bundle, XSWGR1100.

Media kits for HP 9000 PA-RISC workstations contain a new CD entitled “HP-UX 11.0 Core OS Options.” This CD contains the HP B6268AA Graphics and Technical Computing Software which provides OpenGL, Starbase, HP PEXlib and HP-PHIGS 3D APIs for HP 9000 PA-RISC workstations and selected servers. For more about this new CD, see “Workstation Graphics Support” in Chapter 2 of the HP-UX 11.0 ACE 9911 release notes. For help with installing that software, see the booklet supplied with the CD.

IMPORTANT

Be sure to review the *entire manual* before proceeding to update or install your system, especially *Appendix A: Installation and Updating Requirements*.

HP recommends that you install the entire HP-UX 11.0 ACE 9911 patch bundle. However, you can install only the hardware and critical patches by using category tags with `swinstall`.

NOTE

If you have received this package with a computer system that was ordered with “Instant Ignition,” the software on the HP-UX 11.0 ACE 9911 CD is already installed. You do not need to reinstall it.

Reasons to Install or Update to HP-UX 11.0 ACE 9911

- **Updating the operating system** — If you choose to maintain all your systems with the same software version, regardless of specific purpose, update to HP-UX 11.0 ACE 9911 for the latest version of the operating system and all current patches.
- **Cold-installing the system** — If you ordered an HP 9000 system without the Instant Ignition option, you can cold-install the contents of the HP-UX 11.0 ACE 9911 Install and Core OS Software CD for the latest version of the operating system and all current patches.
- **Updating the software for hardware enablement** — If you are installing new hardware, you might need to update your operating system with the contents of the HP-UX 11.0 ACE 9911 Install and Core OS Software CD. It contains a new install kernel and several patches to enable support for new hardware.

NOTE

This manual deals *only* with the *software steps* required to update your operating system. For hardware upgrades, either see the documentation included with your hardware or consult your Hewlett-Packard Customer Engineer.

Updating or Installing HP-UX 11.0 ACE 9911 Software

The HP-UX 11.0 Install and Core OS CD including the ACE 9911 patch bundle can be loaded on a system in either of two ways:

- **Update using SD-UX** — Doing a system update does not erase the old root disk data files. Rather, the update adds or replaces functionality based on what you choose.
- **Cold-Install using Ignite-UX and SD-UX** — This method overwrites everything present on the target disk. This is needed when the Instant Ignition option is not ordered on new systems. Ignite-UX is used for cold install a single system from local media and many systems simultaneously from an Ignite-UX server.

Ignite-UX is a free supported product available on the latest application release and online:

<http://software.hp.com/software/HPsoftware/IUX/>

CAUTION

Before installing or updating HP-UX 11.0, verify that all your applications are certified to run on that release:

1. Go to “Exploring HP-UX Releases and Media” at:
<http://software.hp.com/HPUX-RDMP/>
 2. Select the latest HP-UX Application Release desired, then New/Updated Software Product List.
 3. View a listing of supported applications.
-

Related Documentation

Most HP-UX manuals are on the HP Instant Information CD included with this Extension Pack and on the Web at:

<http://docs.hp.com/>

- *ReadMe Before Installing or Updating HP-UX 11.0 Additional Core Enhancements, November 1999* — provides last-minute information and lists patches contained in the HP-UX ACE 9911 patch bundle.
- *Installing HP-UX 11.0 and Updating 10.x to 11.0* — explains how to set up and use an Ignite-UX server to install, update, archive and recover other HP-UX systems in your enterprise.
- Release Notes describe the new features and functionality changes for 11.0 and the 11.0 ACE 9911. These files will be on the system after you install the HP-UX 11.0 ACE 9911 patch bundle:

— *Release Notes for HP-UX 11.0* (/usr/share/doc/RelNotes)

— *Release Notes for HP-UX 11.0 Additional Core Enhancements, November 1999* (/usr/share/doc/RelNotesExtPak)

Release Notes are also available on the Web at:

<http://docs.hp.com/>

Select the “HP-UX 11.0 Release Documentation” link.

- ReadMe files for individual patches provide detailed information about a particular patch. Before installing 11.0 ACE 9911, view the ReadMe file from the Core OS CD (mounted at /cdrom):

```
/usr/sbin/swlist -d -l product -a readme\  
patch_name@/cdrom
```

To view the ReadMe file *after* installing 11.0 ACE 9911, type:

```
/usr/sbin/swlist -l product -a readme patch_name
```

- *Managing HP-UX Software with SD-UX* — provides information on using Software Distributor (SD) commands. The release notes for HP-UX 11.0 ACE 9911 contains information on using SD for patch releases.

1 Cold-Installing HP-UX 11.0

This chapter describes how to cold-install HP-UX 11.00 from the HP-UX 11.0 Install and Core OS CD, including the operating system, new install kernel and the latest Additional Core Enhancements patch bundle: HP-UX 11.0 ACE 9911.

If you are installing a new HP 9000 system, it may already have HP-UX 11.00 factory installed (we call this “factory ignited”). If so, the process described here has already been performed. See these other documents to proceed:

- *ReadMe Before Installing or Updating HP-UX 11.0 Additional Core Enhancements, November 1999* — Provides last-minute information, disk usage, list of contents of the Additional Core Enhancements (ACE 9911), and patch dependencies.
- *Release Notes for HP-UX 11.0 Additional Core Enhancements, November 1999* — Describes changes included in this release, ACE 9911. These notes are installed with this release in:
`/usr/share/doc/RelNotesExtPak`
- *Installing HP-UX 11.0 and Updating 10.x to 11.0* — Explains how to set up and use an Ignite-UX Server to install, update, archive and recover other HP-UX systems in your enterprise.

To take full advantage of cold-install options (particularly if you intend to make LVM size changes or use the Advanced Options of Ignite-UX), refer to the *Installing HP-UX 11.0 and Updating 10.x to 11.0* manual. You can find this manual on the Instant Information CD and at HP’s user documentation Web site:

<http://docs.hp.com/>

For the latest information on downloading and using Ignite-UX, go to the Ignite-UX Web site:

<http://software.hp.com/software/HPsoftware/IUX/>

CAUTION

Cold-installing HP-UX *overwrites everything* on the target disk.

System Requirements

To cold-install your system to 11.0 ACE 9911, you must have the following:

- A supported Hewlett-Packard server or workstation. See Appendix A for a list of supported systems.
- 32 MB memory, minimum.
- 1 GB swap space for cold-installing.
- 4 GB disk, minimum.

IMPORTANT

Review the system requirements and situations listed in Appendix A for any changes needed for your system.

Review *ReadMe Before Installing or Updating HP-UX 11.0 Additional Core Enhancements, November 1999* (supplied with ACE 9911):

- For any last-minute issues and to see the list of patches in the ACE 9911 patch bundle, XSWGR1100.
 - To plan disk space usage.
-

Use New Ignite-UX Software

An Application Software CD shipped with the HP-UX 11.0 ACE 9911 contains the latest revision of the Ignite-UX (cold-install) software. If you use an Ignite-UX server to install systems with HP-UX 11.0 ACE 9911, you should update your Ignite-UX software *before installing* the ACE 9911 bundle. The Ignite-UX bundles on the application media include:

B5725AA HP-UX Installation Utilities (Ignite-UX).

Ignite-UX-11-00 HP-UX Installation Utilities for Installing 11.0 Systems.

Both bundles are version B.2.2.

Ignite-UX can also be downloaded from HP's Software Depot:

<http://software.hp.com/software/HPsoftware/IUX/>

Default Swap May be Too Small

The Ignite-UX install program sets default swap space to 512 MB. Do not accept this value unless you know from experience (or expert advice) that it will be sufficient for this system. (The default upper bound is 1GB.)

There is no hard and fast answer, but swap should be *at least* equal to memory and may need to be considerably larger. This is usually true on a system that has a lot of memory even if it seldom pages, because processes claim swap space (reserved swap) as they allocate memory. The reserved swap is removed from the pool of available swap and held until the process terminates, whether or not it's ever needed. If the system cannot allocate the swap space that a new process requires, the process will not run.

What To Do

Read the specific advice that follows along with the instructions for using Ignite-UX in Chapter 5 of the *Installing HP-UX 11.0 and Updating 10.x to 11.0* manual, supplied with HP-UX 11.0 ACE 9911. If your system needs more than 512 MB of swap, do not accept the `Root Swap` default on the `Basic` screen. Either enter a larger value (in megabytes), or select `Additional` to configure additional (secondary) swap, or both.

The `Root Swap` field allows you to choose a new value from a pop-up menu; the values go as high as 1 GB; type directly into the field if you need a larger value. The value will be rounded to the next 4 MB. You can change primary swap from the `File System` tab. You'll see a message that the swap size has been adjusted, and the log file will show that the value of the `maxswapchunks` kernel parameter has been increased.

Hints for Planning Disk and Configuration Space

- Record the hardware path to the CD drive.
- Develop a clear configuration plan, including the following:
 - File system sizes.
 - Swap space size.
 - Dump device.
 - Disk and file-system parameters.
 - Mirroring information.
- If installing application programs, consider vendor size recommendations. For planning disk space, refer to these other books:
 - *Managing Systems and Workgroups* — available on the HP Instant Information CD and at:
<http://docs.hp.com/>
 - *Disk and File Management Tasks on HP-UX* — Prentice-Hall Hewlett-Packard Professional Books, 1997.

Saving Key Information Before Cold-Installing

Networking Data

During the install process, you will be prompted for your system's identity and network addresses. Record the following data on paper or another computer:

- hostname (for example, frenzy).
- Host IP address (for example, 15.0.68.12).
- DNS server name (for example, napa4).
- DNS server IP address (for example, 15.0.64.12).
- Software depot name (for example, firefly).
- Software depot IP address (for example, 15.61.200.12).

Use `nslookup` to get IP addresses.

Back Up Your System!

Many administrators use `fbackup` to back up the entire system to tape. You do not need to `umount` any imported file systems; `fbackup` does not cross NFS unless specified.

Using the normal tape locations to do a full backup, enter:

```
fbackup -f /dev/rmt/0m -i / -v
```

TIP

Ignite-UX offers other methods of backing up system files: `make_recovery` and `make_net_recovery`. Also consider using Omniback to back up system and configuration files.

Configuration Files

Save the files that you will want to reinstall. These include a number of configuration files in `/etc`, the contents of `/usr/local`, any local home directories (that is, those you do not import from another system), and any `/opt` directories that contain installed software.

If multiple users are preparing for the cold-install, you might consider creating a directory (such as `/backup`) on another system. *Do not create this directory on your root disk.* Mount it with SAM. Then create a subdirectory for each system or user (for example, `/backup/YOURSYS`).

As root, copy the files. For example:

1. Move config files from /etc (single files):

```
mkdir /backup/YOURSYS/etc
cp -p /etc/exports /backup/YOURSYS/etc/exports
cp -p /etc/checklist /backup/YOURSYS/etc/checklist (9.x)
cp -p /etc/fstab /backup/YOURSYS/etc/fstab (10.x)
cp -p /etc/group /backup/YOURSYS/etc/group
cp -p /etc/hosts /backup/YOURSYS/etc/hosts
cp -p /etc/passwd /backup/YOURSYS/etc/passwd
cp -p /etc/resolv.conf /backup/YOURSYS/etc/resolv.conf
cp -p /etc/services /backup/YOURSYS/etc/services
```

2. Make a local home directory (by directory):

```
mkdir /backup/YOURSYS/home
cp -pr /home/YOURHOME /backup/YOURSYS/home/
and so on...
```

Colors and Fonts If you want to preserve your colors and fonts in VUE or CDE, execute:

```
xrdb -q > xrdb.save
```

Then save the `xrdb.save` file in your backup directory. Be aware that VUE is not supported beyond HP-UX 10.20.

Booting Systems The following installation procedure generally describes booting newer HP 9000 servers. The process differs for older servers and HP 9000 workstations. For complete details on booting systems, see Appendix B.

Cold-Installing HP-UX 11.0

IMPORTANT

Before continuing, be sure your system meets all the requirements and situations listed in Appendix A.

To do a cold installation, which *overwrites everything* on the target disk:

1. Make sure any external devices connected to the target system are turned on and operational. Turn the system on or cycle power.
2. Insert the HP-UX Install and Core OS Software CD into the drive.
3. Stop the autoboot:
 - On workstations, press and holding down the **ESC** key.
 - On servers, press any key.

You will see the boot console menu. Boot procedures vary somewhat depending on hardware. If you need help, enter:

help

4. Search for bootable devices, using the choices displayed (for example, search or s). You will see a table similar to the following:

Path#	Device	Path	Device	Path	Device	Type
-----	-----	-----	-----	-----	-----	-----
P0	10/0.6		fwscsi.6		Random access media	
P1	10/12/5.2		sescsi.2		Random access media	
P2	10/12/6.0		lan.0		LAN module	

Of the random access media listed, a fast/wide SCSI device (fwscsi) is usually a disk, whereas the single-ended SCSI device (sescsi) can be a disk or CD drive. CDs usually default to a device path ending in 2 (as in 10/12/5.2).

5. Boot from the CD drive using the listed path number. For the example shown, enter:
bo P1
6. When asked, Interact with IPL? answer **NO**

The install kernel will load (takes 3-5 minutes), after which a screen might appear asking you to enter the keyboard language of your console. Enter the number and press **Return/Enter**.

7. The system will display the welcome screen for the HP-UX installation/recovery process.

Take a moment to read how to navigate and select choices on this *terminal interface*:

- Use the **Tab** key to navigate between fields and the arrow keys to navigate within fields.
 - Use the **Return/Enter** key to select an item. Pressing **Return/Enter** or the space-bar opens a menu list.
 - For Help, use **Control-K** for navigation key help and **Control-F** (or **F1**) for context-sensitive help.
 - You can enter the underlined letter of an item (such as **I** for `install HP-UX`) to navigate more quickly.
8. Select `Install HP-UX` to begin interacting with the Ignite-UX (cold-install) program.

The `User Interface and Media Options` screen will appear. Choose the degree of customization needed to configure the installation.

The default setting under `Source Location Options` (Media only installation) is correct for installing from a CD.

Two choices are shown in `User Interface Options`:

- `Guided Installation` provides tutorial information and limited choices for inexperienced Ignite-UX users.
- `Advanced Installation` enables you to customize your system on five tab screens. Use this mode to change LVM settings. You may also find it convenient to set system parameters, network services, file-system characteristics, and other configuration details.

Ignite-UX permits you to exit from `Guided Installation` and restart configuration using the `Advanced Installation` later by either selecting the `Cancel` button or pressing **C**. Mark your choices and select **OK**.

When asked for additional network cards, you should choose “Built-in LAN,” because the drivers for the additional cards will probably not be installed with the Core OS.

9. Depending on your choice, proceed through each screen to configure your system. The tasks in the menu can be done in any order. For help, consult the Help screens. For more help on using Ignite-UX's Advanced Installation mode, see Chapter 5 in the *Installing HP-UX 11.0 and Updating 10.x to 11.0* manual.

These fields are required:

- Use the `Environment` field on the `Basic` tab screen if you intend to load the 64-bit version of HP-UX. If you do not see the 64-bit selection, your system or firmware version does not support it.
- On the `Software` tab screen, the `General Patches` product is marked by default. This installs the entire HP-UX 11.0 ACE 9911 bundle. Unmarking that product will install only hardware-enablement and critical patches.
- A minimal two-user license is denoted on the `Software` tab screen. To load licenses for more than two users, you must use the Application CDs. See the example under the subsection “What to Do” in “Converting between 32-bit and 64-bit Operation for Kernel with Drivers” on page 50.
- On the `File System` tab screen, verify the minimum disk space requirements if using LVM:

`/= 100 MB` minimum.

`/stand = 47MB` min. (Ignite-UX sets this to 85 MB by default)

`/var = 500 MB` free.

`/usr = 600 MB`.

For more details, see “Disk Space, Memory and Diagnostic Requirements” in Appendix A.

10. When you have filled in all the fields necessary to configure your system, select `GO!` (found at the bottom of the screens). A confirmation screen lists the disks that will be written to during installation and a log of any warnings or errors encountered. You have the chance to Cancel at this time. If you cancel, Ignite-UX returns you to the previous configuration screen.
11. After you select `GO!`, the system configures the disk(s) and loads a minimum set of commands and libraries. SD-UX then downloads all the products and patches. Since software requiring kernel modifications is being installed, the system is rebooted and then

configured. Check the `/etc/rc.log` file to see if the `swconfig` command succeeded during this startup process. If it did not, you can run the `swconfig` command manually after the system boots successfully.

12. After the system is rebooted the second time, eject the CD.
13. Log in to the system.
14. Set your system parameters. Depending on how you set up your parameters, the system either will have configured them automatically or will call the `/sbin/set_parms` command to allow you to set the root password, date and time, time zone, IP address, and additional network parameters. You may need to customize your NFS mounts, gateways, file systems, and so forth. If you add devices or make other changes, you may be asked to reboot the system to enable the changes.

After Cold Installing

- If you cold-installed HP-UX 11.0 from the Install and Core OS Software CD and are not installing new hardware, your task is nearly complete. You can now retrieve the information you saved, as explained in the next section.
- If you cold-installed to enable a hardware upgrade, proceed with the hardware phase of the upgrade. Ask your HP Customer Engineer for more information.

Retrieving Key Information After Cold-Installing

After completing the cold-install, you can retrieve the information you previously saved onto another system. Here are some tips:

Create a New root Directory

Consider creating a root home directory that is not /. This keeps the user root dot files out of the / directory.

Make sure it is on the root volume by calling it /homeroot. This is especially important if you are using LVM and /home is a separate volume.

1. Use the command-line method to log in as root.
2. Edit /etc/passwd to change the home directory for root to /homeroot and save it.
3. Create the /homeroot directory:

```
mkdir /homeroot
```
4. Move root's personal files to /homeroot:

```
mv /.[a-zA-Z]* /homeroot
```
5. Exit and log in again as root.

Recover Files

Recover all the customized and personal files that you saved in “Saving Key Information Before Cold-Installing” by merging them manually, because things may have changed. For example, do not overwrite /etc/passwd with your old version. Instead, paste in entries from your old files.

Restore /home

If you had a local home directory, you can restore it as follows:

- If you copied it to /backup:

```
cd /backup/YOURSYS/HOMEPATH
find -depth -print | cpio -pdm /HOMEPATH
```
- If you backed it up to tape with fbackup:

```
frecover -x -i /HOMEPATH -v
```

Restore Other Files

Carefully use the same techniques to restore other files and directories, such as:

- `/usr/local`
- `/opt`

The commands above will not write over newer files (with the given options), so your new operating system and any files you update are reasonably well protected.

2 Updating to HP-UX 11.0

Updating the operating system differs depending on which version of the operating system is currently running on your system. This chapter details the variations. Read the entire chapter before proceeding:

- System Requirements.
- The Update Process At-A-Glance.
- Updating from HP-UX 10.x to HP-UX 11.0.
- Updating from a Previous 11.0 Extension Pack or Original 11.0.
- Updating between 32-bit and 64-bit OS on 11.0.
- Updating 11.0 to Add a Patch Bundle or Enable Hardware.
- Updating 11.0 for Hardware Enablement or Critical Patches Only.
- Installing Application Software.

TIP

Many customers have reported that cold-install proved an easier transition than upgrading from 9.x to 11.0. By doing a cold install you will not have to perform an intermediate update to 10.01 in order to update to 11.0. The cold-install process is described in Chapter 1. *A cold install will overwrite everything on your disk.*

For more help with transitioning from 9.x, get the *9.x to 10.x Transition Tool Kit* from:

http://software.hp.com/OS_transition/

NOTE

Some networking products are *not present* on the Core HP-UX CD and may need to be updated after updating to 11.0. For details, see “Networking Products on Additional Media” on page 58.

System Requirements

To update your system to HP-UX 11.0 Additional Core Enhancements (ACE) 9911, you must have the following:

- A Hewlett-Packard server or workstation. See the list of supported systems in Appendix A.
- 32 MB memory, minimum.
- 128 MB swap space, minimum.
- 100 MB free space for / LVM root partition.
- 600 MB free space for /usr on LVM systems.
- 47 MB free space for /stand LVM partition.
- 500 MB free space for /var partition.

IMPORTANT

Be sure to review the document *ReadMe Before Installing or Updating HP-UX 11.0 Additional Core Enhancements, November 1999* supplied with HP-UX 11.0 ACE 9911:

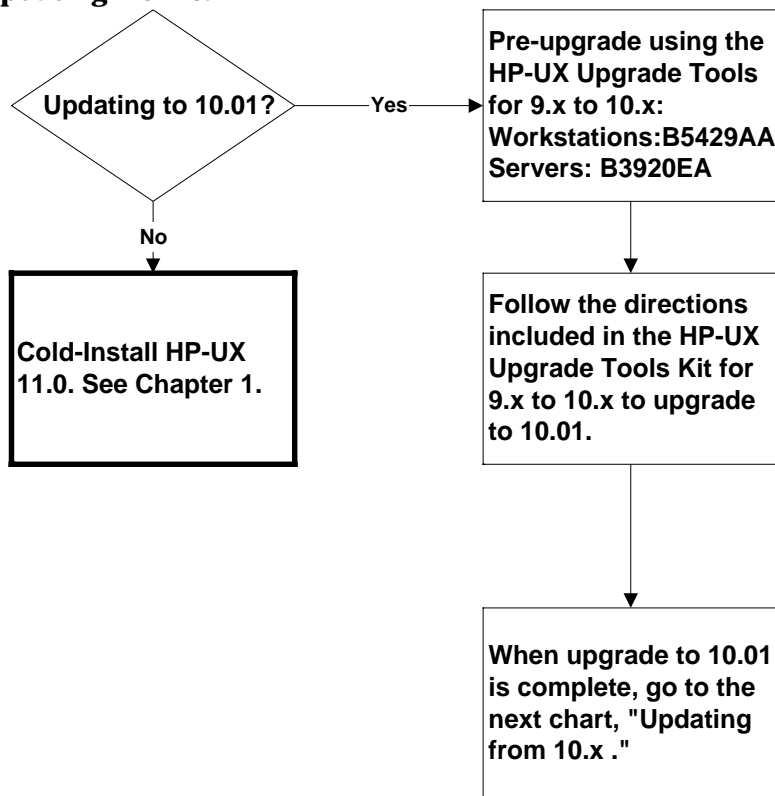
- Last-minute issues and list of patches in the ACE 9911 patch bundle.
- Planning for disk space usage.

Also review Appendix A in this manual for requirements and situations that apply to your system.

The Update Process At-A-Glance

Figure 2-1

Updating from 9.x



If you are currently running 9.x, you must upgrade the system and its applications to 10.01 before you can update to 11.0. This involves some pre-upgrade preparation in addition to the upgrade itself. For this, you need to order the following:

- For workstations: HP B5429AA
- For servers: HP B3920EA

You must also cite the media option (AAF=CD) and language option (for example, ABA is English, ABJ is Japanese). This product includes

HP-UX 10.01 and the HP-UX Upgrade Tools for 9.x to 10.x. Be sure to read the *ReadMeFirst* and the manual supplied before attempting that upgrade.

CAUTION

If you already have a package labeled “Upgrade Preparation Media,” *do not load it!* That media was issued with the initial release of 10.01 and does not contain the tools and documentation needed to upgrade all the systems supported by 10.x.

Read the *ReadMeFirst* that comes with the 10.01 software for information that could affect any of the upgrade or pre-upgrade tasks.

Figure 2-2

Updating from 10.x

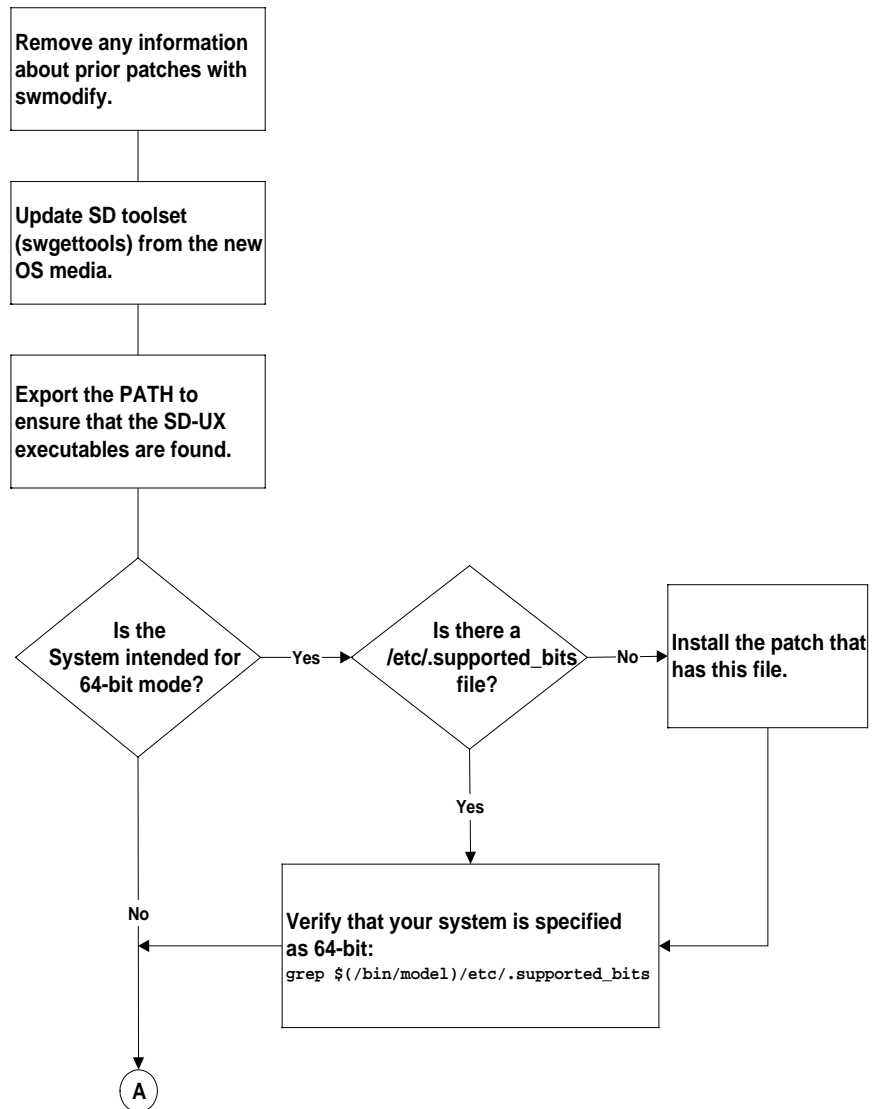


Figure 2-3 **Updating from 10.x (continued)**

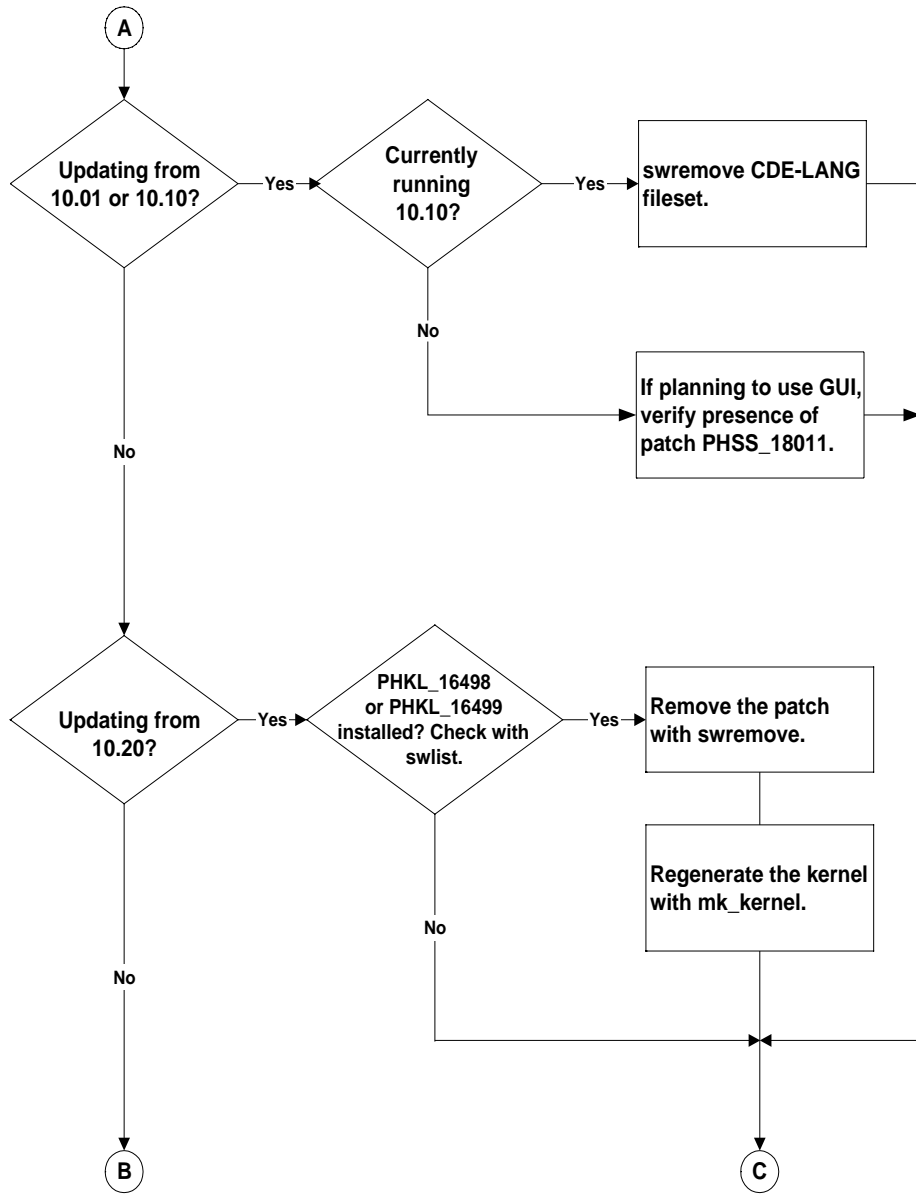


Figure 2-4 **Updating from 10.x (continued)**

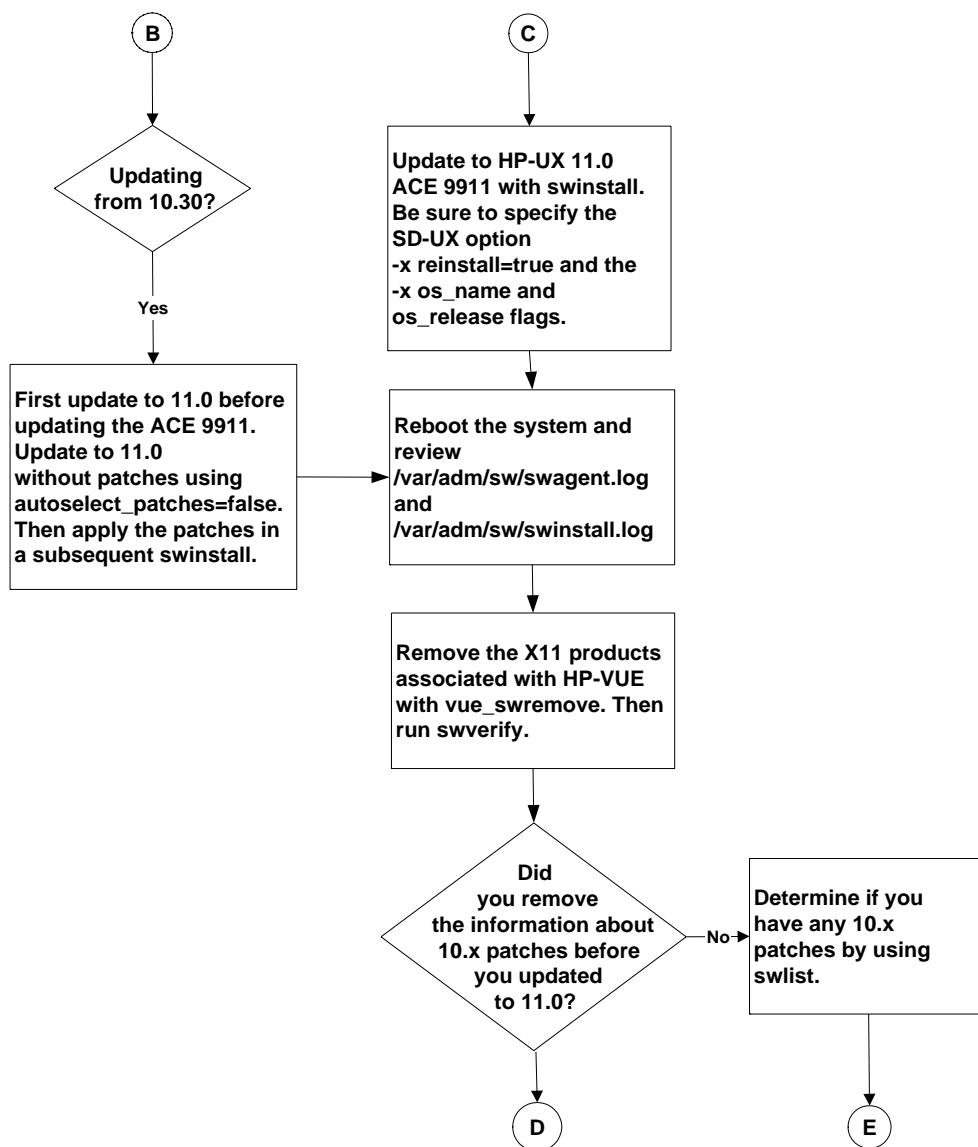
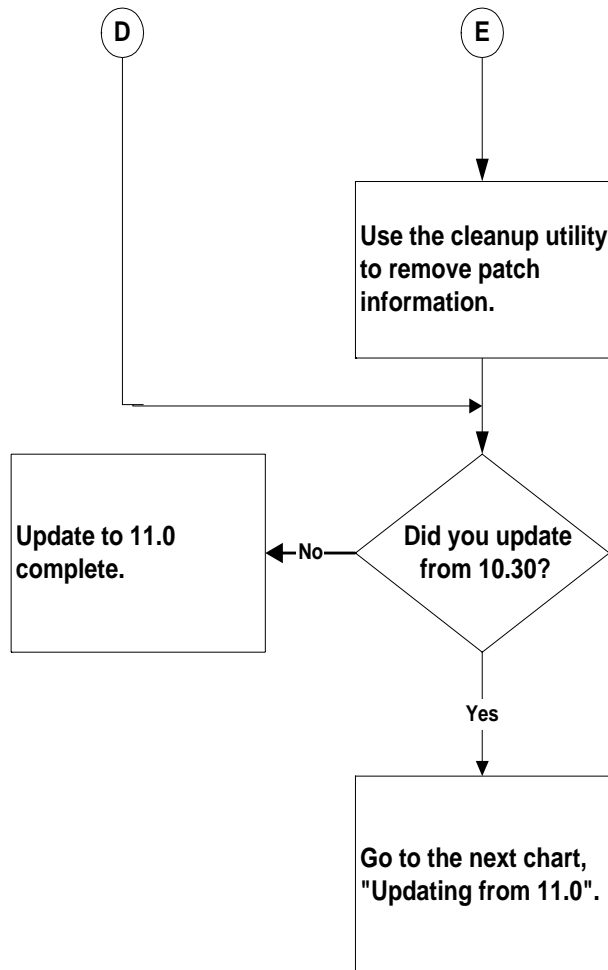


Figure 2-5 **Updating from 10.x (continued)**



Preparing to Update from 10.x

CAUTION

All 10.0 systems must be updated to 10.01 before they can be updated to 11.0. *Do not try to update a 10.0 system directly to 11.0.*

IMPORTANT

Before continuing, be sure your system meets all the requirements and situations listed in Appendix A.

Prior to updating to HP-UX 11.0 ACE 9911 from 10.01, 10.10, 10.20 or 10.30, first perform these procedures detailed in the following pages:

- Remove information about prior patches, if the system is already patched. This does not involve the use of `swremove`.
- Update the SD toolset (`swgettools`) from the new OS media.
Do not attempt to use your present version of `swinstall` to update the system to a newer version. The update will fail.
- Export the `PATH` to ensure that the SD-UX executables are found.
- If you are planning to use your system in 64-bit mode, test for presence and version of the `/etc/.supported_bits` file. See “Ensuring Update to 64-Bit Operation on New Platforms” later in this section.

Once these preparations have been completed, your update from 10.x to HP-UX 11.0 in 32-bit or 64-bit mode should proceed smoothly.

Removing Information About Prior Patches

If a 10.x system you intend to update is already patched, you must remove all patch information from the SD Installed Product Database (IPD) before updating to 11.0.

CAUTION

Be sure the hostname of the system you are updating is listed in `/etc/hosts` *before* continuing with this upgrade procedures.

Once on 11.0, *do not* use `swremove` to remove 10.x patch filesets. It is destructive to do so. Instead, reclaim disk space by removing 10.x patch information. HP recommends doing this before updating to 11.0.

What to Do

To remove information about prior patches:

1. Make a backup copy of the IPD (in `/var/adm/sw/products`):

```
find /var/adm/sw/products | cpio -pdmv /tmp
```

2. Enter:

```
/usr/sbin/swmodify -u PH\???\_?\??\??\?*\.* PH\???\_*
```

3. Remove the patch directory:

```
rm -rf /var/adm/sw/patch
```

The `swmodify` command in step 2 removes all fileset information and then product information for the patch products. `swmodify` does not allow you to remove traces of a product from the IPD if any of its filesets exist in the IPD. The backslashes inhibit the shell from expanding the wildcard characters, thus allowing `swmodify` to match all the software selections for patches.

If information about prior patches is not removed before you update, it will still be there when you come up on 11.0. This wastes a significant amount of disk space, comprising old software replaced by the patches.

Mounting the Source Media

If you are using a single local CD drive, `swinstall` will automatically mount the disk in that drive. Otherwise, you may have to first mount the disk before accessing it. Use either SAM or the `mount(1M)` command as explained here.

1. Open a term window and become root on your 10.x system.
2. If the CD drive is external, switch it on.
3. Insert the CD into the drive. Wait for the busy light to stop blinking.

4. If you need to identify the drive device file, enter:

```
/etc/ioscan -fn
```

The device driver file will be something similar to `/dev/dsk/c1t2d0`.

5. Define a new directory at `/` as the mount-point for the CD drive. For example, to define `/cdrom` as the mount-point, enter:

```
mkdir /cdrom
```

6. Mount the CD drive to the mount-point directory:

```
/usr/sbin/mount /dev/dsk/c1t2d0 /cdrom
```

If the CD drive's device-file name is not `c1t2d0`, use the name you found using `ioscan` in Step 4 above.

7. You can now access the CD via the mount-point. For example:

```
ls /cdrom
```

Updating the SD Toolset (swgettools)

CAUTION

Do not attempt to use a 10.x version of `swgettools` to update the system to 11.0. The update will fail. You must update the SD toolset.

Do not install `swgettools` on a 10.x system that you do not plan to update to 11.0 immediately. To do so is unsupported and can corrupt the IPD whenever you install anything (such as a patch) on the system.

What to Do

1. Run this command to prevent some system configurations from hanging later in the procedure:

```
/usr/sbin/swremove SW-DIST.RUPDATE
```

2. If needed, mount the CD drive as explained above. Then extract the `swgettools` utility from the HP-UX 11.0 ACE 9911 Install and Core OS Software CD and load it into `/var/tmp`:

```
cp /cdrom/catalog/SW-GETTOOLS/pfiles/swgettools \  
/var/tmp
```

`swgettools` needs a temporary directory with at least 2 MB of free space; otherwise it will fail. To check the size of `/var/tmp`:

```
bdf /var/tmp
```

Updating to HP-UX 11.0

Preparing to Update from 10.x

3. Make `swgettools` executable:

```
chmod 775 /var/tmp/swgettools
```

4. Load SD 11.0 tools onto your system:

```
/var/tmp/swgettools -s /cdrom
```

Ignore any messages relating to software compatibility.

Ensuring a Complete PATH

Before updating to 11.0, issue the following command:

```
export PATH=/usr/lbin/sw/bin:$PATH
```

This ensures that the SD-UX executables will be found.

For more information, see the *swgettools(1M)* manpage or “swgettools Information,” in Appendix C of *Managing HP-UX Software with SD-UX*.

Ensuring Update to 64-Bit Operation on New Systems

If you have a newly supported system intended for 64-bit operation, you might need to load a patch to ensure that your system can run in 64-bit mode.

To determine if you need to load this patch, look on your system for a `/etc/.supported_bits` file:

```
ll /etc/.supported_bits
```

- If the `/etc/.supported_bits` file *is present* on your system, examine it for the model number of your system:

```
/bin/model
```

Example results:

```
9000/800/V2250
```

```
9000/800/K580
```

If the `/etc/.supported_bits` file contains an entry for your system model, and your system is specified as 64-bit, you are ready to update the system from 10.x to HP-UX 11.0 ACE 9911 in 64-bit mode. To determine if your system model is in the file:

```
grep $(/bin/model) /etc/.supported_bits
```

The entry for V2250 indicates 64-bit operation only, whereas a K580 is capable of both 32- and 64-bit operation.

- If the `/etc/.supported_bits` file *is not present* on your system, you need to load the patch containing this file and examine it to see if it contains an entry for your system.

1. To load the `/etc/.supported_bits` file patch from the HP-UX 11.0 ACE 9911 Install and Core OS Software CD from the patch source `/cdrom`, enter:

```
swinstall -x allow_incompatible=true -s /cdrom  
PHCO_18222
```

The `allow_incompatible` flag must be set because you are loading an 11.0 patch on a 10.x system.

2. Query the `/etc/.supported_bits` file using the `grep` command shown above to ensure that your system is capable of 64-bit operation before proceeding.

CAUTION

Never use the `-x allow_incompatible=true` option when updating to 11.0 or between the 32-bit and 64-bit versions of 11.0. If you use this option it is likely to result in a failed update and possibly an unbootable system. You can, however, use it when loading the `/etc/.supported_bits` file as described above.

Updating from HP-UX 10.x to HP-UX 11.0

TIP

For more help with transitioning to 11.0, get the *HP-UX 11.0 Software Transition Kit* from:

http://software.hp.com/products/STK/prod_page.html

After handling the requirements for your system listed in Appendix A and “Preparing to Update from 10.x” as just described, you can update to 11.0. If the new patches and Core OS are in the same install depot or on the same CD, this can be done in one `swinstall` procedure.

The 11.0 version of `swinstall` (which you just loaded on your system by updating the SD toolset) requires flags specifying the name and version (`-x os_name=HP-UX:32` *or* `-x os_name=HP-UX:64`) and release (`-x os_release=B.11.00`) of the operating system to which you are updating. Note the 32-bit vs. 64-bit specification. You must specify the `-x os_name` and `-x os_release` flags on the command line even if you run `swinstall` interactively (using the graphical or terminal interface).

IMPORTANT

When updating your system from HP-UX 10.x to 11.0 ACE 9911, you must specify the SD-UX option `-x reinstall=true` in order to install patch PHCO_18183. Because the SD-UX Cumulative patch is very important, install this patch manually after the update completes if you did not specify the reinstall option.

TIP

Do not use the `patch_match_target` and `match_target` options in the same `swinstall` command line. The two options have different purposes:

- The `patch_match_target` option selects patches from a depot to install on a system that is already running HP-UX 11.0.
- The `match_target` option is used to update between operating systems and product releases).

Follow the appropriate procedure below (refer to the previous flowchart):

**Update from 10.01
or 10.10 to 11.0**

Before updating from 10.01 or 10.10, you need to remove the CDE fileset. After updating, you can remove the X11 products associated with HP-VUE. Follow these steps:

1. Remove most of the information about prior patches, as explained on page 36.
2. Complete the removal of information about prior patches by executing the following `swmodify` command:

```
swmodify -u ExtSWDocs.XSW\* ExtSWDocs \  
PatchText.\* PatchText
```

3. If you are running 10.10, remove the CDE-LANG fileset:

```
/usr/sbin/swremove [-p] CDE.CDE-LANGS
```

You can use the `-p` option to preview the analysis phase.

If Step 3 is not taken, the `swinstall` analysis phase in Step 4 will fail.

4. Update to HP-UX 11.0 ACE 9911. See the appropriate next section, “Updating from 10.x Using the Command Line” or “Updating from 10.x Interactively, Using SD-UX.”
5. Complete the update process as follows: Execute these commands to remove the X11 products associated with the HP-VUE product on 10.01:

```
/usr/dt/bin/vue_swremove HP_VUE 10.01  
/usr/sbin/modify -u X11.X11-RUN-AUX
```

6. Run: `/usr/sbin/swverify`. If Steps 2 and 5 were skipped, `swverify` will generate many errors.

**Update from 10.20
to 11.0**

Before updating to 11.0 from 10.20, remove patch PHKL_16498 on workstations and PHKL_16499 on servers. For details see “10.20 Patch Causes Kernel Build Failure” in Appendix A.

For example:

1. Determine if this patch is on your system, by executing the following command:

```
/usr/sbin/swlist -l product PHKL_16499
```

2. If PHKL_16499 is installed, remove the patch:

```
/usr/sbin/swremove -x autoreboot=true PHKL_16499
```

3. Regenerate the kernel with the `mk_kernel` command. Then update the system using either the command line or interactive user interface, as explained in following pages.

Updating from 10.30 to 11.0

To update from 10.30 to 11.0, *first* update to 11.0, *then* to the HP-UX 11.0 ACE 9911. To do this, update with HP-UX ACE 9911 but *without* the patches by using `-x autoselect_patches=false` and then apply the patches in a subsequent `swinstall` session after rebooting on the 11.0 kernel. Install the SD patch individually before installing 11.0 ACE 9911.

`swinstall`'s Graphical User Interface (which provides the interactive menus) may not work for the 10.30 to 11.0 update. Use the command-line interface or the Terminal User (non-graphical) Interface.

Updating from 10.x Using the Command Line

Run `swinstall` specifying flags for software selection, operating system version, and release. For example, to update to the 32-bit version of HP-UX release 11.0, enter:

```
/usr/sbin/swinstall -x logdetail=true \  
-x allow_incompatible=false \  
-x autoreboot=true -x match_target=true \  
-x reinstall=true -x reinstall_files=true \  
-x os_name=HP-UX:32 -x os_release=B.11.00 \  
-s /cdrom
```

To install a 64-bit operating system, replace `os_name=HP-UX:32` with `os_name=HP-UX:64` in the command line.

You can include the `-p` option in the `swinstall` command to preview what will be installed.

After the reboot, log in and review `/var/adm/sw/swagent.log` and `/var/adm/sw/swinstall.log`.

Remove 10.x patches if necessary. See “Removing 10.x Patches from an 11.0 System” on page 45.

Updating from 10.x Interactively Using SD-UX

Essential Preparations

- If using the terminal interface, make sure the `DISPLAY` variable is *not* set:

```
export DISPLAY=
```

- To run the `swinstall` GUI locally, execute:

```
xhost +hostname
```

```
export DISPLAY=hostname:0.0
```

- To view a remote `swinstall` GUI on your local (client) system, dedicate a term window to a remote shell on the system being updated (server):

1. On the client, execute:

```
xhost +server_hostname
```

2. On the server, execute:

```
export DISPLAY=client_hostname:0.0
```

To update the operating system interactively using the SD-UX interface, you must specify flags for the operating system and release in the command as shown in “Updating from 10.x Using the Command Line” on page 42.

If the 10.x system was already patched, remove information about prior patches as detailed in “Removing Information About Prior Patches” on page 35.

Make sure you have updated the SD toolset as explained in “Updating the SD Toolset (swgettools)” on page 37.

Procedure

1. Enter the `swinstall` command; for example, to update to the 32-bit version of HP-UX 11.0:

```
/usr/sbin/swinstall \  
-x os_name=HP-UX:32 -x os_release=B.11.00
```

2. Fill in the Source Screen that appears:

Specify the source depot type, which by default is shown as `Local`. If you are accessing the CD via the network, click on the source depot type option button to display `Network Directory /cdrom`.

If needed, enter the Source Host Name...

To list the valid source depot paths on the source host name, click on the left-hand box labeled `Source Depot Path...` and select from the list that appears.

Click on OK buttons to bring up the `Software Selection` screen.

3. If you want to match the general filesets and functionality you already have on your system, go to `Actions` and select `Match What Target Has`. By default, SD automatically selects the proper set of patches for your new operating system.

You may choose additional items by highlighting them for install via the `Actions` menu or by using the right mouse button.

4. Go to the `Options` pull-down menu and select `Change Options`. In the window provided, select the following *two* choices:

- `Reinstall filesets, even if same revision exists.`
- `Reinstall files even if same one already there.`

These are the equivalent to the `swinstall -x options reinstall=true and reinstall_files=true`. Confirm the changes by clicking the OK buttons to return to the main install window.

5. Go to `Actions` again and select `Install (Analysis)`.

Do not press the `Logfile` button in the terminal interface; closing that window in 11.0 is only available in the graphical interface.

SD-UX analyzes the build. Once the analysis completes, you can view the `Logfile`, which is a `Product Summary` describing the elements ready (or skipped) for installation, and disk space impact on all affected file systems.

When using the GUI, if the analysis reports that disk space for a system directory is too small, extend its logical volume and file system.

If the program reports errors, read the `Logfile` to resolve them before proceeding. You may then re-analyze the installation.

When you are satisfied with the selection, press `OK` to begin the installation.

6. Approve series of confirmations (including “Done”).
7. Log in to the system after the reboot.

Once you log in, review the files: `/var/adm/sw/swagent.log` and `/var/adm/sw/swinstall.log`

8. Remove information about 10.x patches, if necessary, as explained next.

Removing 10.x Patches from an 11.0 System

If you did not remove information about 10.x patches before you updated to 11.0, follow the directions below:

CAUTION

Do not use `swremove` to remove 10.x patches. It is destructive to do so at this point.

Do not run `swmodify -u` against 11.0 patches.

1. To determine if you have any of these patches, enter:

```
swlist -l product -a architecture PH\?\?\_\* >filename
```

Every product listed in *filename* with a revision indicating 10.x, is a 10.x patch that has been applied. The obsolete software replaced by each patch is still on the system.

You can reclaim the disk space taken up by the obsolete software by following the directions detailed in “Removing Information About Prior Patches” on page 35. Do *not* use `swremove` to remove 10.x patches.

2. Use the cleanup utility to remove patch information. For example:

```
/usr/sbin/cleanup -i
```

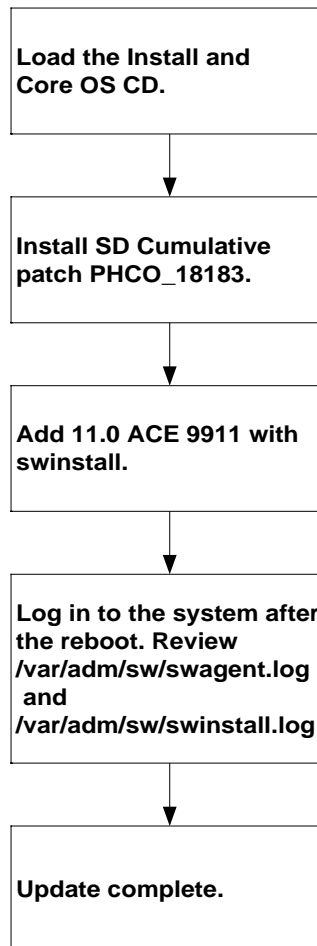
The `cleanup` command on 11.0 removes 10.x patches from the IPD and removes superseded patches from the software depot. For more details see the *cleanup(1M)* manpage.

The `cleanup` command is available as a patch from HP’s Electronic Support Center.

Updating from a Previous 11.0 Extension Pack or Original 11.0

Figure 2-6

Updating from 11.0



You can update an 11.0 system from a previous Extension Pack patch bundle or original 11.0 by using either the command-line, terminal or graphical interface (GUI). Using the command line and GUI options are described below.

CAUTION

Be sure the hostname of the system you are updating is listed in `/etc/hosts` before continuing with these upgrade procedures.

**Command Line
Option**

1. Load the Install and Core OS CD into the CD drive.
 - a. Put the CD into the drive.
 - b. Make sure the CD drive is mounted:

`/usr/sbin/mount`

If there is no entry for the CD drive, mount it:

`/usr/sbin/mount /dev/dsk/device_file /cdrom`
2. Install SD Cumulative patch PHCO_18183. For example:

```
/usr/sbin/swinstall \  
-x autoselect_reference_bundles=false \  
-s /cdrom PHCO_18183
```

3. Add the HP-UX 11.0 ACE 9911 bundle:

```
/usr/sbin/swinstall \  
-x patch_match_target=true \  
-x autoreboot=true \  
-s /cdrom
```

This command installs all patches in the depot that are pertinent to your system and then reboots. Be sure to specify `patch_match_target`, not `patch_target`.

**Terminal or
Graphical
Interface Option**

To use the `swinstall` terminal or graphical interface:

1. Load the Install and Core OS CD into the CD drive.
2. Install SD Cumulative patch PHCO_18183.
 - a. Enter:

```
/usr/sbin/swinstall -i \  

```

```
-x autoselect_reference_bundles=false \  
-s /cdrom PHCO_18183
```

- b. Select Actions->Install (Analysis) for analysis and subsequent execution.
 - c. Approve series of confirmations (including “Done”).
 - d. Exit the session.
3. Start swinstall:

```
/usr/sbin/swinstall -i -s /cdrom
```

4. Fill in the Source Screen that appears:

Specify the source depot type, which is shown as Local CD by default. If you are accessing the CD via the network, click on the right-hand box to display Network Directory /cdrom.

If needed, enter the Source Host Name...

To list the source depot paths on the source host name, click on the left-hand box labeled Source Depot Path... and select from the list that appears.

Click on OK to bring up the Software Selection screen.

Go to the Actions menu and choose Manage Patch Selection.

Now select: Automatically Select Patches...

Press OK. A confirmation message will appear indicating that SD-UX will automatically mark patches that correspond to the software already installed on the target system.

5. Go to the Actions menu again and select Install (Analysis).

Do not press the logfile button in the terminal interface: access to close that window on 11.0 is only available in the graphical interface.

SD-UX analyzes the build. Once the analysis completes, you can view the Logfile, a Product Summary describing the elements ready (or skipped) for installation, and disk space impact on all affected file systems.

When using the GUI, if the analysis reports that disk space for a system directory is too small, extend its logical volume and file system.

If the program reports errors, read the Logfile and resolve them

before proceeding. You may then re-analyze the installation.

When you are satisfied with the selection, press **OK** to begin the installation.

6. Approve series of confirmations (including “Done”).
7. Log in to the system after the reboot.

Once you log in, review the files: `/var/adm/sw/swagent.log` file and `/var/adm/sw/swinstall.log`

Updating between 32-bit and 64-bit OS on 11.0

To update from HP-UX 11.0 32-bit to 64-bit OS (or vice versa), follow these steps:

1. Verify that your system supports the intended bit operation. Please consult “Criteria for Transitioning to a 64-Bit OS” on page 82.
2. If you transition between 32-bit and 64-bit (in either direction), you need to update the SD toolset. Before going any further, perform the procedure documented in “Updating the SD Toolset (swgettools)” on page 37.
3. Use SAM to determine if a driver from the table below is configured into the kernel. These drivers are supplied on the HP-UX Application CD:

Open the `Kernel Configuration` menu and select `Drivers`. If a driver from the table below has a `Current State of In`, the driver is configured into the kernel.

Table 2-1 Device Drivers Requiring Special Attention Before Conversion between 32- and 64-bit Operation

Bundle	Driver(s)	Name
J2658BA, J2157B	fddi	Server FDDI/9000
J3701BA	fddi3	HSC FDDI/9000 Driver
J2166B, J2250B	token2	HP-PB token ring
J2806CA	atmgsc, atm2gsc	HSC ATM 155/622
J32070B	strlan, osil	OST/9000 S800
J2793B	syncio, nioxb, eisaxb, x25hal, sxb, wan, lapb, x25plp, x25sentry, x25idmap, plp21lc2, trcl2, trcl3	X.25/9000 Link

4. Convert your system to either 32-bit or 64-bit operation.

If you have drivers configured into the kernel, proceed to the next section below.

Otherwise, skip to “Convert between 32-bit and 64-bit OS Without Additional Drives” on page 53.

Converting between 32-bit and 64-bit Operation for Kernel with Drivers

You can either create a depot in which to consolidate all the bundles you intend to install or use a `/tmp` directory. Determine which of these approaches works best for you, then proceed:

Option 1: Use a Depot

1. Create a depot on an 11.0 or later network server that combines all the bundles you want to install. For example, enter:

```
/usr/sbin/swcopy -s /cdrom HPUXEng32RT
```

Or enter:

```
/usr/sbin/swcopy -s /cdrom HPUXEng64RT
```

and

```
/usr/sbin/swcopy -s /cdrom application_bundles
```

See “Option 1” on page 71 for more details on creating depots.

2. If you haven’t already done so, update the SD Toolset (`swgettools`) as explained earlier in this chapter.
3. If you have not already done so, install SD Cumulative patch PHCO_18183:

```
/usr/sbin/swinstall \  
-x autoselect_reference_bundles=false PHCO_18183
```

4. To convert the OS to 64-bit:

```
/usr/sbin/swinstall -x match_target=true \  
-x autoreboot=true \  
-x reinstall=true -x reinstall_files=true \  
-x os_name=HP-UX:64 -x os_release=B.11.00
```

To select 32-bit, replace 64 with 32.

**Option 2: Use a
/tmp Directory**

1. Before you start the update, enter the following commands:

```
mkdir /tmp/master.d  
mv /usr/conf/master.d/* /tmp/master.d
```
2. If you have not already done so, install SD Cumulative patch PHCO_18183. Enter:

```
/usr/sbin/swinstall \  
-x autoselect_reference_bundles=false \  
-s /cdrom PHCO_18183
```
3. Patches for HP-UX are selected along with products from the Core OS CD and update the OS simultaneously:

```
/usr/sbin/swinstall -x match_target=true \  
-x reinstall=true -x reinstall_files=true \  
-x autoreboot=true \  
-x os_name=HP-UX:64 -x os_release=B.11.00 \  
-s /cdrom
```

To select 32-bit, replace 32 with 64.

4. If you haven't already done so, update the SD Toolset (swgettools) as explained earlier in this chapter.
5. Update the bundles from the HP-UX Application CD:

```
/usr/sbin/swinstall -x match_target=true \  
-x reinstall=true -x reinstall_files=true \  
-x autoreboot=true \  
-s /cdrom
```

If the system uses any third-party master files (that is, master files not supplied by HP), move them back from /tmp/master.d to /usr/conf/master.d after the swinstall completes.

Use SAM to confirm that all the additional drivers are again active in the HP-UX kernel.

If a driver's Current State is Out, it is not in the kernel. Select the drivers you need, pull down the Actions menu and select Add Driver to Kernel. You can now reconfigure the kernel and reboot.

If you do not perform the above steps, the kernel build may fail during the swinstall from the HP-UX Core OS CD.

In this case, you'll see output similar to this in swagent.log:

NOTE: Building a new kernel based on template file

```
"/stand/system"
Compiling /stand/build/conf.c...
Loading the kernel...
ld: Unknown input file type: "/usr/conf/lib/libfddi3.a"
Fatal error.
*** Error exit code 1
Stop.
make failure
```

If `swinstall` fails, edit the file `/stand/system` to remove or comment out all the entries that pertain to the drivers specified from the output. Then press the `Resume Install` button on the `swinstall` screen. If this was a non-interactive `swinstall`, start again with one of the options under the subsection “Converting between 32-bit and 64-bit Operation for Kernel with Drivers” on page 51.

Convert between 32-bit and 64-bit OS Without Additional Drives

Use this procedure to convert a system from 32-bit to 64-bit operation (or from 64-bit to 32-bit operation) without additional drivers.

1. To ensure that HP-UX finds the SD-UX executables, enter:

```
export PATH=/usr/sbin/sw/bin:$PATH
```

2. To ensure that your system is capable of 64-bit operation, query the `/etc/.supported_bits` file using this `grep` command:

```
grep $(/bin/model) /etc/.supported_bits
```

If your system model is not listed, either your system is not supported or you need a more-recent version of the file.

For more details, see “Ensuring Update to 64-Bit Operation on New Systems” on page 38.

3. If you have not already done so, install SD Cumulative patch PHCO_18183. For example:

```
/usr/sbin/swinstall \
-x autoselect_reference_bundles=false \
-s /cdrom PHCO_18183
```

4. When invoking `swinstall` to update, make sure to include two additional flags:

```
-x reinstall=true and -x reinstall_files=true
```

For example, to convert to 64-bit operation:

```
/usr/sbin/swinstall -x logdetail=true \  
-x autoreboot=true -x match_target=true \  
-x reinstall=true -x reinstall_files=true \  
-x os_name=HP-UX:64 -x os_release=B.11.00 \  
-s /cdrom
```

Or, use the SD-UX Interface interactively:

```
/usr/sbin/swinstall \  
-x os_name=HP-UX:64 -x os_release=B.11.00
```

To select 32-bit, replace 64 with 32.

CAUTION

Never use the `-x allow_incompatible=true` option when updating to 11.0 or between the 32-bit and 64-bit versions of 11.0. If you use this option it is likely to result in a failed update and possibly an unbootable system.

When using the SD-UX interactive interface, the `reinstall` options must be set in the Options menu:

1. Go to the Options pull-down menu and select Change Options. In the window provided, select the following *two* choices:

- Reinstall filesets, even if same revision exists
- Reinstall files even if same one already there

These are the equivalent to the command-line `swinstall -x` options `reinstall=true` and `reinstall_files=true`. Confirm the changes by clicking the OK buttons to return to the main install window.

2. Go to the Actions pull-down menu or use the right mouse button to select Mark for Install.
3. Go to Actions again and select Install (Analysis).

From the Analysis and Execution dialog boxes, do not press the Logfile button in the terminal interface; closing the window on 11.0 is only available in the graphical interface (GUI).

SD-UX analyzes the build. Once the analysis completes, you can view the Logfile, a Product Summary describing the elements ready (or skipped) for installation, and disk space impact on all affected file

systems.

4. When using the GUI, if the analysis reports that disk space for a system directory is too small, extend its logical volume and file system.
5. If the program reports errors, read the Logfile to resolve them before proceeding. You may then re-analyze the installation.
6. Approve series of confirmations (including “Done”).
7. Log in to the system after the reboot.

Once you log in, review `/var/adm/sw/swagent.log` and `/var/adm/sw/swinstall.log`.

Updating 11.0 to Add a Patch Bundle or Enable Hardware

Execute `swinstall` from the command line to update an 11.0 system to add the entire ACE 9911 unified patch bundle. Refer to the procedure under “Updating from a Previous 11.0 Extension Pack or Original 11.0” on page 46. Then follow instructions in the next section.

Updating 11.0 for Hardware Enablement or Critical Patches Only

To install only critical or hardware enablement patches on your 11.0 system, do the following:

NOTE

Skip step 1 if you have a patch installed that supersedes PHCO_18183.

1. If you have not already done so, install SD Cumulative patch PHCO_18183 from the 11.0 ACE 9911 CD. For example:

```
/usr/sbin/swinstall -i \  
-x autoselect_reference_bundles=false \  
-s /cdrom PHCO_18183
```

The `-i` option enables the interactive user interface to mount the CD drive for 11.0

2. Load the Support Plus CD and install the patch bundle XSWHWCR1100:

- a. Put the CD into the drive.
- b. Make sure the CD drive is mounted:

```
/usr/sbin/mount
```

If there is no entry for the CD drive, mount it. Assuming that your mount point is `/cdrom`, enter

Updating 11.0 for Hardware Enablement or Critical Patches Only

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

- c. View the `.readme` for your bundle and follow the directions accordingly:

```
cd /cdrom
```

```
more bundle_name.readme
```

Or print the file: `bundle_name.readme`

Installing Application Software

If your application software is already in a depot (SD packaged), it can be loaded with the Ignite-UX installation. If it is in a non-SD format, you can create a bundle by using the Ignite-UX `make_bundle` tool, then install or update it on the target system. For instructions, see the *make_bundle*(1M) manpage..

Application software in SD format can also be loaded later using SD. Procedures for installing additional software from tape, CD or network depots are in the *Managing HP-UX Software with SD-UX* manual.

Adding More Functionality

In case you need to add more bundles to expand HP-UX, such as JFS filesets, use the `Match What Target Has` option described in this chapter. Then select additional bundles which you have purchased. For more details, see the *Managing HP-UX Software with SD-UX* manual.

Installing Patches

For details on installing patches, see the *Managing HP-UX Software with SD-UX* manual.

Networking Products on Additional Media

If you are using certain networking products or other Independent Software Units (ISUs) which are *not present* on the Core HP-UX CD, you may need to follow modified update procedures. Some of the networking products affected include FDDI, Token-Ring and 100VG AnyLan, which are provided on the HP Applications CD.

Since optional networking products are shipped on separate media from the Core HP-UX, their drivers will be removed from the kernel during the update process. This means that if you update only using the Core media or a depot made from it, *the optional networking will not be available after reboot*. Any `swinstall` of applications and network drivers have to be performed from a local CD drive, tape drive or a disk depot. Use `loopback` as the hostname in `/etc/hoststemporarily`. See your HP representative for help.

TIP

Alternately, use create a combined Core and Applications depot with `swcopy` to use as your `swinstall` source. Since a combined depot or tape will contain the new revisions of the networking products, their drivers will be reinstalled before reboot, thus enabling the optional network capabilities. See “Networking Products Not on Core OS CD” in Appendix A for details.

If a custom update tape was provided as part of your HP software support contract, you should not need to create a combined depot as long as the tape or any depot made from it contains the HP-UX Core software and the optional networking software which you need.

Installing the Optional OnlineJFS Product

HP OnlineJFS is the advanced optional bundle for the VxFS File System. You can use the capabilities of HP OnlineJFS to perform certain key administrative tasks on mounted VxFS file systems, thus allowing users on the system to perform their work uninterrupted.

These tasks include:

- De-fragmenting a file system to regain performance.
- Resizing a file system.
- Creating a snapshot file system for backup purposes.

Install the optional bundle with `swinstall` in this order:

1. The Journal FS product, if it is not already installed.
2. Two HP OnlineJFS bundle filesets: `AdvJournalFS.VXFS-ADV-KRN` and `AdvJournalFS.VXFS-ADV-RUN`

During each install, `swinstall` will edit the `/stand/system` file, rebuild the kernel, and reboot the system to bring the new kernel libraries into memory. More information on installing and using VxFS and HP OnlineJFS is in the *Managing Systems and Workgroups* manual.

3 Removing Software

The `swremove` command removes software that has been installed on a host. Before removal, the software is first unconfigured provided that it was installed in the default directory. This is different from simply removing patch information. See the *cleanup(1M)* manpage for information on removing patches.

Removing Patches

Certain individual patches, including some in this bundle, may be required as dependencies for other HP-UX software installed on your system. Before removing a patch or this patch bundle, determine the dependencies required by the installed software. This information can be found in the Release Notes for the products and the ReadMe files for patches. If necessary, you may have to remove some installed software from your system.

To remove any patches from your system, first determine which were installed. They may vary depending on system configuration and OS type (32-bit or 64-bit). To display installed patches, run:

```
/usr/sbin/swlist -l patch \*.\*,c=patch
```

Preview the removal analysis:

```
/usr/sbin/swremove -p patchname1 patchname2 ...
```

Patch dependencies must be interpreted manually from the patch documents.

For detailed information, see the “Removing Software” chapter in the *Managing HP-UX Software with SD-UX* manual.

A

Installation and Updating Requirements

Please review this entire appendix for requirements and situations that apply to your system *prior to installing or updating HP-UX to 11.0 ACE 9911*. Also refer to these documents for more information:

- *ReadMe Before Installing or Updating HP-UX 11.0 Additional Core Enhancements, November 1999* — Provides last-minute information, disk usage, lists contents of the patch bundle and patch dependencies.
- *Release Notes for HP-UX 11.0 Additional Core Enhancements, November 1999* — Describes changes included in ACE 9911. These notes are installed with this release in:
`/usr/share/doc/RelNotesExtPak`

Change Notation (new)

This notation indicates changes from the May 1999 edition of these requirements:

(new) = new information

(rev) = revised section

Supported Systems (rev)

These systems are supported as of HP-UX 11.0 ACE 9911:

Model	32-bit	64-bit
700 Series Workstations: 712, 715/64, 715/80, 715/100, 715/100XC, 725/100	X	
A-Class Servers: A180, A180C, A500	X	
B-Class Workstations: B132L, B132L+, B160L, B180L	X	
B1000		X
C-Class Workstations: C100, C110, C160L	X	
C160, C180, C180XP, C200, C240, C360	X	X
C3000		X
D-Class Servers: Dx10, Dx20, Dx30, Dx50, Dx60	X	
Dx70, Dx80, Dx90	X	X
E-Class Servers: E25, E35, E45, E55	X	
F-Class Servers: F10, F20, F30	X	
G-Class Servers: G30, G40, G50, G60, G70	X	
H-Class Servers: H20, H30, H40, H50, H60, H70	X	
I-Class Servers: I30, I40 I50, I60, I70	X	
J-Class Workstations: J200, J210, J210XC	X	
J280, J282, J2240	X	X
J5000, J7000		X
K-Class Servers: K100, K200, Kx10, Kx20	X	
L-Class Servers: L1000,L2000		X
K-Class Servers: Kx50, Kx60, Kx60, Kx70, Kx80	X	X
N-Class Server: N4000-36, N4000-44		X
R-Class Servers: R380, R390	X	X
T-Class Servers: T500, T520	X	
T-Class Servers: T600	X	X
V-Class Servers: V2200, V2250, V2500		X
Enterprise Parallel Servers: EPS22, EPS23, EPS40	X	X

These workstations and graphics adapters are no longer supported as of 11.00:

- Workstations: 705, 710, 715/33, 715/50, 715/75, 720, 725/50, 725/75, 730, 735, 750, 755
- Graphics adapters: GRX, CRX, CRX-24, CRX-48Z

For more information on 64-bit support, see the *Release Notes for HP-UX 11.0 Additional Core Enhancements, November 1999*, installed on your system with HP-UX 11.0 ACE 9911 in: `/usr/share/docs`.

Disk Space, Memory and Diagnostic Requirements

/ Partition Must Have 100 MB Free Space

Update Requirement

The / LVM `root` partition must have at least 100 MB free space.

What To Do

1. Run `bdf` and examine the size in kilobytes of the / partition. For the 11.0 update to succeed, the value shown for / must be at least 100000.
2. If the / partition has less than 100 MB free space, do not update. Instead, either:
 - Cold install 11.0 and restore user files from backup. A cold install using LVM will create a / partition (including /stand) of sufficient size to allow 11.0 kernel builds (100 MB is the default). Or:
 - Reinstall the 10.x system but configure a larger / partition (again, back up user files). Then restore user files from backup.

/stand on LVM Partition Must Have at Least 47 MB Available

Update Requirement

Updates from 10.x to 11.0 ACE 9911 on systems using a separate /stand LVM partition must have at least 47 MB available to build a new kernel.

What To Do

The /stand partition cannot be increased in size. Therefore, it is necessary to create the available space needed in /stand to do the 11.0 update.

1. Run `bdf` and examine the number of kilobytes available for the /stand partition. For the 11.0 update to succeed, the figure shown in the `avail` column for /stand must be at least 47000.
2. Remove enough files to create 47 MB of free space in /stand. Do *not* remove the /stand/vmunix or /stand/vmunix.prev system files.

3. If the `/stand` partition has less than 47 MB available, do not update. Instead, either:
 - Cold-install 11.0 and restore user files from backup. A cold install using LVM will create a `/stand` of sufficient size to allow 11.0 kernel builds (85 MB minimum total size). Or:
 - Reinstall 10.x (again, first back up user files) but configure a larger `/stand` partition (at least 47MB). Then restore user files from backup.

`/var` Partition Must Have at Least 500 MB Free Space

Install/Update Requirement

You must increase the default size of the `/var` file system when cold installing or updating to HP-UX 11.0 ACE 9911. The default file system size is insufficient for a successful install/update.

The `/var` partition should have at least 500 MB free space. If all patches are being installed, 200 MB is acceptable.

What To Do

Here is how to increase the size of the `/var` partition on an LVM system:

1. Extend the size of the `/var` partition. For example:

```
/usr/sbin/lvextend -L 500 /dev/vg00/lvol8
```

If needed, change the volume group and logical volume number above to reflect your `/var` block device.

2. Shut down the system, but interrupt the reboot and boot single-user mode:

```
/usr/sbin/shutdown -r now
```

```
ISL> hpx -is
```

3. Extend the unmounted file system:

```
/usr/sbin/extendfs /dev/vg00/r1vol8
```

4. Bring system to multi-user mode:

```
init 3
```

/usr on LVM Systems Must be Extended

Update Requirement

Before updating an LVM system from 10.x to 11.0, `/usr` must be increased to open at least 600 MB. If this is not done, an error occurs during the `swinstall` analysis phase will not allow you to continue.

Non-LVM systems can update without increasing the size of `/usr`, but they should have comparable disk space available.

JFS File System

On a JFS file system with OnLineJFS, use the `fsadm` utility to extend the file system while the system is online. The steps are:

1. Log in as root.
2. Find out if space is available:

```
/usr/sbin/vgdisplay
```

To determine the available megabytes, multiply the value for Free PE by 4. If the needed space is not available, add another disk or volume group.

3. See where `/usr` is mounted:

```
/usr/sbin/mount
```

4. Extend the logical volume. For example:

```
/usr/sbin/lvextend -L 600 /dev/vg00/lvol8
```

If needed, change the volume group and logical volume number above to reflect your `/var` block device.

5. Extend the mounted file system:

```
/usr/sbin/fsadm -Fvxfs -b 614400 /usr
```

(assuming the default 1KB file system block size)

HFS File System

On an HFS file system (with LVM), increase the size of the `/usr` partition as follows:

1. Execute `bdf` to check the size of the `/usr` partition.
2. Write down the volume name (for example, `/dev/vg00/lvol17`).
3. Reboot. Answer Yes to the ISL prompt. Then boot single-user mode by entering:

```
hpux -is
```

4. Run:

```
/sbin/lvextend -L 600 /dev/vg00/lvol17  
/sbin/extendfs -F hfs /dev/vg00/rlvol17
```

5. Bring system to multi-user mode:

```
init 3
```

eqmemsize Kernel Parameter May Need Increasing

Update Requirement

Systems that have a relatively small amount (256 MB or less) of physical memory (RAM) and run read/write intensive applications could run out of equivalently mapped memory and panic. To prevent this, increase the amount of equivalently mapped memory.

Equivalently mapped memory is permanently reserved by the kernel to allow it to map virtual addresses to real addresses, making it unavailable to applications. . The tunable parameter `eqmemsize` controls the number of pages of memory that the kernel reserves for this purpose. A page is 4096 bytes.

What To Do

Determine how much physical memory you have available and if necessary, increase the size of the tunable kernel parameter `eqmemsize`.

1. Verify that you have enough physical memory available:
 - a. Log on as root.
 - b. Run SAM:

```
/usr/sbin/sam
```
 - c. Click on Performance Monitors->System Properties->Memory tab, and note the size.
2. To increase the size of `eqmemsize`:
 - a. Run SAM and go to Kernel Configuration, then to Configurable Parameters.
 - b. Double the default value of `eqmemsize`, from 15 to 30.
 - c. Pull down the Actions menu again and select Process New Kernel. Confirm that you want to reboot the system when prompted.

Diagnostic Drivers Not Installed

Update Caution Under certain circumstances, the drivers for the diagnostic utilities will not be installed when you update to 11.0. This means that no one will be able to run the programs in the STM (Support Tool Manager) diagnostic system, and I/O and memory errors will not be logged, compromising HP's ability to support your system.

What To Do After the update completes, check to see if the drivers are present, and use SAM to install them if they are not. Proceed as follows.

1. `cd /stand`

2. Run the `what` command on the kernel file from which the system is booted, usually `vmunix`:

```
/usr/bin/what vmunix | grep diag
```

If the diagnostic drivers are there, the output contains `diag1`, and `diag2` on workstations and `diag0`, `diag1`, and `diag2` on servers. If not, load the drivers as follows:

3. As root, run SAM:

```
/usr/sbin/sam
```

4. From SAM's menus, select `Kernel Configuration/Subsystems`, then select the `DIAGNOSTICS subsystem`. Pull down the `Actions` menu and select `Add Subsystem to Kernel`.

The third column of the matrix, `Pending`, should now show `In` for the `DIAGNOSTICS subsystem`.

5. Pull down the `Actions` menu again and select `Process New Kernel`. Confirm that you want to reboot the system when prompted.

Security Situations

Applications on Trusted Systems

Your system is a Trusted System trusted system if the `/tcb` directory exists and your `/etc/passwd` file has an asterisk (*) in the password field for each entry.

Situation

HP has expanded 16-bit user IDs (used by Trusted Systems) to 32 bits. These IDs (defined in the `prot.h` file) are used by the `setprpwent(3)` and `getprpwent(3)` library routines. This is true whether the library routines were linked “shared” (bound at run-time) or “archived” (bound at link time). Applications that were compiled on 10.0, 10.01 or 10.10 that use these calls will not run correctly on 11.0.

What To Do

- Applications compiled on HP-UX 10.0, 10.01 or 10.10 and that use `setprpwent` or `getprpwent` must be recompiled on a 11.0 system before they can run.
- Applications that can run on a Trusted System might not call `setprpwent` or `getprpwent` explicitly, but those that check the user's ID, explicitly or silently, probably do.
- Fix any source code you own or develop in-house.
 - For third-party applications, contact the software supplier.

Setting up NIS+ with Trusted Mode

Documentation Error

There is an error in the *Managing Systems and Workgroup* manual in the “Managing System Security: Step 1” section. The procedure “Setting Up the Server” states that setting up NIS+ and converting the server to trusted mode can be performed in either order. This is incorrect. NIS+ must be configured before converting the server to trusted mode.

CAUTION

If these tasks are not performed in the right order, users will be unable to log in. Recovery could involve loss of data.

Tightened Permissions on CUE to Prevent Security Breaches

Situation

The CUE product is being shipped on 11.0 with tightened permissions that allow it to be used only by the root user. This is because HP has discovered that allowing non-root users access to CUE can give those users unauthorized root access to the system.

HP does not own the source code to CUE and has been discouraging its use since 10.30; see the Release Notes for HP-UX 10.30.

In previous releases, the executable file for CUE, `/usr/bin/cue`, was shipped with permissions that allowed any user to run it: `-r-sr-xr-x`.

As of 11.0, `/usr/bin/cue` is being shipped with permissions `-r-x-----`

What To Do

Do not allow non-root users to use CUE.

Tighten the permissions for `/usr/bin/cue` on *all* other systems to `-r-x-----` after making other provisions for CUE users.

Network Situations

Networking Products Not on Core OS CD

Install/Update Situation

These networking products will not be on your system after installing or updating to 11.0 from the Core media:

- FDDI
- Token-Ring
- SNA
- X.25
- ATM
- 100BT
- 100VG AnyLan

If you use any of the networking products, you may no longer be able to reach the network server after the Core operating system is loaded, because these networking drivers are not on the Core CD.

What To Do

- **Option 1: Create a depot on an 11.0 or later network server.**
 1. If you are creating a depot to support the first 10.x to 11.0 migration of the depot server itself, run `swgettools` first with HP-UX 11.0 ACE 9911 *or the update will fail*. For details, see “Updating the SD Toolset (`swgettools`)” in Chapter 2.

TIP

If your system is already on 11.0, *do not* run `swgettools`, because it will overwrite any SD patches on your system.

This example assumes that you will create one merged depot on a network server named `ourbits` with enough disk space under `/var/depots`. A less-efficient approach would be to do the same task on each system being upgraded. The depot name `/var/depots/os1100nov1999` should not exist as a path before starting this procedure.

- a. Collect the CDs needed for a successful migration in your environment. This may include the Core OS and all the Application CDs. Note how many CDs you plan to use you plan to use.

- b. Telnet or rlogin to the server (ourbits) which will host the depot.

- c. Determine the current version of Software Distributor:

```
/usr/bin/what /usr/sbin/swcopy
```

If you do not have SD 11.0, run through the swgettools steps and begin this step again. See “Updating the SD Toolset (swgettools)” in Chapter 2

- d. Insert the first CD (Core OS). Mount it if you want to run this from the command line. Use the `-p` option if you want to stop after the Analysis phase. Enter:

```
/usr/sbin/swcopy -s /cdrom -x layout_version=1.0 \*  
@ /var/depots/os1100nov1999
```

If this is an 11.00 system, add `-i` as an option to `swcopy`; the CD will mount automatically through the interactive user interface.

- e. Remove the CD when the task is done. Repeat Step d with each CD until all the depots have been combined into `/var/depots/os1100nov1999`. The source will always be `/cdrom` (consistent with other instructions) even though the CD content will be different for each iteration.

- f. Verify the contents of the depot with this command:

```
/usr/sbin/swverify -d \* @ /var/depots/os1100nov1999
```

Future migrations to this release should use this source option when executing `swinstall` on target systems:

```
-s ourbits:/var/depots/os1100nov1999
```

(Don't forget `-x os_release=B.11.00` and the other `swinstall` options specified for OS migrations to 11.00).

To ensure proper configuration of your 11.0 system, add the following option to the other `swinstall` options for the update:

```
-x autoselect_patches=false
```

Once you have rebooted successfully on 11.0, proceed to the instructions for migration within 11.0 to the most recent set of patches (including installation of the most recent patch for Software Distributor PHCO_18183).

2. Review the installation instructions for each product before updating to a new version of the product. Some require removal before updating to a later version. Installation instructions can be found on the HP Instant Information CD or in manuals accompanying each product on an Application CD.
- **Option 2: Cold-install HP-UX 11.0 to a new disk** and manually migrate your customized system files, user accounts, and network files to a *new disk*. This process keeps the original 10.x boot disk, which can be useful as a disaster recovery option.

For more information on building a software depot, see the *Managing HP-UX Software with SD-UX* manual, as well as the *swcopy*(1M) and *swpackage*(1M) manpages. For more information on the affected device drivers, see “Procedures for Converting between 32-bit and 64-bit Operation for Kernel with Drivers” on page 50.

HP-PB FDDI Driver May Need Patch to Prevent System Panic

Situation	The system may panic (lan6_compress_and_build_vquads() routine) under heavy outbound traffic if you have the HP-PB FDDI driver, version B.11.00 or B.11.00.01 installed and have not installed patch PHNE_14722 or any patch that supersedes it.
What To Do	Install patch PHNE_14722 (or its superseding patch) from HP: http://us-support.external.hp.com/ or: http://europe-support.external.hp.com/

HP-PB FDDI May Need Patch for Instruction/Data Page Faults

Update Situation	When updating a 64-bit system configured with multi-initiator, the system may halt with an instruction page fault. This also occurs when
-------------------------	--

using an FDDI card, a 100baseT card and a multi-initiator to reboot in multiuser mode.. This problem exists if you have the HP-PB FDDI driver, versions B.11.00, B.11.00.01, or B.11.00.02 are installed and you have not installed patch PHNE_15276 or any patch that supersedes it.

What To Do Install patch PHNE_15276 (or its superseding patch) from HP (see URLs above).

T600 May Not Recognize HSC Fibre Channel or FDDI Card

Install Situation After cold-installing a T600 system with HP-UX 11.0 ACE 9911, an HSC Fibre Channel or FDDI card may not be correctly claimed by the I/O system. The problem is due to dependency software `wsio` being absent from the kernel.

What To Do

1. Determine if the drivers for the cards have been installed:

```
/usr/sbin/swlist -l product | more
```

You should see output such as the following:

J3701BA	B.11.00	HSC FDDI/9000 Driver
HSCFibreCh	B.11.00	Fibre Channel/9000 Product
2. To determine if the cards are unclaimed, issue the following command:

```
/usr/sbin/ioscan -fn
```
3. If the cards are unclaimed, add `wsio` as the driver dependency to Fibre Channel and FDDI by modifying the file

```
/usr/conf/master.d/fcgsc
```

 for Fibre Channel and file

```
/usr/conf/master.d/fddi3
```

 for FDDI.

Look for the string `$DRIVER_DEPENDENCY` in the file and add `wsio` to a list of dependencies. For example, `fddi3` dependencies are `dlpi`, `GSCToPCI`, `wsio`.
4. Regenerate the kernel with `/usr/sbin/mk_kernel` and reboot the system (you might want to save old `vmunix` to `vmunix.prev`):

```
/usr/sbin/shutdown -ry 0
```

(Just in case, you might want to save old `vmunix` to `vmunix.prev`.)
5. After reboot completes, rerun `ioscan -fn`. The output will confirm

that the cards are now claimed.

Updating when Fibre Channel Mass Storage is Present

Update Requirement

If Fibre Channel is on your 10.20 system, remove the 10.20 Fibre Channel product before updating to HP-UX 11.0 ACE 9911:

What To Do

1. Determine whether Fibre Channel is installed by executing:

```
/usr/sbin/swlist -l product | more
```

2. If Fibre Channel is installed, you will see either or both J1602AA_APZ and J3630BA bundles for release B.10.20.x.

Remove them with the appropriate command:

```
/usr/sbin/swremove -x autoreboot=true J1602AA_APZ  
/usr/sbin/swremove -x autoreboot=true J3630BA
```

3. Install the 11.0 FCMS driver as described in “Updating from 10.x Using the Command Line” on page 41 and add the product name `FCMassStorage` to the command.

HyperFabric Needs Command Line for Configuration

Situation

SAM does not support HyperFabric today. SAM reports the HyperFabric interface as a lan interface in the Network Interface Cards subsection.

What To Do

Use this HyperFabric command line for configuration:

```
/opt/clic/bin/clic_init -c
```

For information about HyperFabric, refer to *HyperFabric: Installing and Administering* on the Web:

<http://docs.hp.com/>

Hardware/Firmware Requirements

Remove VME Before Updating from 10.20 to 11.0 on a Workstation

Update Situation	Workstations can fail to update from 10.20 to HP-UX 11.0 due to a <code>mk_kernel</code> failure during <code>swinstall</code> . To prevent this from happening:
What To Do	<ol style="list-style-type: none">1. If the driver is installed, remove it with SAM. When SAM asks to reboot after the kernel is made, choose Yes.2. Use <code>swremove</code> to remove VME Services before updating (that is, while still on 10.20). To remove patch information, see “Removing Information About Prior Patches” on page 35.3. Update to HP-UX 11.0 ACE 9911. <p>If you wish to install VME Services, download it from the Web: http://www.hp.com/es/techinfo/vme_install.shar/</p>

Graphics Driver Configuration May be Necessary

CAUTION	The graphics driver must be configured into the kernel of an 11.0 system before any newly-installed graphics hardware can be set as system console via the Boot ROM console command. Failure to do so will cause your system to hang during the boot process.
---------	---

What To Do	<p>Before you can use the new graphics hardware, you must configure the graphics <code>graph3</code> driver:</p> <ol style="list-style-type: none">1. Use SAM to configure the graphics driver into the HP-UX kernel. Open the <code>Kernel Configuration</code> menu item and select <code>Drivers</code>.<ul style="list-style-type: none">• If the <code>graph3</code> driver's current state is <code>In</code>, the driver is already configured into your kernel.• If the current state is <code>Out</code>, select the <code>graph3</code> driver entry.
------------	--

Open the Actions menu item and select Add Driver to Kernel.

2. You can now reconfigure the kernel and reboot.

Before HP-UX 10.0, the graphics driver was always configured into the operating system kernel. But as of 10.0, the graphics driver could be removed from systems lacking graphics display hardware.

If graphics hardware is installed later, you must configure the graphics driver into the kernel before it can be used.

PCI Card Problem on Some HP Visualize Workstations

Requirement

This defect is limited to the HP C180, C160, C160L, B160L, and B132L Visualize workstations, and is encountered *only* when data is transmitted through PCI I/O expansion cards on the PCI bus. *HP-supplied graphics cards that use the PCI bus are unaffected.*

HP-UX 11.0 detects automatically whether your system configuration is susceptible to this hardware defect.

If your system is affected, the following safeguards go into effect:

- The HP-UX kernel will automatically disable all PCI I/O cards that would have been at risk for loss of data integrity.
- At system boot, a message is sent to the console explaining what has occurred and how to resolve the situation.
- You can check to see if this console message has been logged by running this at any time:

```
/usr/sbin/dmesg
```

- If you experience this problem, follow the instructions in the console message for contacting your Hewlett-Packard Service Representative and for no-cost warranty service to enable the PCI I/O card(s).

Graphics and Memory Windows Incompatible on Workstations

Requirement

Until a fix is available, full graphics capabilities and enabled memory windows cannot exist on the same system without causing a panic.

The Memory Windows feature provides a performance enhancement for

a limited class of applications. You should enable it *only* when the application provider explicitly states that its application has been certified to function correctly within a Memory Window.

For more information on memory windows, see the file
`/usr/share/doc/mem_wndws.txt`

B1000, C3000, J5000 Firmware Requires Updating (new)

Install/Upgrade Requirement

B1000, C3000 and J5000 systems manufactured before September 1999 require a firmware update prior to updating to HP-UX 11.0. Most systems will automatically check firmware during the 11.0 install process and update it if needed. Early systems running firmware revision 1.8, however, *must be updated manually* while running HP-UX 10.20 prior to installing 11.0.

To Check the Firmware Revision

1. Shut down the system (use `reboot -qr` on workstations or `shutdown` on servers). Switch the system off.
2. Switch the system on and watch console messages. Press any key when prompted to cancel the automatic boot feature.
3. Check the firmware (boot ROM) revision is displayed at the beginning of the boot process. If the firmware revision for your B1000, C3000 or J5000 system is less than 2.3, it needs updating; continue with the next steps.

To Update the Firmware

1. Insert the Core OS CD supplied with HP-UX 11.0 ACE 9911.
2. At the prompt `Main Menu:Enter command>`, enter: **B IDE**
3. At the prompt `Interact with IPL (Y, N, Q)?>`, enter: **n**
4. After many lines of output, at `Continue ([Y]/n)?`, enter: **y**
Do not interrupt the system until it automatically reboots. The firmware is now updated.

Follow the procedures elsewhere in this manual to install or update to 11.0.

GSP Reset Command Returns Wrong Message

Situation	The Guardian Service Processor (GSP) reset command always returns the message: "GSP reset failed." This message may not be accurate; the reset might have succeeded. The error message is due to a delay introduced in GSP firmware. The driver does not wait for this delay and returns an error message to the stty command.
What To Do	<p>Reset GSP:</p> <pre>stty +resetGSP < /dev/GSPdiag1</pre> <p>Ignore the message <code>GSP reset failed</code> and wait for approximately 30 seconds, then verify the GSP status:</p> <pre>stty +queryGSP < /dev/GSPdiag1</pre>

64-bit Version Requirements

Criteria for Transitioning to a 64-Bit OS

Update Requirement

If you plan to update a system with the 64-bit version of the HP-UX operating system, you must ensure that your system can support it. Consider the following hardware and firmware issues:

- Is your hardware capable of running 64-bit operation?
- Is the firmware installed on that hardware recent enough to support 64-bit operation?

For a list of supported models, see Chapter 2 in the *Release Notes for HP-UX 11.0 ACE 9911* (installed as `/usr/share/doc/RelNotesExtPak` with HP-UX 11.0 ACE 9911).

Before you can load a system with HP-UX 11.0 for 64-bit operation, the system model designation must be present in an `/etc/.supported_bits` file. See “Ensuring Update to 64-Bit Operation on New Systems” on page 38.

NOTE

64-bit binary data cannot be used by 32-bit applications. 64-bit is useful if you need large address space, such as for use with very large databases and large-scale modeling. 64-bit applications can be compiled and linked on 32-bit systems, but cannot be run on a them.

Software Transition Kit (STK)

Before updating to a 64-bit operating system, HP strongly recommends that you use the Software Transition Kit (STK), which can be obtained from:

<http://software.hp.com/STK/>

The STK contains a set of tools and documents to assess applications or libraries that run on 10.x and helps transition them to 11.0 64-bit operation. The Web site also has release notes and an FAQ with details about supported systems and necessary firmware updates.

For more information, consult *Getting Started with the HP-UX 11.0 Software Transition Kit*. You can view this manual at:

<http://docs.hp.com/>

FDDI/9000 Server Bundle Causes 64-bit Kernel Build Failure

Requirement

This item applies to you if you tried to install the FDDI/9000 server bundle (J2157B, J2658BA) on a 64-bit workstation. The FDDI/9000 server bundle is not valid for 64-bit workstations.

The install scripts fail to prevent the system file entry for built-in FDDI from being added on 64-bit workstations. This causes the system entry to be present without the corresponding binaries and will cause `mk_kernel` to fail due to unresolved symbols.

What To Do

Edit `/stand/system` to remove the `fddi2` entry and rebuild the kernel using:

```
/usr/sbin/mk_kernel -o /stand/vmunix
```

Application and Compiler Requirements

Updating When HP Domain/Netscape Suitespot Pro is Present

Update Requirement

If you have the HP Domain/Netscape Suitespot Pro bundle on your 10.20 system, remove it before updating to HP-UX 11.0 ACE 9911:

What To Do

1. Determine whether HP Domain/Netscape Suitespot Pro is installed by executing:

```
/usr/sbin/swlist -l bundle
```

2. If HP Domain/Netscape Suitespot Pro is installed, remove it:

```
/usr/sbin/swremove -x autoreboot=true J3638BA
```

3. Update the system to 11.0.
4. Install the 11.0 HP Domain/Netscape Suitespot Pro from the June 1999 HP-UX Application CD.

This product is not available after the June 1999 application release.

Updating When HP Web Quality of Service is Present

Update Requirement

If you have HP Web Quality of Service on your 10.20 system, remove it before updating to HP-UX 11.0 ACE 9911:

What To Do

1. Determine whether HP Web Quality of Service is installed by executing:

```
/usr/sbin/swlist -l bundle
```

2. If HP Web Quality of Service is installed, remove it:

```
/usr/sbin/swremove -x autoreboot=true J1594AA
```

3. Update the system to 11.0.
4. Install the 11.0 HP Web Quality of Service from the HP-UX Application CD.

libc Changes May Require Applications to be Rebuilt

Update Requirement

Several Core HP-UX libraries have been changed. As a result, applications linked with a shared library to resolve symbols from an archive library might experience the following problems:

- Core dump, due to unresolved symbols.

For example, an application linked with `libc.a` and `libnsl.1` will have an unresolved symbol in `_thread_detach`.

- Duplicate symbol definitions: To fix these problems, applications should be rebuilt to use shared libraries only. This is the preferred method of maintaining compatibility.

Here are descriptions of the library changes that were implemented:

- C++ applications can now access files greater than 2 GB. This is done by setting `_FILE_OFFSET_BITS` to 64 in 32-bit mode. Header files `ftw.h` and `stdio.h` were patched to enable this functionality.

More details can be found in the *HP-UX Large Files White Paper*, in `/usr/share/doc/lg_files.txt`

- `libc` support for HP CxDL Development tool is included in the `setjmp/longjmp()` family of APIs in both 64-bit and 32-bit `libc`.
- A patch for the NIS files backend library (`libnss_files.1`) has been created to increase performance of `gethostent()` and related APIs in kernel threads environment.
- A new patch for the dbm libraries (`libdbm.1` and `libndbm.2`) has been created to increase performance of `dbm_nextkey()`.

C Compiler Mode Change

Update Requirement

The HP C compiler's default compilation mode changed from compatibility (`-Ac`) to Extended ANSI (`-Ae`) as of 10.30. This may cause previously compiled in-house programs to either fail compilation or change behavior at runtime.

This change in default behavior may affect your programs if your makefiles or build scripts and commands do not specify which mode to use for compilation, `-Ac`, `-Aa` or `-Ae`.

- If you do not specify `-Ac`, `-Aa`, or `-Ae`, and your C source code

Installation and Updating Requirements

Application and Compiler Requirements

contains constructs that are not valid in Extended ANSI mode, your build will fail due to compile-time errors.

- If you do not specify `-Ac`, `-Aa`, or `-Ae`, and your C source code contains constructs whose semantics are different in Extended ANSI mode, then your application or library may behave differently.

What To Do

If the compiler mode (`-Ac`, `-Aa`, `-Ae`) had not been specified in the past, do one of the following:

- If you rely on compatibility mode syntax or semantics, or want to eliminate any risk, specify the `-Ac` flag on all compiles. This will revert the compiler to the old default behavior. Or...
- If you can compile your code successfully, but are worried about semantic differences that may result in even subtle run-time behavior changes, compile your code with the `-Ac` or `-Ae` option and the `+M` option.

The `+M` option will cause the C compiler to produce warnings for all source constructs whose semantics change from compatibility to ANSI mode. You will then have to examine each of those warnings and possibly change the source code that each warning describes.

The differences between compatibility and ANSI modes are documented throughout the *HP C/HP-UX Language Reference Manual* and in Chapter 5 of the *HP C/HP-UX Programmer's Guide*.

HP Compilers May Need Patch

Install Requirement

PA 32-bit applications compiled on N4000-class systems without specifying the desired architecture version will not realize the best possible performance.

What To Do

Install patch PHSS_18300 for HP ANSI C or PHSS_18330 for FORTRAN90 from HP. You can get these patches from the Web:

<http://us-support.external.hp.com/>

or:

<http://europe-support.external.hp.com/>

Alternatively, run compiles with the “+DA2.0” option to the compiler.

General Requirements

Reverting from 11.0 ACE 9911 to 11.0 is Not Supported

If you try to revert from 11.0 to 10.20, SD will report warnings and/or errors. Although this is not true when reverting from 11.0 ACE 9911 to 11.0, reverting from 11.0 ACE 9911 to 11.0 is *not* supported.

If you still wish to revert to the original 11.0 release by reinstalling it, first manually remove these files:

```
/usr/conf/master.d/scsi-tune  
/usr/conf/space.h.d/scsi-tune.h
```

Alternately, you can simply cold install 11.0 as described in Chapter 1.

NOTE

Removing patches and patch bundles can be dangerous. Remove 11.0 ACE 9911 patches from a system cautiously to avoid removing any hardware-critical or other important patches. For example, if you updated your system to ACE 9911 in order to enable newly supported hardware and later removed the ACE 9911 patch bundle (XSWG1100), your system would revert back to 11.0. However, the kernel would not be built correctly for any of the hardware newly supported since 11.0.

For information on removing patches, see Chapter 3.

Patch May be Needed to Run SD

Update Requirement

If you wish to use the Graphical User Interface (GUI) mode (that is, using a mouse for pointing and clicking) to update from 10.01 to 11.0, you need to install patch PHSS_18011 or later to update successfully. Graphical problems do not occur if you are updating from 10.10 or later, or if you are using the Terminal Interface version of swinstall.

Buttons on the swinstall Graphical User Interface (GUI) screens will be labeled incorrectly if the original version of `/usr/lib/X11R5/libX11.1` is present.

Installation and Updating Requirements

General Requirements

What To Do

1. Find out whether your system has the original or the patched version of the file:

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

You have the original library if you 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)
```

- If the build date shown is October 24, 1995 or later, you already have the patched version of the file. Further action is not needed.
 - If the build date shown is earlier than October 24, 1995 and you intend to run `swinstall` with the Graphical User Interface on a 10.01 system, you need to install patch PHSS_18011, “s700_800 10.0[01]-10 X11R5/Motif1.2 Runtime May 97 Periodic Patch.”
2. Obtain the patch from HP’s IT Resource Center. Install the patch before running `swgettools` to get the new version of SD. `swgettools` overwrites old SD and patches.

Also plan to install the latest SD patch after you have updated to 11.0.

Multiple LAN Cards Cause CDE Login Failure (new)

Situation

A limitation in the Common Desktop Environment (CDE) can prevent you from logging into a system if it is configured with more than one LAN interface (any combination of built-in and/or add-on LAN cards.) When multiple LAN cards are present, the system appears to accept the user login and password, but the login fails after about 10 seconds and the system displays the CDE login screen again.

What To Do

Follow one of these procedures to login to CDE when multiple LAN cards are present:

Workaround 1: If the CDE login screen is accessible:

1. Login to the system using the **Command Line Login** option available from the CDE login screen.
2. Look in the directory `/etc/dt/config`. If the file `Xconfig` exists, look for these four lines:


```
#####  
# To disable R4 MIT-MAGIC-COOKIE-1 per-user authorization.  
#  
# Dtlogin*authorize: False
```

3. If the above lines exist, uncomment the Dtlogin*authorize line as shown below and save the file.

```
Dtlogin*authorize: False
```

4. If /etc/dt/config/Xconfig does not exist, either copy the template file from /usr/dt/config/Xconfig to /etc/dt/config/Xconfig or enter the four lines shown above into a new file called /etc/dt/config/Xconfig.
5. If you created a new file, set the following permissions and ownership on the file:

```
chmod 444 Xconfig
```

```
chown bin:bin Xconfig
```

Be sure to remove the leading # and spaces from the Dtlogin*authorize line as shown in Step 3 above.

6. Reset the X server by logging out. Then login to CDE from the graphics console.

Workaround 2: If the system is up on the network, and you can rlogin to it with root permissions:

1. While the system is at the CDE login screen on the console monitor, rlogin to it from another system.
2. Look for filenames of format *hostname AAAaNNNNN* in /var/dt:

```
cd /var/dt  
ll -a
```
3. Rename the file having the most recent timestamp (it was made right after the last system boot). For example:

```
mv ace90AAAaNNNNN ace90AAAaNNNNN.old
```

4. Login to CDE on the graphics console.

Workaround 3: If you cannot rlogin to the system:

1. At the CDE login prompt, select: Command line login
2. In the black and white ITE screen, login as root.

General Requirements

3. Deconfigure all other LANs except lan0, the Core LAN. One easy way to do this is edit the `/etc/rc.config.d/netconf` file to delete or comment out all entries at the bottom of the file pertaining to lan1, lan2, etc. with different IP addresses.
4. Reboot the system. Upon reboot, you will be able to login to CDE.
5. After the system has rebooted, configure the other LAN cards back in either by using SAM or by editing `/etc/rc.config.d/netconf`.

CDE Desktop's X11 Server May Not Start After Update to 11.0

Update Situation If you are updating from 10.01, 10.10, 10.20, or 10.30, the X11 server for the CDE desktop may not start on the display device.

If this occurs, you will still be able to use the console, but without the graphical user interface.

The following text will appear in `/var/dt/Xerrors`:

```
date error (pid pid): Server unexpectedly died
date error (pid pid): Server for display DISPLAY:0 can't be
started.
Fatal server error:
Failed to establish all listening sockets
```

Why this Happens This error occurs when the `nobody` entry in `/etc/passwd` has a group ID of 60001 and either `/var` or `/tmp` is a JFS Version 2 file system.

If you are updating from HP-UX 10.01 or 10.10 and have configured `/var` or `/tmp` as JFS, they will be JFS Version 2 file systems.

Large files and JFS Version 2 are incompatible because the 11.0 kernel does not support large UID files (group ID > 59999).

In 11.0, when CDE desktop starts up the login daemon, it uses the `nobody` account. Typically on 10.01 and 10.10 systems, `nobody` has a GID greater than 59999 and remains unchanged when you update to 11.0. The daemon process will try to create a temporary file in `/var/spool`. If `/var` is Version 2, the large GID causes the file creation to fail, which in turn, prevents the X server from starting.

HP-UX 10.20 and subsequent releases are shipped with JFS Version 3 capability, but JFS Version 2 file systems on the system may still be

present. When updating to a new release, HP-UX preserves the JFS version of existing file systems: JFS Version 2 file systems remain as Version 2, but any new JFS file systems will be created as Version 3.

What To Do

You need to convert the JFS file system from Version 2 to Version 3.

- If you are updating from 10.01 or 10.10, because the conversion can only be done *after* updating to 11.0. (The conversion tool, `vxupgrade`, is a JFS Version 3 command.)
- If you are updating from 10.20 or 10.30, you can do the conversion before updating to 11.0.

To proceed:

1. Determine the version of JFS file system used by `/var` and `/tmp` by using `fstyp -v` on the appropriate block device; see *fstyp(1M)*. The output shows the JFS version. For example,

```
fstyp -v /dev/vg00/rlvol8
vxfs version:3...
```

You can get the name of the block device by running `bdf`; for example:

```
bdf /var
```

2. If either `/var` or `/tmp` are JFS Version 2, use one of the following solutions:

On the 10.x system (that is, before updating to 11.0), change the UID and GID entries for user `nobody` in `/etc/passwd` to `-2`, to match the 11.0 default settings.

For example:

```
nobody:*:-2:-2::/:
```

Convert `/var` and `/tmp` to JFS Version 3, following the instructions below.

CAUTION

Conversion from JFS Version 2 to 3 is irreversible. JFS Version 3 file systems are incompatible with HP-UX 10.01 and 10.10, and cannot be mounted on a system running 10.01 or 10.10. A JFS version 3 file system can *only* be mounted on a system with release HP-UX 10.20 or later.

3. To convert `/var` and `/tmp` to JFS version 3 file systems:

General Requirements

```
/sbin/vxupgrade -n3 /var  
/sbin/vxupgrade -n3 /tmp
```

The X11 server should now start.

HP VUE/CDE Migration

Update Action

You have the option of migrating HP VUE customizations to CDE using the `VUEtoCDE` utility. The options below describe the steps to take depending on whether or not you choose to migrate.

Option 1: No migration of VUE customizations

After the update has completed, remove VUE and MPower (which are not supported in HP-UX 11.0). Check with all users to find out if they want to migrate their VUE customizations to CDE before running the `Uninstall HP VUE` action from the `System_Admin` folder in the `appmanager`.

Option 2: Migrating VUE customizations

During the update process, select the `VUEtoCDE` product.

The first time you log in after the update has completed, the `VUEtoCDE` dialog pops up. Select the appropriate actions. Refer to the *HP CDE Getting Started Guide* for more information on using the `VUEtoCDE` utility.

After the migration is completed, run the `Uninstall HP-VUE` action in the `System_Admin` folder in the `appmanager` to remove HP VUE and MPower.

Systems with no Graphics Console

Update Requirement

If you have a system with no graphics console and want to remove HP VUE and/or MPower, run `/usr/dt/bin/vue_swremove` as follows aafter updating.

What To Do

- If you are updating from HP-UX 10.01, enter:

```
/usr/dt/bin/vue_swremove HP_VUE 10.01  
/usr/dt/bin/vue_swremove MPOWER
```

To remove both HP VUE and MPower:

```
/usr/dt/bin/vue_swremove HPVUE_&_MPOWER 10.01
```

- If you are updating from HP-UX 10.10, 10.20 or 10.30:

```
/usr/dt/bin/vue_swremove HP_VUE 10.10+  
/usr/dt/bin/vue_swremove MPOWER
```

To remove both HP VUE and MPower:

```
/usr/dt/bin/vue_swremove HPVUE_ &_MPOWER 10.10+
```

HP VUE Entry Left in /etc/inittab

What To Do

This item affects you if you are updating a 10.x system on which HP VUE is configured to start on boot. The update leaves an obsolete entry in /etc/inittab that invokes the `vuerc` program, which is not supported on 11.0. Once your system comes up on 11.0, delete this line from /etc/inittab, if present:

```
vue :4:respawn:/usr/vue/bin/vuerc # VUE invocation
```

Then force the system to re-read /etc/inittab:

```
init q
```

If you do not remove this entry, two process slots will be taken up unnecessarily.

10.20 Patch Causes Kernel Build Failure

Update Requirement

This item applies to you if patch PHKL_16499 is installed on a 10.20 server or PHKL_16498 is installed on a 10.20 workstation and if PHKL_18506 or any superseding patch has not been installed.

CAUTION

Remove this patch *before* updating to 11.0.

This patch causes a kernel build failure due to the following circumstances:

- /stand is an HFS (or UFS) file system.
- A file that is being linked is on an HFS (or UFS) file system.
- /tmp file system linker is using a HFS (or UFS) file system.

When a file is copied to an HFS (or UFS) file system and later accessed through `mmap`, the data accessed through the `mmap` interface will be stale.

Installation and Updating Requirements

General Requirements

Applications like `ld64` use `mmap` interface to read data from a file.

What To Do

1. Determine if patch PHKL_16499 and/or PHKL_16498 are on your system. For example:

```
/usr/sbin/swlist -l product PHKL_16499
```

2. If PHKL_16499 or PHKL_16498 are installed, remove them:

```
/usr/sbin/swremove -x autoreboot=true PHKL_16499
```

3. Regenerate the kernel with the `mk_kernel` command and update the system with HP-UX 11.0 ACE 9911.

Alternatively, you can install patch PHKL_18506 from your nearest HP IT Resource Center:

<http://us-support.external.hp.com/>

or:

<http://europe-support.external.hp.com/>

Run-Time Software License Server Change (rev)

Update Requirement

This item applies to you if you use run-time software licensing (the LSSERV product, or LicensePower iFOR) on a pre-10.20 system.

The `i4lmd` daemon will not automatically start after you update to 11.0, because the runtime licensing must be reconfigured after the system is booted. You will also have to configure the server and clients to use Direct Binding server discovery; Networking Computing System (NCS) is not supported in 11.0.

Take the actions described below if your current system is pre-10.20 and uses software runtime licensing (as a client, server, or both). If both are true, a license daemon (`i4lmd`) should be running with license database files at `/var/opt/ifor/cur_db` and `/var/opt/ifor/lic_db`.

What To Do

1. *Before updating to HP-UX 11.0*, determine the system's licensing role (client, server, or both) and its configuration.

Use the `i4tv` command to identify the remote server(s).

This information is needed to reconfigure the system after it has been updated.

2. Update the system to 11.0.

3. After the update completes and the system boots on 11.0, run:

```
/opt/ifor/ls/conf/i4config
```

Use the information collected from Step 1 to answer questions about whether the system will be a license client only or also a license server.

Follow the `i4config` prompts to reconfigure an NCS server and clients to use Direct Binding. See the *Release Notes for HP-UX 11.0* for more information about the transition from NCS.

NOTE

You will *not* need to reinstall the software licenses.

A client system does not need the `i4lmd` daemon; the daemon will be started only if the system is configured as a license server.

**Future Change for
LicensePower/iFOR**

HP will be removing LicensePower/iFOR from the core HP-UX product in a future release. The licensing product can be obtained directly from Isogon Corporation at:

<http://www.isogon.com/LPowerifor/suppdwn.htm>

System Panic Caused by Streampipes (new)

Situation

If your system panics and the stack trace looks similar to this:

```
panic+0x14
report_trap_or_int_and_panic+0x80
trap+0xdb8
nokgdb+0x8
unweldq_exec+0x368
osr_close_subr+0x990
hpstreams_close_int+0xc3c
hpstreams_close+0x2c
call_open_close+0x1f8
closed+0xb0
streampipe_close+0x1c
vn_close+0x48
vno_close+0x20
closef+0x68
exit+0x324
psig+0x258
trap+0x1344
nokgdb+0x8
```

Edit the `/stand/system` file to change the tunable parameter "streampipes" to 0 (zero). Then rebuild the kernel with the `mk_kernel` command.

B Booting HP 9000 Systems

This appendix describes booting various HP 9000 systems using the built-in Boot ROM interface. As explained here, the built-in boot process differs between newer and older workstations and servers.

If you need help during the boot process, enter: **help**

Halting the Autoboot Process

1. Make sure any external devices connected to the target system are turned *on*.
2. Turn *on* the target computer or cycle power.
3. Insert the Install media into the drive. At the Stop Autoboot message:
 - Workstations: Press and hold **ESC**.
 - Servers: Press and hold any **ESC** or any other key.

See the appropriate following section for your system's boot process.

If you need help during the boot process, enter: **help**

Booting Workstations

Newer Workstation Boot Menu After stopping the boot process, the system displays a menu:

Command	Description
Auto [boot search] [on off]	Display or set auto flag
Boot [pri alt scsi.addr] [isl]	Boot from primary, alternate or SCSI
Boot lan[.lan_addr] [install] [isl]	Boot from LAN
Chassis [on off]	Enable chassis codes
Diagnostic [on off]	Enable/disable diagnostic boot mode
Fastboot [on off]	Display or set fast boot flag
Help	Display the command menu
Information	Display system information
LanAddress	Display LAN station addresses
Monitor [type]	Select monitor type
Path [pri alt] [lan.id SCSI.addr]	Change boot path
Pim [hpmc toc lpmc]	Display PIM info
Search [ipl] [scsi lan [install]]	Display potential boot devices
Secure [on off]	Display or set security mode

When you see the boot menu:

1. Enter: **search**
2. If the CD device is identified in the list shown by the search command, proceed with the following steps. Otherwise, check the device and cable connections and repeat the search.
3. Enter: **boot scsi.x**
Use the SCSI address of the boot device for **x**.
4. If you see the prompt, Interact with IPL (y or n)?, enter: **n**
(The bottom selections may not appear unless you hold down **ESC**.)

Older Workstation Boot Menu Older HP 9000 Workstations display a menu similar to this:

- b) Boot from specified device
- s) Search for bootable devices
- a) Enter Boot Administration mode
- x) Exit and continue boot sequence
- ?) Help

Select from menu:

To start a search for bootable devices, enter: **s**

Booting HP 9000 Systems

Booting Workstations

Older Workstation Search Results

```
=====
Searching for Devices with Bootable Media.
To terminate search, press and hold the ESCAPE key.
Device Selection      Device Path      Device Type and Utilities
P0                    scsi.6.0        HP          2213A
                               IPL
P1                    scsi.3.0        HP          HP35480A
                               IPL
P2                    scsi.0.0        TOSHIBA     CD-ROM XM-3301TA
                               IPL
Enter boot selection, (h)elp, or e(x)it:
=====
```

You will see a list of *Pn* selections, as shown above.

If your boot device does not appear in the search list:

1. Check the hardware.
2. To exit, enter: **x**
3. To initiate another search, enter: **s**
4. At the prompt Enter boot selection, enter the *Pn* device selection for the device containing your install media.

If you know the SCSI address of the device beforehand, you can skip the search and simply enter this at the Select from menu prompt:

b scsi.x

Loading the Ignite-UX install utility from CD takes 3 to 5 minutes. Go to “After Selecting Boot Paths” on page 96 for the procedure to load the remainder of your system.

Booting HP 9000 Servers

As noted previously, you can halt the server autoboot process and redirect it to boot from the desired media device. To do so, press any key during the autoboot process to display a Main Menu:

Newer Server Boot Menu

```
----- Main Menu -----
Command      Description
BBoot [PRI|ALT|<path>]  Boot from specified path
PPath [PRI|ALT] [<path>] Display or modify a path
SEArch [Display|IPL] [<path>] Search for boot devices
COnfiguration menu    Displays or sets boot values
INformation menu      Displays hardware information
SErvice menu          Displays service commands
DIsplay             Redisplay the current menu
HElP [<menu>|<command>] Display help for menu or command
RESET             Restart the system
-----
Main Menu: Enter command or menu >
```

You only need to enter the initial capital letters to launch each command.

1. Determine the boot device that contains the Install CD. The Alternate Boot Device is typically set to the CD drive. If this is the case, enter:
bo alt
2. To search for available boot devices, type: **search** (or **sea**)

Newer Server Search Results

Here is a typical output:

```
=====
Searching for potential boot device.
This may take several minutes.
To discontinue, press any key.
Path Number      Device Path      Device Type
-----
P0                56/52.0 (dec)      Seq. record access media
P1                56/52.3 (dec)      Seq. record access media
P2                56/52.4 (dec)      Random access media
P3                56/52.6 (dec)      Random access media
Main Menu: Enter command or menu >
=====
```

For example, enter: **bo pn**

where **pn** is the path number for the install device shown in the search output. You can also specify the device by the hardware path, such as 56/52.0, in place of the path number.

Booting a Server

For Models 8x7, 845, 835, 870, and other older HP 9000 Servers, the boot display looks like this:

Booting HP 9000 Systems

Booting HP 9000 Servers

```
=====
Console path      = 56.0.0.0.0.0.0 (dec)
                  38.0.0.0.0.0.0 (hex)

Primary boot path  = 52.2.0.0.0.0.0 (dec)
                  34.00000002.0.0.0.0.0 (hex)

Alternate boot path = 52.0.0.0.0.0.0 (dec)
                  34.0.0.0.0.0.0 (hex)

64 MB of memory configured and tested.
Autoboot from primary path enabled.
To override, press any key within 10 seconds.

Boot from primary boot path (Y or N)?> n
Boot from alternate boot path (Y or N)?>
Enter boot path, command, or ?>
=====
```

1. Switch the system on.
2. Press any key to stop the autoboot process.
3. Insert the install CD.
4. Determine the hardware path of the install device from your system administrator. (There is no search capability to determine this information on older HP 9000 Server models).
 - If the primary path shown on your screen is not the same as that for the install device, respond with **n** to Boot from primary boot path. In this case, you will then be asked if you want to boot from the alternate path, which is typically set to the CD device.
 - If the primary path shown on your screen matches that for the install device, respond with: **y**
 - If neither the primary or alternate device paths correspond to that for the CD device, respond with **n** to both prompts. In this case, enter the hardware path of the device (for example, 52.3.0) at the prompt Enter boot path, command, or ?>
5. To the question Interact with IPL (y or n)?, respond with: **n**

After Selecting Boot Paths (Workstation and Server)

- If you see the prompt Interact with IPL (Y or N)?, enter: **n**
- If you wish to abort the installation at this point turn the system *off* and start over.

After choosing the boot path and loading the Ignite-UX utility, the Ignite-UX keyboard languages screen appears (if your system has a PC-style keyboard). From this point on, respond to the requests for information on this and the following screens.

Loading the Install Kernel takes 3 to 5 minutes.

Booting V-Class Systems

To boot the system from the Install media, follow the initial instructions on powering up the system and any external drive, as explained in “Halting the Boot Process” in this appendix.

The V2200 System Boot Console

Portions of a typical V-Class boot display are shown below. *To stop the system boot process and select the device with the install media, press any key within ten seconds after you see “System is HP9000 V2000 series”:*

```
OBP reboot
SPP2000, POST version 3.1.4.0, compiled 1997/06/27 10:38:45 LAB #0001
...
Booting OBP.
...
System is HP9000 V2000 series
Autoboot and Autosearch flags are both OFF or we are in HP core mode.
Processor is entering manual boot mode. ...
```

If the system is set to perform auto-boot, you will see the following:

```
Processor is starting the autoboot process.
To discontinue, press any key within 10 seconds. ...
```

Press any key at this point. You will see the following boot menu (capital letters indicate minimum-required command):

Command	Description
Auto [BOot SEArch ON OFF]	Display or set the specified flag
Boot [PRI ALT <path> <args>]	Boot from a specified path
BootTimer [time]	Display or set boot delay time
CLEARPIM	Clear PIM storage
CPUconfig [<proc>] [ON OFF]	Configure/Deconfigure Processor
Default	Set the sytem to defined values
Display	Display this menu
ForthMode	Switch to the Forth OBP interface
IO	List the I/O devices in the system
LS [<path> flash]	List the boot or flash volume
OS [hpux sppux]	Display/Select Operating System
PASSword	Set the Forth password
Path [PRI ALT CON] [<path>]	Display or modify a path
PDT [CLEAR DEBUG]	Display/clear Non-Volatile PDT state
PIM_info [cpu#] [HPMC TOC LPMC]	Display PIM of current or any CPU
RESET [hard debug]	Force a reset of the system

Booting HP 9000 Systems

Booting V-Class Systems

```
RESTRICT [ON|OFF]           Display/Select restricted access to Forth mode
SCSI [INIT|RATE] [bus slot val] List/Set SCSI controller parms
SEARCh [<path>]              Search for boot devices
SECure [ON|OFF]             Display or set secure boot mode
Time [cn:yr:mo:dy:hr:mn[:ss]] Display or set the real-time clock
VERsion                    Display the firmware versions
Command:
```

To determine the boot path, enter:

pa

```
Primary boot path   = 1/0:0.4.0
Alternate boot path = 15/3
Console path       = 15/1
Keyboard path      = 15/1
```

Booting from the Primary Path

If your boot device (CD) is mounted at the primary path, enter:

bo pri

```
Device       : /pci@fe,90000/symbios@0,0/sd@4,0:cntl
Directory    : LIF
File         : HPUX
Arguments    : hpux
Loading      : HPUX ..... %xxxxxxx% bytes loaded.
101456 + 61440 + 864184 start 0xd01cc0
Boot: disc(1/0/0.4.0;0)/disc(1/0/0.4.0;0):INSTALL
7245824 + 1328048 + 706428 start 0x29168
HPUX: kernel load begins
...
```

The Install kernel then loads from the CD device.

Searching for Other Bootable Devices

If your CD is not mounted at the primary path, enter **sea** (search) at the command prompt to see a general listing of devices. The CD will be listed with its hardware path. For example:

```
Command: sea
Searching for Devices with Bootable Media.
Device Selection  Device Path      Device Type
-----
P0                5/2:0.2.0        Disk   : SEAGATE ST34371W    0484
P1                5/2:0.3.0        CD-ROM : TOSHIBA  CD
P2                1/2:0.9.0        Disk   : SEAGATE ST19171W    0019
P3                1/0:0.4.0        Disk   : SEAGATE ST19171W    0019
Command:
```

For this example, boot the CD with:

boot p1

The Install kernel then loads from the CD device.

Booting HP 9000 Systems
Searching for Other Bootable Devices

C In Case of Trouble

This appendix describes:

- Likely Problem Areas.
- Error Messages.
- Adjusting File System Sizes.
- Problems with Large Systems.
- HP on the Web.

Likely Problem Areas

As an install progresses, you will see messages relating to the progress being entered into the log file. These messages usually refer to normal behavior. `ERROR` and `WARNING` messages, however, have the following significance:

<code>ERROR</code>	Indicates a serious problem, usually requiring action from the user in order to proceed with an installation.
<code>WARNING</code>	Indicates something out of the ordinary, but <i>not</i> fatal. The warning <i>may</i> require action.

If you see a message or experience unusual behavior, see the following pages for likely solutions. The problems most likely to occur are near the beginning of each section.

Error Messages

NETTL Generates Core Dumps During 10.01 to 11.0 Update

During the 10.01 to 11.0 update, the `nettl` product generates core dumps unnecessarily. Despite this, `nettl` installs and works satisfactorily. The user should remove the core files to save space.

The following entries are logged in the `swagent.log` file when updating from 10.01 to HP-UX 11.0 ACE 9911.

```
*Installing fileset "Networking.NET-KRN,r=B.11.00" (21 of
434).

*Installing fileset "Networking.NET2-KRN,r=B.11.00" because
one or more other selected filesets depend on it (22 of 434).

*Installing fileset "Networking.NETTL-SLIB,r=B.11.00"(23 of
434).

/var/tmp/BAAa02217/catalog/Networking.2/NETTL-MIN/preinstall[4
4]: 3167 Bad system call(coredump)

*Installing fileset "Networking.NETTL-MIN,r=B.11.00"(24 of
434).

/var/tmp/BAAa02217/catalog/Networking.2/NETTL-RUN/preinstall[4
8]: 3182 Bad system call(coredump)

*Installing fileset "Networking.NETTL-RUN,r=B.11.00"(25 of
434).
```

Harmless `swagent.log` Error from Patch PHSS_15851

The X11 product generates the following warning and error messages that can be ignored:

```
WARNING: Cannot delete the definition for
"/opt/graphics/common/doc/GAG/GAG-11.0.tar" from the fileset
"Xserver.X11-SERV-MAN". The file does not exist in this
fileset.
```

```
ERROR: The selected software was not modified. All of the
specified file modifications are invalid. See the ERROR and/or
WARNING messages above.
```

Possible HP VUE swverify Errors and Warnings

If you do not run `Uninstall HP VUE`, you may see `swverify` errors and warnings for HP VUE. Despite these error and warning messages, the `swinstall` session will complete successfully, so you can ignore them.

If you are updating from HP-UX 10.01 or 10.10, eliminate the messages by running this before the update process:

```
/usr/sbin/swmodify -u X11.X11-RUN-AUX
```

Intermittent Sendmail Problem

Mail is not delivered if the `sendmail` daemon is started and the `/etc/nsswitch.conf` file contains these alias entries:

```
aliases: files          # Original entry
aliases: files nis      # Modified entry
```

An error message similar to this is generated in this situation:

```
554 Switch map aliases: unknown member map aliases.nis
```

What To Do

1. Stop the `sendmail` daemon:

```
/sbin/rc2.d/S540sendmail stop
```

2. Restart the `sendmail` daemon:

```
/sbin/rc2.d/S54sendmail start
```

Mail delivery should resume and the error should not occur again.

PCI 100BASE-T Driver Cannot Be Removed Easily

The Built-in PCI 100BASE-T driver is being provided on the patch `PHNE_18574`, which will be installed only on the systems that have the built-in PCI 100BASE-T hardware.

If patch `PHNE_18574` is removed from systems that have built-in PCI 100BASE-T as the *only* network interface, the networking capability of the system will be lost. To protect against such a condition, `PHNE_18574` will not be removed when the hardware is present and when default `swremove` options are used when removing any previous `XSWGRI100` bundle on HP-UX 11.0 ACE 9911. Removal of this patch will fail with the following error message in

```
/var/adm/sw/swagentd.log:
```

ERROR: You have selected PHNE_18574 for removal. This patch cannot be removed because it contains the driver for built-in PCI 100BASE-T card. Without this patch the system will lose its networking capability. If you still want to remove PHNE_18574, use `swremove.enforce_scripts=false` in the default file or use the command line option `-x enforce_scripts=false` with `swremove(lM)`.

ERROR: The checkremove script for PHNE_18574 failed (exit code 1). The script location was
`/var/adm/sw/products/PHNE_18574/pfiles/checkremove`.
* This script had errors and the execution of this product cannot proceed until the problem is fixed. Check the above output from the script for further details.

NOTE: All filesets in the product PHNE_18574,l=/,r=1.0 will be excluded because there was an error in this product.

If you must remove thi patch, enter:

```
swremove -x autoreboot=true -x enforce_scripts=false \  
PHNE_18574
```

Adjusting File System Size

Update Requirement

The absolute minimum `/usr` file-system sizes needed to update to HP-UX 11.0 are:

- For 32-bit: 300 MB.
- For 64-bit: 324 MB.

If the required file-system size for the bundle you copy to a depot exceeds the file system limit set by your disk installation, you will get an error condition during the copy process. You can use `lvextend` and `extendfs` in this situation to create a larger file system.

You might have a problem updating your system(s) if the `/usr` or `/var` volumes are too small.

If you try an update, `swcopy` will determine how much disk space is required. If sufficient space is not available, `swcopy` will report an error like this:

```
ERROR: The used disk space on filesystem "/var" 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 would need to increase the file system size of `/var` by 10 MB, which actually needs to be rounded up to 12 MB.

Increasing the Size of `/var`

Follow these steps to increase the size limit of `/var`:

1. Determine if any space is available:

```
/sbin/vgdisplay
```

You should see output 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" indicates the number of 4MB extents available, in this case 79 (equivalent to 316 MB).

2. Change to single user state:

```
/sbin/shutdown
```

This will allow `/var` to be unmounted.

3. View mounted volumes:

```
/sbin/mount
```

You will see a display similar to the following:

```
/ on /dev/vg00/lvol1 defaults on Sat Mar 8 23:19:19 1997
/var on /dev/vg00/lvol7 defaults on Sat Mar 8 23:19:28 1997
```

4. Determine which logical volume maps to `/var`. In this example, it is `/dev/vg00/lvol7`
5. Unmount `/var`:

```
/sbin/umount /var
```

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

6. Extend the size of the logical volume:

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

For example, to make this volume 332 MB:

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

7. To extend the file system size to the logical volume size:

```
/sbin/extendfs /dev/vg00/r1vol7
```

8. Mount `/var`:

```
/sbin/mount /var
```

9. Go back to the regular init state: `init 3` or `init 4`, or `reboot`.

Problems with Large Systems

If you are running a system with a large number of file systems or disks, note the following possible problem areas:

1. On a large system such as a T500 with many disk drives (such as 50 or more), you may see messages such as the following during the system analysis phase of cold install.

```
Out of inode- can't link or find disk
or
Write failed, file system is full.
or
File system full.
```

2. To reduce the likelihood of this problem occurring, *turn off any disks you don't plan to use for the installation process* before you do the installation.
3. After the system is cold-installed, you may wish to add all the file systems that existed under the previous installation, either manually or using SAM. However, for a large number of file systems (for example, over a hundred), some tables in the kernel may be too small to allow correct booting. This is because the newly-installed kernel contains default values for kernel tables sizes, and does not allow for special configurations made to the previous kernel.

For example, the first boot after adding the file systems may result in error messages displayed to the console, such as:

```
inode: table is full
proc: table is full
file: table is full
```

The boot may fail in other ways. For example, you may have to repair file system manually:

- The kernel may need to be re-configured before booting. The following settings should allow the kernel to be booted, but may not be optimal for performance:

```
ninode = 2048 (default is 476)
nproc  = 1024 (default is 276)
nfile  = 2048 (default is 790)
```

- Alternatively, you may re-configure the kernel using one of these methods:
 - Raise `maxusers` to a large value, such as 200.
 - Select an appropriate bundle of SAM-tuned parameters from SAM's kernel configuration `Actions` menu.

Determine the correct configuration for your system.

Note that this problem does not appear to affect the upgrade process (updating from HP-UX 9.x), because the new kernel parameters will be derived from the previous kernel.

HP on the Web

Software and help with installing or updating HP-UX and related products are available on the Web:

- The latest HP-UX manuals:
`http://docs.hp.com/`
- Downloading HP-UX patches bundles and related software:
`http://software.hp.com/`
 - Latest information on HP-UX Additional Core Enhancements releases:
`http://software.hp.com/ACE/`
 - Ignite-UX information and download:
`http://software.hp.com/software/HPsoftware/IUX/`
 - HP-UX 9.x to 10.x Transition Tool Kit:
`http://software.hp.com/OS_transition/`
 - HP-UX 11.0 Software Transition Kit:
`http://software.hp.com/STK/`
- VME Services:
`http://www.hp.com/es/techinfo/vme_install.shar/`
- Downloading HP-UX patches and patch information from your nearest HP IT Resource Center:
Americas and Asia Pacific:
`http://us-support.external.hp.com/`
Europe, Middle East and Africa:
`http://europe-support.external.hp.com/`
To receive HP Security Bulletins, select “Support Information Digests” from the Maintenance and Support page).
- Year2000 information:
`http://www.hp.com/year2000/`

- euro information:
<http://www.hp.com/euro/>
- Safety and ergonomic information:
<http://www.hp.com/ergo/>
- LicensePower/iFOR from the core HP-UX:
<http://www.isogon.com/LPowerifor/suppdwn.htm>

In Case of Trouble
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