

HP-UX 11.0 Installation and Update Guide

HP 9000 Computers



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This guide describes installing HP-UX 11.0 and updating HP-UX 10.x systems to HP-UX 11.0. This guide replaces earlier HP-UX 11.0 installation and update manuals: 5185-6583, 5971-0642, B2355-90153, B2355-90679, and B3782-90785.

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New editions of this manual will incorporate all material updated since the previous edition. For the latest version, see the HP-UX 11.0 documentation section on the web:

<http://docs.hp.com/hpux/os/11.0>

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About this Guide

This guide describes installing HP-UX 11.0 on HP 9000 systems and assumes that you are the system's administrator: familiar with installing, updating and maintaining software on the system.

This guide uses these typographic conventions:

Boldface	Words defined for the first time appear in boldface .
Computer	Computer font indicates literal items displayed by the computer. For example: <code>file not found</code>
User input	Bold, computer text indicates literal items that you type. For example, to change to your account's home directory, enter: <code>cd</code>
<i>Italics</i>	Manual titles, variable in commands and emphasized words appear in <i>italics</i> . For example, you would substitute an actual directory name for <i>directory_name</i> in this command: <code>cd directory_name</code>
[] and	Brackets [] enclose optional items in command syntax. The vertical bar separates syntax items in a list of choices. For example, you can enter any of these three options in this syntax: <code>ls [-a -i -x]</code>
Enter	Text in this bold, sans-serif font denotes keyboard keys and on-screen menu items. A notation like Ctrl-Q indicates that you should hold the Ctrl key down and press Q .

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1 Preparing for Software Migration

This chapter provides an overview of the HP-UX 11.0 media and tasks to perform before you migrate from HP-UX 10.x to HP-UX 11.0. You must perform the pre-migration tasks and then additional tasks, depending if you cold install or update to HP-UX 11.0:

- Navigating this Guide: Quick view of the migration process and related chapters.
- Introducing HP-UX 11.0: Overview of the HP-UX 11.0 media kit.
- Pre-Migration Tasks: Tasks that everyone who is migrating a system from HP-UX 10.x to HP-UX 11.0 must perform.
- Pre-Cold install Tasks: Additional tasks that only those people who are migrating using the cold-install process must perform.
- Pre-Update Tasks: Additional tasks that only those people who are migrating using the update process must perform.
- The Next Step: Where to go next, either cold install or update.

In this guide, the following terms apply:

- **Migration** refers to both the cold-install and update processes.
- **HP-UX 11.0 Install/Update/Recovery CD** and **HP-UX 11.0 Core OS CD** are used interchangeably.

IMPORTANT

The Instant Information CD in the media box has the most up-to-date version of this guide. To compare versions, look at the release date and edition number on the inside cover page of the guides.

Review the *Read Before Installing or Updating to HP-UX 11.0* CD booklet before continuing. The booklet, delivered with the HP-UX 11.0 media, describes last-minute cold-install and update information.

Navigating this Guide

This list outlines the migration process and related chapters.

- **Chapter 1: Prepare for Migration**
 - Review introduction and media box contents.
 - Perform pre-migration tasks.
 - Perform pre-cold install tasks.
 - Perform pre-update tasks.
 - Go to Chapter 2.
- **Chapter 2: Cold Install HP-UX 11.0**
 - Perform pre-cold install tasks in Chapter 1.
 - Boot HP 9000 system.
 - Cold install HP-UX 11.0
 - Perform post-cold install tasks.
 - Go to Chapter 4.
- **Chapter 3: Update to HP-UX 11.0**
 - Perform pre-update tasks in Chapter 1.
 - Use HP-UX 11.0 Install/Update/Recovery CD.
 - Update to HP-UX 11.0.
 - Perform post-update tasks.
 - Go to Chapter 4.
- **Chapter 4: Verify Migration**
 - Verify HP-UX cold install or update with swlist and swverify.
 - Go to Chapter 5.
- **Chapter 5: Update Applications**
 - Install patches required for applications.
 - Update non-OS applications with swinstall.

Introducing HP-UX 11.0

This guide describes migrating HP 9000 systems from HP-UX 10.x to HP-UX 11.0. This manual deals only with software migration (cold install or update of the HP-UX 11.0 operating system software), not hardware upgrades. For hardware upgrades, see the documentation included with your hardware or consult your HP Support Engineer.

TIP

Review this guide before cold installing or updating your system. The first chapter has an overview helpful to all users, defining which method to use (cold install or update), and providing the pre-migration tasks.

Media Box Contents

Please review the contents of the HP-UX 11.0 media box:

- **HP-UX 11.0 Install/Update/Recovery CD** — Contains the HP-UX operating system and recent networking software. The Ignite-UX install tool is also included to perform cold installations on a single system from the CD.
- **Core OS Options CD** — Contains graphics software to apply to a technical server or workstation.
- **Application CDs** — Delivers the latest versions of application software supported on HP-UX 11.0. All products available on the Application CD set are listed in the *CD_TABLE_OF_CONTENTS* file on each CD. Some applications require codeword certificates to unlock the software. To obtain certificates, follow the ordering instructions after installing the software.
- **Support Plus CD** — Provides diagnostics and current HP-UX 11.0 patch bundles to enable hardware and applications. For details, see the *Support Plus User Guide* on the CD and the *Support Plus Read Before Installing* CD booklet.
- **HP-UX Instant Information CD** — Contains current HP-UX 11.0 guides, release notes, and white papers. See the CD booklet for more information.
- **Read Before Installing or Updating to HP-UX 11.0** — Provides last-minute cold-installing and updating information. The booklet is delivered with HP-UX 11.0 CDs.

- **HP-UX 11.0 Release Notes File** — Describes features and functionality of HP-UX 11.0. After you install HP-UX 11.0, the file is on the system in `/usr/share/doc/`. Release notes, HP-UX 11.0 guides, and many application software guides are available on the HP-UX Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

NOTE

For the latest information on HP-UX software releases, go to the web:

<http://software.hp.com/HPUX-RDMP>

Pre-Migration Tasks

You must complete these pre-migration tasks and any additional pre-cold install and pre-update tasks in this chapter before migrating to HP-UX 11.0. The most important step follows: choosing the migration path.

Firmware Recommendations

System firmware changes frequently. It is important to make sure your system has the latest firmware installed in order to support the latest versions of I/O adapters, mass storage devices, and devices used when you install from media or a network depot. Not all HP Fibre Channel cards and Ultra 160 SCSI cards are supported for installing HP-UX 11.0.

For information on the latest supported firmware for your system, see the web page:

http://software.hp.com/SUPPORT_PLUS/info.html

NOTE

Some mass storage cards require a particular system firmware version before installing HP-UX 11.0.

Identifying Model, OS, and Software

Before you can decide on the method to migrate to HP-UX 11.0, you need to verify that HP-UX 11.0 is supported on your system and what software versions are currently on your system.

Identify Model

To determine the model number of your system, enter:

```
model
```

Verify that HP-UX 11.0 is supported on your system (see the previous table).

Identify OS

To identify the OS version that your system is currently running, enter:

```
uname -r
```

The next table lists supported migration paths to HP-UX 11.0.

Identify Installed Software

To identify the software products on a system or media, use `swlist`. For example, to list all products and their revisions on a CD mounted at `/cdrom`, enter:

```
/usr/sbin/swlist -s /cdrom
```

To get table of contents (TOC) and product details, enter:

```
/usr/sbin/swlist -dvl product -a readme -s /cdrom
```

`swlist` has many options to expand or narrow the listing to specific attributes; see the `swlist(1M)` manpage or the *Managing HP-UX Software with SD-UX* manual, available on the HP-UX 11.0 Instant Information CD and on the web: <http://docs.hp.com/os/11.0>

After identifying all software products, verify that they are supported on HP-UX 11.0. For software provided on the HP-UX Applications CDs, see the release notes provided with each application. The booklet accompanying the CDs explains how to find information on them.

You May Only Need to Install Patch Bundles

If your system is already running HP-UX 11.0, you may need to install one or more patch bundles to bring your system up-to-date or to enable new hardware. Rather than doing a complete migration to the current HP-UX 11.0 OS, consider using `swinstall` to install the latest patch bundles to meet your system needs:

Table 1-1 Patch Bundles Available from Support Plus

Patch Bundle	Description
XSWG1100	Final HP-UX 11.00 ACE: November 1999, revision B.11.00.47.08
HWE1100	HP-UX 11.0 hardware enablement patches to update and enable systems and devices.
QPK1100	Includes all stable defect-fix patches for Core HP-UX 11.0, graphics, and networking drivers.
Notes Support Plus bundles are available quarterly via CD and the web. For more details and to download recent bundles, see this web page: http://software.hp.com/SUPPORT_PLUS The XSWG1100 bundle on the current HP-UX 11.0 Install/Update/Recovery CD includes the ACE 9911 patches required on workstations and technical servers. The QPK1100 bundle on the latest Support Plus CD contains current patches with the higher ratings from tests in HP's Enterprise Patch Test Center.	

Choosing the Migration Path: Cold Install or Update

This section provides you with information to make a choice: to cold install or update your HP 9000 system to the latest release of HP-UX 11.0.

Should You Cold Install HP-UX 11.0?

Cold install means installing system software on a new (un-installed) or existing system disk by completely rebuilding the root file system, erasing the existing operating system and data on that volume, and installing the new operating system and specified software and data.

Here are some general considerations:

- Supported software can be installed without regard for the software currently on the system, or concern for cleaning up old software
- Easy to cold install
- Fast, time-effective way to migrate to the new OS
- Less prone to problems with integration
- Overwrites everything on the target disk
- Use on new systems and existing systems when overwriting the root (/) disk will not cause loss of applications or data.
- Use on an existing system that has the HP-UX 10.01, 10.10, or 10.20 operating system and meets system requirements. Updating from any other release is not supported.
- Use this guide to cold install a single system from local media.

Should You Update to HP-UX 11.0?

Update means using Software Distributor (SD) tools to selectively overwrite the operating system and application software from media or network source depot.

Here are some general considerations:

- Leaves user data, configurations, and applications on the target disk.
- Don't worry about recovering unique applications and data on your root volume such as custom desktops or applications that are hard to restore.
- Each system has a unique configuration.
- Current disk space is sufficient for HP-UX 11.0.

- Difficult to update, requiring more time and integration.
- More prone to problems with integration.
- Use on an existing system when overwriting the root (/) disk, causing loss of applications or data, is a problem.
- Use on an existing system that has the HP-UX 10.01, 10.10, or 10.20 operating system (regardless of Extension Packs/Support Plus software and ACE), and meets system requirements. Updating from any other release is not supported.
- Use this guide to update a single system from local media.

NOTE

For help in updating from HP-UX 10.30, see the *Software Transition Kit* on the web:

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

**Should You
Migrate to HP-UX
11i?**

As of December 2000, you should consider migrating your HP-UX 10.20 or HP-UX 11.0 systems to HP-UX 11i, the new, recommended, next-level enterprise release. HP-UX 11i delivers new hardware enablement, software functionality, and bundles of important HP-UX applications in software bundles called Operating Environments.

Migrating to 11i is easier with the new `update-ux` command available on the HP-UX 11i media. You can update from HP-UX 10.20 or 11.0 to HP-UX 11i using one command and requiring generally only one reboot.

For more information about HP-UX 11i, go to the web:

<http://www.hp.com/products1/unix>

A summary of HP-UX 11.0 and HP-UX 11i features and benefits is also available on the HP Software Transition Kit web site:

<http://devresource.hp.com/STK/hpuxoverview.html>

NOTE

If you just received a system that was ordered with "Instant Ignition," either HP-UX 11.0 or HP-UX 11i was installed. You do not need to re-install the operating system (OS).

Meeting System Requirements

To migrate to HP-UX 11.0 (cold install or update), the system must meet the following requirements.

Supported Systems

HP-UX 11.0 is supported on the following HP 9000 systems listed. For the latest list of supported systems, go to the web:

http://www.hp.com/workstations/products/unix/operating/support_matrix/update.html

Type **model** to see the model of the system you are using. For example,

\$ model

9000/780/J282

NOTE

The model command may return information that does not match the bezel on your system.

You need the latest release of media to support the latest hardware on HP-UX 11.0.

Workstation Model	32-bit	64-bit
Series 700: 712, 715/64/80/100/100XC, 725/100	X	
B132L, B132L+, B160L, B180L	X	
B1000, B2000		X
C100, C110, C160L	X	
C160, C180, C180XP, C200, C240, C360	X	X
C3000, C3600, C3650, C3700		X
J200, J210, J210XC	X	
J280, J282, J2240	X	X
J5000, J5600, J6000, J6700, J7000		X

Server Model	32-bit	64-bit
A180, A180C	X	
A400, A500		X
Dx10, Dx20, Dx30, Dx50, Dx60	X	
Dx70, Dx80, Dx90	X	X
E, F, G, H, I (all)	X	
Kx00, Kx10, Kx20	X	
Kx50, Kx60, Kx70, Kx80	X	X
L1000, L2000, L1500, L3000		X
N4000/360, N4000/440, N4000/550, N4000/650, N4000/750		X
R380, R390	X	X
T500, T520	X	
T6xx	X	X
V22xx, V2500, V2600		X
Enterprise Parallel Servers: EPS22, EPS23, EPS40	X	X

Unsupported Hardware

These workstations and graphics adapters are no longer supported on HP-UX 11.0:

- 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

Unsupported Cards

For unsupported cards, see the “Firmware Recommendations” on page 13.

Supported Kernel

You need the latest kernel to use any of the newer I/O cards or mass storage devices that ship with the latest HP-UX 11.0 Install/Update/Recovery CD.

Pre-Migration Tasks**Storage Requirements**

HP-UX 11.0 requires a system to have the following:

- 64 MB memory, minimum.
- 128 MB swap space for updating or cold installing.
- 2 GB root disk, minimum, when installing or updating to HP-UX 11.0. This can be a single disk drive or combination of physical disks configured as one root volume group.

NOTE

Any last-minute install/update issues are provided in the *Read Before Installing or Updating to HP-UX 11.0* CD booklet provided with the HP-UX 11.0 media. Be sure to review that document before continuing.

Additional Requirements for Cold Install

Cold installing HP-UX 11.0, November 1999 or later release, requires disk space in these directories for the 11.00 Default environment:

Table 1-2 Disk Space Requirements

	Disk Space Requirements (KB)		
	Minimum		Recommended
	32-bit JFS	64-bit JFS	32/64-bit JFS
/	---	---	140,000
/etc	102	102	*
/opt	27,581	27,581	340,000*
/sbin	5,541	7,466	*
/stand	47,712	64,001	84,000
/tmp	1209	1234	64,000
/usr	305,625	329,752	500,000
/var	467,579	349,582	500,000
* Size depends on applications installed.			

Additional Requirements for Update

To update your system to HP-UX 11.0 and include the latest (November 1999) Additional Core Enhancements (ACE 9911), you must have the following:

- 64 MB memory, minimum
- 128 MB free swap space with total swap space of 1 GB.
- Free disk space:
 - LVM systems:
 - /root: 100 MB
 - /usr: 600 MB
 - /stand: 47 MB
 - /var: 500 MB
 - /opt: 30 MB
- 2 GB root disk, minimum
- See Appendix B for increasing volume sizes.

Needing More Disk Space?

This section provides hints and information to help you determine your disk needs for HP-UX 11.0. If you need more disk space (HP-UX 11.0 generally requires a 2 GB root volume), be sure to order the equipment and plan on installing it after backing up your current system as explained later in this chapter.

Planning Hints

- Record the hardware path to the CD drive.
- Develop a clear configuration plan, including:
 - File system sizes.
 - Swap space size.
 - Dump device.
 - Disk and file-system parameters.
 - Mirroring information.
- If installing application programs other than those supplied within an HP-UX 11.0 Applications CD, consider the vendor's size recommendations.
- When planning disk space, refer to these books:
 - *Managing Systems and Workgroups: A Guide for System Administrators* — available on the HP-UX 11.0 Instant Information CD and on the web:
<http://docs.hp.com/hpux/os/11.0>
 - *Disk and File Management Tasks on HP-UX* — Prentice-Hall Hewlett-Packard Professional Books, 1997.

NOTE

Additional Memory Needed with A5838A LAN-SCSI Combo Card:

If you have or plan to install an HP A5838A LAN-SCSI Combo Card in A400/A500/A550 servers, be sure you also have at least 256 MB of memory. The A5838A card driver, btlan3, may cause the system to hang with less than 256 MB of system memory.

Verifying Existing Applications

You should verify that your existing applications are certified to run on the new HP-UX 11.0 release:

1. Use your web browser to view:
<http://software.hp.com/HPUX-RDMP>
2. Select the latest **HP-UX 11.0 Application Release**, then select:
New/Updated Software Product List
3. Review the listing of applications to ensure that they are still supported. If needed, plan on installing or upgrading applications after you migrate to HP-UX 11.0. See Chapter 5.

Backing Up Your System!

In addition to your normal, periodic system backup procedures, you should create a backup tape or a network backup of your root volume group. Do this first before performing a cold install or update, and again after the cold install or update. If a problem occurs, it's a very simple procedure to restore the system to its original state.

This section offers three alternatives for performing system backups: `fbackup`, `make_tape_recovery` and `make_net_recovery`.

Use `fbackup`

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

Using the normal tape location to do a full backup, mount a new tape and enter:

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

Later, if you wish to return the system to its previous state, use the `frecover` command. See the *fbackup(1M)* manpage for examples.

Ignite-UX Recovery Commands

A better alternative to using `fbackup/frecover` is to use the recovery commands available with an Ignite-UX server. Ignite-UX recovery commands offer more flexibility than `fbackup/frecover`, including the ability to recover non-bootable systems.

The Ignite-UX software for HP-UX 11.0 is provided on an HP-UX Applications CD. Use `swinstall` to install Ignite-UX on a server after installing or updating to HP-UX 11.0.

Use `make_tape_recovery`

The Ignite-UX `make_recovery` or `make_tape_recovery` command (available beginning with Ignite-UX version 3.2) creates a bootable recovery tape for an LVM or whole disk file system while the system is up and running. When a system has a logical volume layout, the recovery tape will only include data from the root volume group, plus data from any non-root volume group containing the `/usr` directory.

To create the bootable recovery tape, enter:

```
/opt/ignite/bin/make_tape_recovery -Av
```

where `v` is for verbose mode and `A` specifies the entire root disk or volume group.

If a tape drive other than the default (`/dev/rmt/0m`) is used, modify the

command to point to the device you want to use. For example, if a tape drive is at `/dev/rmt/3m`, enter:

`/opt/ignite/bin/make_tape_recovery -Av -a/dev/rmt/3m`

To recover a failed system disk or volume group after a recovery tape has been made, simply load the recovery tape, boot the system, interrupting the boot sequence to redirect to the tape drive. Allow the install process to complete. Do not intervene unless you need to make changes to volume groups. The system will reboot and, because map files for all associated volume groups have been saved on the tape, any other existing volume groups are imported and mounted automatically. Data which is not in the root volume group must be backed up and recovered using normal backup utilities.

For more information on using `make_tape_recovery`, see the *make_tape_recovery(1m)* manpage on the Ignite-UX server (version B.3.2 or later) or Chapter 11 of the *Ignite-UX Administration Guide* (March 2001 or later). The guide is available on the HP-UX 11.0 Instant Information CD and on the web:

`http://docs.hp.com/hpux/os/11.0`

Use `make_net_recovery`

The Ignite-UX server also has the `make_net_recovery` command to create a system recovery archive on another system on the network. The archive created by `make_net_recovery` is specific to the system for which it was created and its identity includes hostname, IP address, networking information, and so on. In the event of a root disk failure, you use the Ignite-UX server to restore the system by installing the recovery archive.

The contents of the system recovery archive always includes all files and directories which are essential to bringing up a functional system. This "essential" list is pre-defined by `make_net_recovery`. You can run `make_net_recovery` in its interactive mode to review the directories and files which make up the "essential list," and also add or remove other data from the archive on a disk/volume group, file, or directory basis.

For more information on using `make_net_recovery`, see the *make_net_recovery(1M)* manpage or Chapter 11 of the *Ignite-UX Administration Guide*.

Pre-Migration Tasks

Other files to consider backing up

When you are backing up your system to tape or another system, you may want to consider backing up these files as well:

- Map file for non-root volume groups.
- Configuration files from /etc: host, passwd, group, profile, services, inetd.conf, re.config.d/netconf, and fstab.
- Customized files
- Personal files
- Other files and directories such as /usr, /local, and /opt.

Using Your Ignite-UX Server

Should You Use Ignite-UX?

If you plan to migrate many systems in your enterprise, we recommend using an Ignite-UX server to create an OS archive from which to migrate. This archive can contain the HP-UX 11.0 OS, other applications and any needed patches. Once the archive is in place, either on the Ignite-UX server or on another system, migration on each client system is a single-pass operation; you will only need to reboot once.

For details on installing an Ignite-UX server with HP-UX 11.0, see the *Ignite-UX Administration Guide*, supplied on the HP-UX 11.0 Instant Information CD and also available on the web:

<http://docs.hp.com/hpux/os/11.0>

Should You Upgrade the Ignite-UX Server?

If you plan to use an existing Ignite-UX server to install HP-UX 11.0 on more than one system in your network, you should *upgrade your Ignite-UX server first* to the latest revision of Ignite-UX.

Upgrading your Ignite-UX server and using it to migrate other systems will ensure that you have the latest versions of `make_tape_recovery` and `make_net_recovery` to back up your systems. You will also be assured of keeping consistent kernel configuration with specific drivers, daemons, and kernel tunables on all systems.

For the latest Ignite-UX software and documentation, go to the HP-UX 11.0 Applications release media or the web:

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

NOTE

When using a network depot with your HP-UX 11.0 Install/Update/Recovery media, the depot must match exactly the depot software delivered on the media.

Additional Pre-Cold Install Tasks

You must complete the pre-migration tasks in this chapter before you perform the pre-cold install tasks.

Collecting Key Install Information

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

- Hostname (for example, `elvis`) To get your system's hostname, enter:
hostname
- Host IP address (for example, `15.0.0.0`). To get the above system's IP address, enter:
nslookup system1
- Distributed Network Server (DNS) name (for example, `memphis`) and IP address. For this example, enter:
nslookup memphis
- Software depot name (for example, `vegas`) and IP address. For this example, enter:
nslookup vegas

Saving Configuration Files

If you are planning to cold install HP-UX 11.0, be sure to save the files that you will want to re-install. 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 System Administration Manager (SAM). Then create a subdirectory for each system or user (for example, */backup/your_sys*).

Start Task

As root, copy the files. For example:

1. Copy all config files from */etc* on a system named *system1* to system *110sys*. On *110sys*, enter:
mkdir /backup/system1/etc
rcp -p your_name@system1:/etc/* /backup/system1/etc/.
2. Copy your local home directory to the backup system. On *110sys*:
mkdir /backup/system1/home
rcp -pr your_name@system1:/home/ /backup/system1/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.

Additional Pre-Update Tasks

You must complete the pre-migration tasks in this chapter before you perform these pre-update tasks.

Removing Information about Prior Patches

If a HP-UX 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 HP-UX 11.0.

CAUTION

Before continuing with this update, be sure the hostname of the system you are updating is listed in `/etc/hosts`.

Once on HP-UX 11.0, *do not* use `swremove` to remove HP-UX 10.x patch filesets. It is destructive to do so. Instead, we recommend reclaiming disk space by removing HP-UX 10.x patch information before updating to HP-UX 11.0.

Start Task

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 boot HP-UX 11.0, wasting a significant

amount of disk space and comprising old software replaced by the patches.

Update from a Custom Software Depot

Update Only Steps This guide describes updating the OS from the HP-UX 11.0 Install/Update/Recovery CD mounted in a local CD-ROM drive. To update from a custom software depot containing the OS and other applications, you need to create the software depot using Software Distributor commands. See the *Managing Software with SD-UX* manual and *How to Create a Software Depot to Update from HP-UX 10.20 to 11.0*. Both documents are available on the web:

<http://docs.hp.com/hpux/os/11.0>

Use the HP-UX 11.0 Install/Update/Recovery CD and applications CDs during the update, or prepare a depot with core and additional software. For example, because optional networking products are shipped on separate media from the Core HP-UX, their drivers are removed from the kernel during the update process. Updating using the Core media or a depot made from it means the optional networking will not be available after reboot. For details, see "Installing Applications Software" in "Installing HP-UX 11.0 and Updating HP-UX 10.x to 11.0":

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

Locating Source Media & Codewords for Migration

Locate Source Media

Now that you have backed up your system and important data files, and you have decided how to migrate to HP-UX 11.0 (cold install or update), you need to locate the source media needed for the migration.

If you are migrating one system at a time, migrate directly from the CDs in the HP-UX 11.0 media kit:

- **HP-UX 11.0 Install/Update/Recovery CD** — boot and install a new system or update an existing HP-UX 10.01, 10.10 or 10.20 system.
- **Core OS Options CD** — if installing a new workstation or updating an existing HP-UX 10.20 workstation system.
- **Support Plus CD** — install diagnostics and current HP-UX 11.0 patch bundles to enable hardware and applications.

After the migration, you can install other applications from their media.

NOTE

This guide supports the latest HP-UX 11.0 release, the steps do not support previously released media. If you have older media, check the following information.

Make sure you have the correct core media for the hardware. Check these links to see that the system is referenced to verify that media supports the system:

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

Locate Codewords

You can obtain a codeword for a purchased product by calling 1-800-538-1733.

The Next Step

You have completed the pre-migration tasks, and any additional tasks for the cold install and update processes. After locating the HP-UX 11.0 media, you are ready to begin:

- Chapter 2: Cold install HP-UX 11.0
- Chapter 3: Update to HP-UX 11.0

2 Cold installing HP-UX 11.0

This chapter describes migrating from HP-UX 10.x to HP-UX 11.0 by using the cold-install process. You must complete the pre-migration tasks in Chapter 1 before proceeding with this chapter.

Your progress, in this guide, to cold install HP-UX 11.0 follows:

- Chapter 1: Pre-migration tasks
- **Chapter 2: Cold-install process**
- Chapter 4: Verify migration
- Chapter 5: Verify applications

NOTE

In this guide, the terms “HP-UX 11.0 Install/Update/Recovery CD” and “HP-UX 11.0 Core OS CD” are used interchangeably.

CAUTION

The cold-install process overwrites everything on the root (/) disk. Make sure you have completed your backups on tape or on another system as described in Chapter 1.

Cold-installing Overview

The cold-installing process includes installing the HP-UX 11.0 operating system and other software.

For this release, the *Read Before Installing and Updating to HP-UX 11.0* CD booklet describes the most recent changes to the migration process. Please review that material. The CD booklet comes with the HP-UX 11.0 media or you can find it on the web:

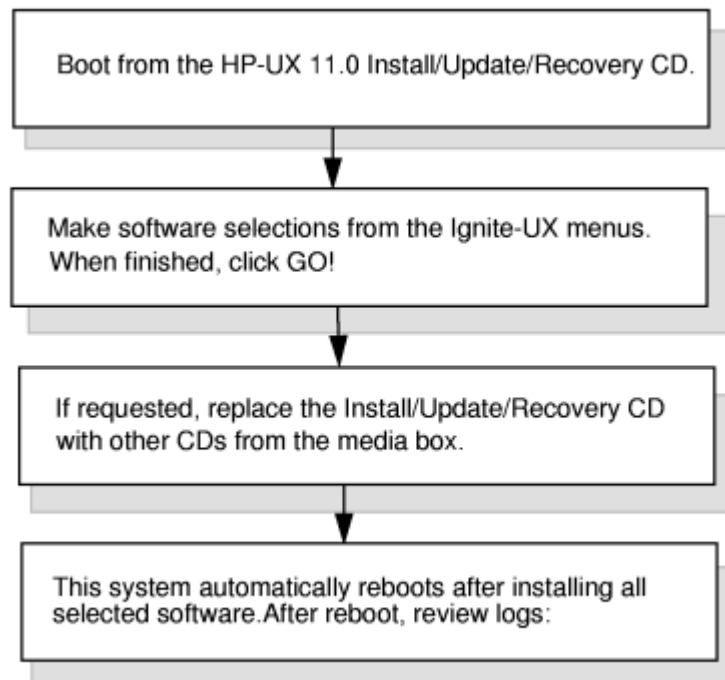
<http://docs.hp.com/hpux/os/11.0>

Cold-install Process

The cold-install process described in this chapter follows:

Figure 2-1

HP-UX 11.0 Cold-install Process



**Is Your System
Factory-ignited?**

If you received a new HP 9000 system, it may have HP-UX 11.0 (or HP-UX 11i) factory installed already; we call this "factory ignited". If so, the cold-install process has already been performed; you can skip this chapter and proceed to Chapter 5 to install any needed patches and application software. Be sure to review the other documents supplied with the HP-UX 11.0 media:

- *HP-UX Release Notes* — Describes the HP-UX 11.0 release. This document is on your installed system in the `/usr/share/doc/directory`, on the HP-UX Instant Information CD supplied with HP-UX, and on HP's documentation web site:
<http://docs.hp.com/hpux/os/11.0>
- *Read Before Installing and Updating to HP-UX 11.0* — Describes last-minute migration information that may apply to your system. It is the most recent information available for the current release.
- *Ignite-UX Summary* — Provides the latest information on Ignite-UX; go to the Ignite-UX web site:

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

Required Media

Have the following CDs from the HP-UX 11.0 media box ready:

- HP-UX 11.0 Install/Update/Recovery CD
For technical servers and workstations
- Core OS Options CD
For technical servers and workstations
- Support Plus CD
For Hardware Enablement, patch bundles, diagnostics, and iCOD, if needed

Cold installing HP-UX 11.0

Install Time Cold installing HP-UX 11.0 typically takes from 2-3 hours, depending on the system.

Start Task To perform a cold install:

1. Make sure that you completed the pre-migration tasks for cold installing in Chapter 1.
2. Insert the HP-UX 11.0 Install/Update/Recovery CD into the local CD-ROM drive.

If the drive door will not open with the system ON, unmount the existing CD. For example, if the CD is mounted at */cdrom*, as root, enter:

umount /cdrom

3. Make sure any external devices connected to the target system are switched ON and operational.

The procedures in this chapter describe booting newer HP 9000 servers. The process differs for older servers, HP 9000 workstations, and V-Class servers.

4. If you have an HP 9000 server, continue with step 5.

If you have an older server, HP 9000 workstation, or V-Class server, follow the steps in Appendix A, then return to step 7.

5. Switch the system ON or cycle power, and immediately stop the autoboot by holding down the **Esc** key.

You see the boot console Main Menu. Boot procedures vary somewhat between computers. If you need help, enter:

HELP

6. Ensure that Fast Boot is enabled. The full memory check run when Fast Boot is OFF may take several hours on a large system.
 - a. Select the Configuration Menu: **C0**
 - b. If the Fast Boot selection is available, switch Fast Boot ON:
FB ON
 - c. Return to the Main Menu: **MA**

7. Search for bootable devices, using the choices displayed (for example, enter **search** or **sea**). You'll see a table similar to this:

Path#	Device Path	Device Type
-----	-----	-----
P0	SESCSI.2.0	TOSHIBA CD-ROM
P1	LAN.1.2.3.4 .5.6	1.2.3.4
P2	FWSCSI.6.0	IBM DDRS-34560WS

Of the media listed, a fast/wide SCSI device (FWSCSI) is usually a disk, whereas a single-ended SCSI device (SESCSI) can be a disk or CD drive. CDs usually default to a device path ending in 2.

8. Boot from the CD drive using the listed path number. For the example shown above, you would enter:

B0 P0

9. You'll be asked Interact with IPL? Press: **n**
The install kernel will load (takes 3-5 minutes), after which a screen might ask you to enter the keyboard language of your console. Enter the number and press **Return/Enter...** and again to confirm.
10. When the initial Ignite-UX screen appears, take a moment to read how to navigate and select choices using this terminal interface:
 - Use the **Tab** key to navigate between fields and the arrow keys to navigate within fields.
 - Press **Return/Enter** to select an item. Pressing **Return/Enter** or the space-bar opens a menu list.
 - To navigate more quickly, enter the underlined letter of an item (such as **I** for **Install HP-UX**).

Cold installing HP-UX 11.0

11. If your plan to install HP-UX 11.0 on a disk connected via a PCI I20 RAID card, such as an HP A5856A, configure the card:

- a. Select: **Advanced Options**
- b. Select: **Configure A5856A RAID 4Si cards**
- c. Follow on-screen instructions to configure the RAID card.

12. From the installation/recovery Welcome screen, select: **Install HP-UX**

From the **User Interface and Media Options** screen, verify that these choices are selected:

- **Source Location Options: Media-only installation** — installing from the local CD drive.
- **User Interface Options: Guided Installation** — provides an install wizard with limited choices. Select this if you are not familiar with Ignite-UX.

Alternately, select **Advanced Installation** to see tabbed screens, enabling you to customize your system. Use this mode to change LVM settings and set system parameters, network services, file-system characteristics, and other configuration details.

You can exit **Guided Installation** and restart the configuration using **Advanced Installation** at any time by either selecting the **Cancel** button or pressing **C**. Make your choices and select **OK**.

13. Whether using **Guided Installation** or **Advanced Installation**, proceed through each screen to configure your system:

- **Basic Configuration:** You can select one of the following three choices for the basic configuration of your system. Each configuration automatically selects the HWE1100 patch bundle required for all current and new hardware, including the latest HP servers and workstations supported on HP-UX 11.00 OS.

Technical Computing and the Commercial Servers configurations also match the HP Instant Ignition options with the current patch bundles and diagnostic products recommended for new HP systems. The 11.00 Default and Technical Computing choices still include the required ACE 9911 patches.

Install the HWE1100, QPK1100, and Diagnostics from separate 11.00 Support Plus media in the same install session to eliminate

extra system reboots.

HP-UX 11.00 default configuration includes the following:

- HP-UX 11.0 Core OS software
- Required ACE 9911 patches in the XSWGR1100 bundle
- Hardware enablement patches in the HWE1100 bundle

Technical computing configuration includes the following:

- HP-UX 11.0 Core OS software
- Required ACE 9911 patches in the XSWGR1100 bundle
- Hardware enablement patches in the HWE1100 bundle
- Graphics software products in the B6268AA bundle
- Recommended/critical patches in QPK1100 bundle
- Diagnostic products (with hardware monitors)
- iCOD Product, B9073AA, for N, L, and V Class servers

The Commercial Servers configuration includes the following:

- HP-UX 11.0 Core OS software
 - Hardware enablement patches in HWE1100 bundle
 - Diagnostic products with hardware monitors
 - iCOD Product, B9073AA for N-, L-, and V-Class servers
- **Software Selection:** Select mass-storage and networking I/O driver products; see “Selecting Mass Storage and Network Drivers” on page 43 in this chapter.
 - **Languages:** Click the Languages... button to view CDE-languages bundles to be loaded. Global is set by default when installing on workstations, resulting in all available CDE-language bundles being installed. Global (Non-CDE) is set when installing on servers to indicate that a generic, CDE-language bundle will be installed.
 - If you are using **Guided Installation**, a screen allows you to review any messages that Ignite-UX encountered. If there are any errors, resolve them before continuing with the installation.

14. When finished configuring your installation:

- With **Guided Installation**, select: **Finish**
- With **Advanced Installation**, select **GO!** (at the bottom of any tab). 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, you return to the previous configuration screen.

Cold installing HP-UX 11.0

After you selecting **Finish** or **GO!**, the system configures the disk(s) and loads a minimum set of commands and libraries. Software Distributor then downloads all the products and patches from the CD.

15. If prompted, replace the HP-UX 11.0 Install/Update/Recovery CD with the requested CD from the media box. Software will be automatically loaded from that CD. If you see the message:

Unable to verify CD-ROM media content ...

You may have pressed **Enter** before changing the CD. If so, select the displayed Recovery Action **1: Retry software Load...** and press **Enter** again.

16. The system automatically reboots after all software has been loaded. Eject the CD. Be sure to store the CDs in a safe place. You may need them later to install other software.
17. If you specified **Ask at first boot** during the installation screens, the `set_parms` command runs now so you can set the root password, date, time, time zone, IP address, and other network parameters. You may need to customize NFS mounts, file systems, and so forth after you log in. Changes to the kernel, such as adding devices, will require a reboot to enable them.

Problems?

If you encounter a problem during the cold-install process, first review Appendix B for possible solutions. Help is also available on the web:

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

Selecting Mass Storage and Network Drivers

Check Network Drivers

Installing HP-UX 11.0 will install a minimum set of default networking drivers that apply to the system. You may need to select or specify other available networking drivers to enable other cards on your system. .

During cold installation, you can select the following mass storage and network drivers from the HP-UX 11.0 Install/Update/Recovery CD:

Table 2-1 Mass Storage I/O Drivers

Driver Description	Hardware	Software
HP Tachyon TL/TS Fibre Channel (supports HSC & PCI cards)	A5158A A6684A A6685A	A5158A
PCI I20 RAID (configure this card via the HP-UX install/recovery process; see page 40) (Not supported on workstations.)	A5856A	A5856A

Table 2-2 Network I/O Drivers

Driver Description	Hardware	Software
100BT/9000 GSC for B-, C-, D-, and J-Class	J3515A J3516A	J3623BA
100BT/9000 GSC for K- and T-Class	J3514A	J3620BA
100BT/9000 PCI for A-, L-, and N-Class	A5230A	J4253AA
100BT/9000 PCI for B-, C-, and J-Class	B5509BA	B5509BA
100BT/9000 PCI 4-port	A5506A	A5506A
HP-PB 100BT LAN/9000	A3495A	J2759BA
1000Base-SX HSC Gigabit Ethernet Driver	A4924A A4925A	J1642AA
1000Base-SX PCI Gigabit Ethernet Driver	A4929A	J1642AA
1000Base-T PCI Gigabit Ethernet Drive	A4929A	A4929A

Table 2-2**Network I/O Drivers**

Driver Description	Hardware	Software
HSC FDDI/9000 Driver for B-, C-, D-, and J-Class	A3723A	J3629BA
HSC FDDI/9000 Driver for K- and T-Class	A3722A	J3701BA
PCI FDDI/9000 Media	A3739B	A3739B
FDDI/9000 for K- and T-Class	J2157A	HP-PB J2157B
PCI HyperFabric 9000/800 for V-Class	A4919A	B6257AA
PCI HyperFabric 9000/800 for K-Class	A4920A	B6257AA
PCI HyperFabric 9000/800 for D- and R-Class	A4921A	B6257AA
PCI HyperFabric 9000/800 for L- and N-Class	A6092A	B6257AA

Retrieving Information after Cold installing

After completing the cold install, you can retrieve the information you had previously saved onto another system or tape.

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 something like /homeroot. This is especially important if you are using LVM and /home is a separate volume.

1. From the CDE login screen, select **Options** -> **Command Line Login** and log in as root.
2. Edit */etc/passwd* to change the home directory from root to /homeroot and save it.
3. Create the /homeroot directory:

```
mkdir /homeroot
```
4. Move root's personal files (files beginning with .) to /homeroot:

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

Recover Files

Recover all customized and personal files that you saved previously by merging them manually. For example, do not overwrite */etc/passwd* with your old version. Instead, either paste in entries from your old files or *merge* the old information into the new files.

Restore /home

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

- If you copied it to */backup/joe/home*, enter these commands:

```
cd /backup/joe/home  
find -depth -print | cpio -pdm /joe/home
```
- If you backed it up to tape with *fbackup*, enter:

```
frecover -x -i /joe/home -v
```

**Restore Other
Files**

Use the same techniques to restore other files and directories, such as */usr*, */local* and */opt*. To import entire volume groups, see the *Managing Systems and Workgroups* manual on the web site:

<http://docs.hp.com>

The commands will not write over newer files; the new OS and any files you installed are well protected.

The Next Step

You have completed the cold-install process: installing the HP-UX 11.0 operating system and appropriate software, restoring files, and backing up the new system. Continue with the next chapters:

Chapter 4: Verify the installation.

Chapter 5: Install other software

Cold installing HP-UX 11.0

The Next Step

3 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. Please review these topics before proceeding:

- Chapter 1: Preparing for Software Migration.
The chapter contains many steps that you must perform prior to updating to HP-UX 11.0.
- Updating from HP-UX 10.x to HP-UX 11.0. See Figure 1 on the following page.
- Updating from a previous HP-UX 11.0 Extension Pack or original HP-UX 11.0
- Updating HP-UX 11.0 to add a patch bundle or enable hardware
- Updating HP-UX 11.0 for hardware enablement or critical patches only

NOTE

In this guide, the terms “HP-UX 11.0 Install/Update/Recovery CD” and “HP-UX 11.0 Core OS CD” are used interchangeably.

Consider updating to HP-UX 11i

If you are now running HP-UX 10.20, please consider updating to HP-UX 11i rather than HP-UX 11.0. HP-UX 11i provides a single-command update from HP-UX 10.20 that allows you to install OS, network drivers and other selected software bundles from the HP-UX 11i Operating Environment CDs, typically with a single reboot. For more about HP-UX 11i, see these web pages:

<http://unix.hp.com/operating>

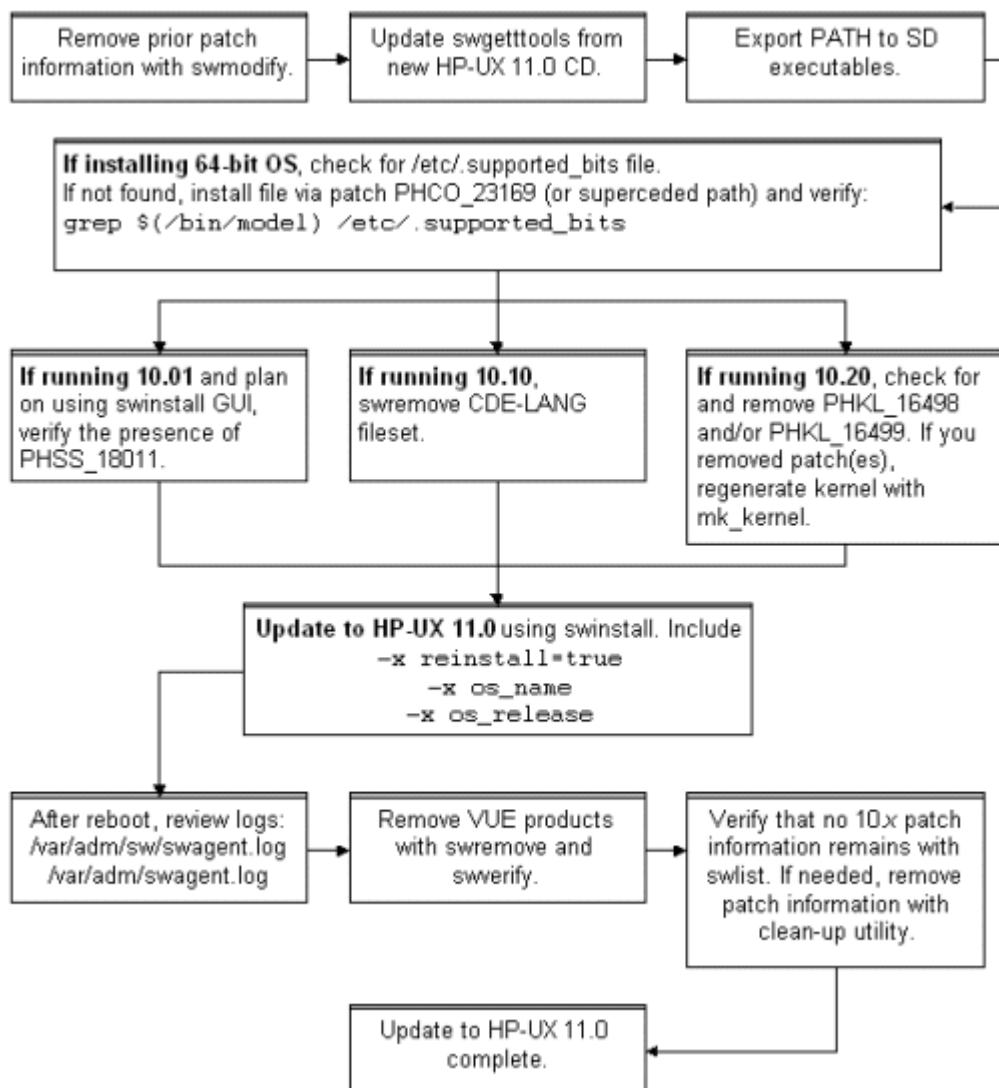
<http://devresource.hp.com/STK/hpuxoverview.html>

TIP

Many customers report that cold installing proves an easier migration than upgrading from HP-UX 10.x to HP-UX 11.0. By cold installing HP-UX 11.0, you will not have to perform an intermediate update to HP-UX 10.01. The cold-install process is described in Chapter 2. *Remember that cold install will overwrite everything on your disk.*

For more help with the transition from HP-UX 10.x, see:

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

Figure 3-1 HP-UX 10.x -> HP-UX 11.0 Update Flowchart

Pre-Update Tasks

Updating should typically only be used when adequate time can be devoted to the update (especially in the planning stages), when there are only a few systems to bring to HP-UX 11.0 or in cases, like a desktop application, where application data resides in the root VG that cannot be easily restored.

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

- If the system is already patched, remove information about prior patches. This does not involve the use of `swremove`. See Chapter 1.
- Mount the HP-UX 11.0 Install/Update/Recovery CD.

- 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 SD-UX executables.
- If you are planning to use your system in 64-bit mode, test for presence and version of the `/etc/.supported_bits` file. See "Updating to 64-Bit Operation on New Platforms" later in this chapter.

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

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 `mount` or the `mount(1M)` command:

Start Task

1. Open a term window and become root on your HP-UX 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. If the drive will not open, a disk is already mounted. Unmount it:

```
/usr/sbin/umount /cdrom
```

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`

4. You may need to 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
```

5. 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 3 above.

6. 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 HP-UX 10.x version of wgettools to update the system to HP-UX 11.0. The update will fail. You must update the SD toolset.

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

Start Task

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 wgettools utility from the HP-UX 11.0 Install/Update/Recovery CD and load it into */var/tmp*:

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

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

```
bdf /var/tmp
```

3. To make *swgettools* executable, enter:

```
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.

Setting PATH

Before updating to HP-UX 11.0, enter:

```
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*.

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

After handling the requirements for your system listed in Chapter 1, you can update to HP-UX 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. Follow the appropriate procedure below.

The HP-UX 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, you must specify the swinstall option `-x reinstall=true` in order to install patch PHCO_18183. Because this SD-UX cumulative patch is very important, install this patch manually after the update completes if you did not specify the re-install option.

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).

**Update from
HP-UX 10.01 or
10.10**

Before updating from HP-UX 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:

Start Task

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 this swmodify command:

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

3. If you are running HP-UX 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.

4. Update to HP-UX 11.0 by following the appropriate next section, "Updating Using the Command Line" or "Updating Using SD-UX Interactively."

**Update from
HP-UX 10.20 to
HP-UX 11.00**

Before updating to HP-UX 11.00, you must update the Software Distributor to the HP-UX 11.0 version using the following steps:

1. Mount the HP-UX 11.0 Install/Update/Recovery CD:

```
cp /cdrom/SW-DIST/catalog/pfiles/swgettools /var/tmp  
/var/tmp/swgettools -s /cdrom
```

2. Use the correct swinstall syntax for the 32 bit version of HP-UX 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
```

3. Tab to the actions menu and select Match What Target Has.
4. Upon completion of the match operation tab to actions.
5. Select Install analysis.

Updating to HP-UX 11.0

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

6. Evaluate all errors and warnings from the analysis.
7. Proceed with install.

NOTE

To install a 64-bit operating system, replace `os_name=HP-UX:32` with `os_name=HP-UX:64` in the `swinstall` command. You can include the `-p` option in the `swinstall` command to preview what will be installed.

Update from HP-UX 10.20

Before updating to HP-UX 11.0 from 10.20, remove patch PHKL_16498 on workstations and PHKL_16499 on servers. For details see "HP-UX 10.20 Patch Causes Kernel Build Failure" in Appendix B.

Start Task

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 SD-UX user interface, as explained in following pages.

Now proceed to update to HP-UX 11.0, using either `swinstall`'s command-line interface (see below) or SD-UX (next page).

Updating Using the Command Line

Start Task

1. Run `swinstall` specifying flags for software selection, operating system version, and release. For example, to update to the 32-bit version of HP-UX 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 `swinstall` command. You can include the

- p option in the swinstall command to preview what will be installed.
- 2. After the reboot, log in and review `/var/adm/sw/swagent.log` and `/var/adm/sw/swinstall.log`.
- 3. Remove HP-UX 10.x patches if necessary. See “Removing HP-UX 10.x Patches from an HP-UX 11.0 System” on page 80.
- 4. Go to “Removing HP-UX 10.x Patches from an HP-UX 11.0 System” on page 80.

Updating Using SD-UX Interactively

Essential Preparations

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

```
export DISPLAY=
```

- If you will run the swinstall GUI locally, enter:

```
xhost +hostname  
export DISPLAY=hostname:0.0
```

- If you'll 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, enter:

```
xhost +server_hostname
```

2. On the server, enter:

```
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 Using the Command Line” on page 77.

If the HP-UX 10.x system was already patched, remove information about prior patches as detailed on “Removing Information about Prior Patches” on page 56.

Make sure you have updated the SD toolset as explained on “Updating the SD Toolset (swgettools)” on page 58.

Start Task

1. Use swinstall to update to the 32-bit version of HP-UX 11.0. For example:

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

2. Fill in the **Source Screen**:

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 **OK** to view the **Software Selection** screen.

3. If you want to match the general filesets and functionality you already have on your system, select: **Actions -> 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. Select: **Options -> Change Options**. In the window provided, select these 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. Select: **Actions -> Install (Analysis)**

Do not press the **Logfile** button in the terminal interface; closing that window in HP-UX 11.0 is only available in the graphical interface (GUI).

SD-UX analyzes the build. Once the analysis completes, you can view the log file, 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 log file 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 the 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. If needed, remove information about HP-UX 10.x patches, as explained next.

Removing HP-UX 10.x Patches from an HP-UX 11.0 System

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

CAUTION

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

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

Start Task

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 HP-UX 10.x, is a HP-UX 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 56. *Do not* use `swremove` to remove HP-UX 10.x patches.

Updating to HP-UX 11.0

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

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

`/usr/sbin/cleanup -i`

The cleanup command on HP-UX 11.0 removes HP-UX 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 via the web from HP's IT Resource Center:

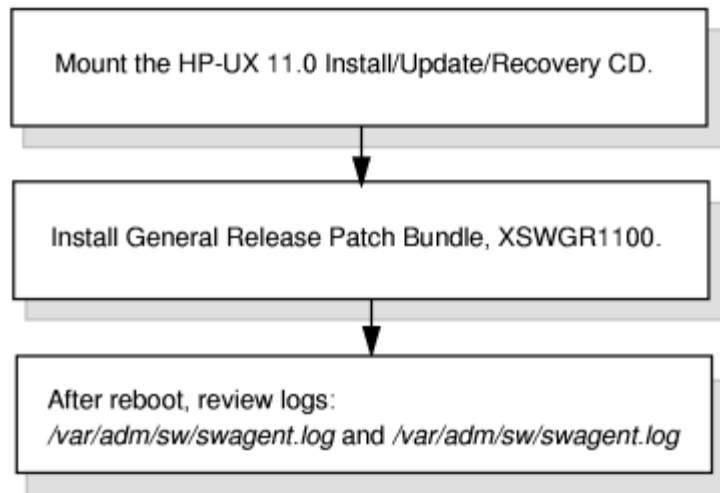
`http://itrc.hp.com`

NOTE

If cleanup is not present on system, first install PHCO_20824.

Updating an Existing HP-UX 11.0 System

Figure 3-2



You can update an HP-UX 11.0 system from a previous Extension Pack or Additional Core Enhancements (ACE) patch bundle or original HP-UX 11.0 to the current level by using either swinstall's command-line,

terminal, or graphical interface (GUI). Using the command line and GUI options are described below.

NOTE

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. Insert the HP-UX 11.0 Install/Update/Recovery 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 like this:

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

2. Add the latest General Release patch bundle, which includes the HP-UX 11.0 ACE 9911 release:

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

This command installs all patches in the depot that apply to your system and then reboots. Be sure to specify *patch_match_target*, not *match_target*.

**Terminal or
Graphical
Interface Option**

To use the *swinstall* terminal or graphical interface:

1. Mount the Install/Update/Recovery CD onto the CD drive.
2. Start *swinstall*:

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

3. Fill in the Source Screen:
 - a. 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**.
 - b. If needed, enter the **Source Host Name...**

- c. To list the source depot paths on the source host name, click the left-hand box labeled **Source Depot Path...** and select from the list that appears.
 - d. Click **OK** to bring up the **Software Selection** screen.
 - e. Select: **Actions -> Manage Patch Selection -> Automatically Select Patches...**
 - f. 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.
4. Select: **Actions -> Install (Analysis)**

Do not press the logfile button in the terminal interface; access to close that window on HP-UX 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.

5. Approve series of confirmations (including "Done").
6. 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`

Updating HP-UX 11.0 to Add a Patch Bundle or Enable Hardware

Run `swinstall` from the command line to update an HP-UX 11.0 system to add the general release patch bundle, `XSWGR1100` or the hardware-enablement bundle, `XSWHWCR1100`. Refer to the procedure under “Updating an Existing HP-UX 11.0 System” on page 81. Then follow instructions in the next section.

Updating for Hardware Enablement or Critical Patches Only

To install only critical or hardware-enablement patches on your HP-UX 11.0 system, install the `XSWHWCR1100` patch bundle:

Start Task

1. Put the Support Plus CD into the drive.
2. 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:

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

3. View or print the bundle `.readme` file for your bundle. For example:

```
cd /cdrom  
more bundle_name.readme
```
4. Follow the readme directions to install the patch bundle.

The Next Step

You have completed the update process: updating the HP-UX 11.0 operating system and appropriate software, restoring files, and backing up the new system. Continue with the next chapters:

Chapter 4: Verify the installation.

Chapter 5: Install other software

4 **Verifying System Migration**

After installing or updating to HP-UX 11.0 and backing up the new system, follow these steps to verify that your system is back in production. If you are having problems with updating to HP-UX 11.0, see Chapter 1 and Appendix B.

Verifying HP-UX Installation

To verify that HP-UX 11.0 was successfully installed, use Software Distributor's `swlist` and `swverify` commands:

1. To list all products on your system, enter:

```
/usr/sbin/swlist
```

For a cold install, compare your listing with the list of HP-UX 11.0 software products listed in Appendix C.

For an update, compare your listing with the `swlist` output obtained before the update. Software products whose versions have not changed haven't been updated. Use the `swverify` command to determine whether those products are compatible with HP-UX 11.0.

2. Run `swverify` to verify that each bundle is intact. For example, to verify that an installed English 32-bit HP-UX 11.0 OS is intact, enter:

```
/usr/sbin/swverify HPUXEng32RT
```

Or, to verify all software on your system, enter:

```
/usr/sbin/swverify \*
```

The Selection process locates all required filesets for the product. After the list you should see:

```
* Selection succeeded.
```

Then the Analysis process verifies that each required file is loaded (existence and revision), all required dependencies are met, and runs any available verification scripts for the product. This will take some time. After the analysis you should see:

```
* Analysis succeeded.
```

For help with these commands, see the `swlist(1M)` and `swverify(1M)` manpages and the *Managing HP-UX Software with SD-UX* manual, available on the HP-UX Instant Information CD or on HP's documentation web site:

<http://docs.hp.com/hpux/os/11.0>

Verifying Applications

To verify that all required applications have been installed or updated, use `swlist` and `swverify`, as explained in the previous section. For example, to verify that the HP-UX 11.0 64-bit English OS is intact on your system, enter:

```
/usr/sbin/swverify HPUXEng32RT
```

If you get an error like this;

The product "xyz,l=/,r=B.xx.xx" is not compatible with this system's architecture or operating system.

The indicated software (xyz) has not been updated. To update the software, mount the HP-UX Applications CD that contains the software and install the new version using the `swinstall` command. For more details on using `swinstall`, see Chapter 5.

The best way to verify each application's operation is to exercise it. Open each application, view a working document or project, and perform typical production operations (edit a file, print a report, etc.). If the application does not work as expected, refer to the application's help or documentation to determine the problem.

Verifying Installed Patches

Beginning with the HP-UX 11.0 December 2000 release, the install utility permits the installation of multiple patch bundles with a deferred configuration. Some of these patch bundles may contain superseded patches that don't get configured. These patches will show an "installed" software state in the *swagent.log* file after executing **swverify *** on your system. This "installed" software state is not treated as a warning or error by **swverify**.

These "installed" patches may present a problem when the current "applied" patch is removed using **swremove**. The **swremove** command does not detect or configure a superseded patch with an "installed" software state.

Start Task

Follow these steps to check the state of patches currently applied to your system:

1. List the state of two patches:

/usr/sbin/swlist -a state -a patch_state patch_x patch_y

For example, if you specified patch PHSS_20145 and its superseding patch, PHSS_20863, **swlist** would display this information:

PHSS_20145.CDE-DTTERM	installed	superseded
PHSS_20863.CDE-DTTERM	configured	applied

2. If you remove PHSS_20863:

/usr/sbin/swremove PHSS_20863

The superseded patch, PHSS_20145, is changed to an "applied" patch state, but the software state is not changed:

PHSS_20145.CDE-DTTERM	installed	applied
-----------------------	-----------	---------

3. To configure this patch, enter:

/usr/sbin/swconfig PHSS_20145

The **swconfig** command will configure an active patch (in the "applied" patch state) to a "configured" state. Executing **swconfig** on a patch in the "superseded" patch state is not recommended. This problem only exists when an active patch is removed and rolled back to a superseded patch left in an "installed" state.

For help with these commands, see the *Managing HP-UX Software with SD-UX* manual, available on the Instant Information CD and on the web:

<http://docs.hp.com>

5 **Updating Applications**

This chapter provides hints on updating your applications and adding patches after updating to HP-UX 11.0.

Installing Critical Patches

Immediately after your system is running HP-UX 11.0, you should determine if any critical patches are needed for your system. If you cold installed HP-UX 11.0 as explained in Chapter 2, you already installed critical and other required patches from the Support Plus CD provided with the HP-UX 11.0 media. After you installed the Support Plus media, other critical or required patches may become available. Check to ensure that your system is up-to-date. To check for any additional critical patches for your system, go to HP's IT Resource Center web site:

<http://itrc.hp.com>

Select **maintenance and support** and the appropriate **patching** tools.

To receive HP Security Bulletins, select: **maintenance and support -> support information digests**.

To keep your OS and HP-UX applications up-to-date, critical patches and general-release patches are delivered periodically to subscribers of HP-UX Support Plus services. You will need to install those patch bundles when they arrive. For more information on Support Plus, see this web page:

http://software.hp.com/SUPPORT_PLUS

Instructions for installing patch bundles are provided with the Support Plus CD.

After installing the needed patch bundles from the Support Plus CD supplied with HP-UX 11.0, you can also maintain your system by using the Patch Management tools available at HP's IT Resource Center.

Updating Applications

After migrating to HP-UX 11.0 and backing up your new system, you should update and/or install other needed applications. Here are some tips:

- To determine what products and versions are on your system or on a piece of media, use `swlist`:

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

HP-UX Applications CDs also have an ASCII file on each CD called `CD_TABLE_OF_CONTENTS` that lists all software products delivered with each Applications CD set. This ASCII file is viewable with `vi` or `emacs`, and Wordpad on PCs.

- To verify that all products are compatible with the new OS, run `swverify` as explained in Chapter 4.
- Use `swinstall` to install new software or update each application not included in the HP-UX 11.0 OS you just installed. The latest versions of many HP-UX software products are provided on the HP-UX Applications CDs furnished with HP-UX 11.0. To find the contents of each CD, mount any HP-UX Applications CD and view the TOC file.

Install Ignite-UX

For example, to install the Ignite-UX utilities to install HP-UX on other systems, mount the HP-UX Applications CD containing Ignite-UX (mount point is assumed here to be `/cdrom`) and enter:

```
/usr/sbin/swinstall -s /cdrom B5725AA
```

After installing software, complete any post-install configuration explained in its release notes or manual. Most documentation for HP-UX applications are either on the HP-UX Instant Information CD or on HP's documentation web site:

```
http://docs.hp.com/hpux/os/11.0
```

To complete the Ignite-UX server installation, see Chapter 2 in the *Ignite-UX Administration Guide*, available on the Instant Information CD or on HP's documentation web site.

Adding and Removing Individual Patches

If your new OS requires any new patches, they can be installed from the HP-UX Support Plus media (see “Installing Critical Patches” on page 74). For a list of previous patches incorporated into HP-UX 11.0, see the file:

```
/usr/share/doc/sw_patches.txt
```

New or replacement patches may be required as dependencies for application software installed on your system. Before removing a patch or a 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.

Remove Patches

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

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

To preview the removal analysis, enter:

```
/usr/sbin/swremove -p patch_name1 patch_name2 ...
```

Patch dependencies must be interpreted manually from the patch documents.

Obtain HP-UX Patches

HP-UX patch bundles containing critical patches, general release patches and hardware-enablement patches are available each quarter on CD and also via the web. See:

http://software.hp.com/SUPPORT_PLUS

Individual patches and the patch catalog are available on the web:

<http://itrc.hp.com>

Click **Maintenance/Support** for patch tools and to download individual patches.

Add Patches

For help on adding patches, see the *Managing HP-UX Software with SD-UX* manual, available on the HP-UX Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

General guidelines for patching HP-UX are provided in the HP-UX Software Transition Kit:

<http://devresource.hp.com/STK/hpuxpatch.html>

Get Patch Information

For information on individual patches in a patch bundle, use *swlist*(1M) to list the readme attribute at the product level. From the depot, as root enter:

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

From the SD Installed Product Database (IPD):

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

Start Task

If you are already running an HP-UX 11.0 system, you can run *swinstall* interactively and see the contents of the depot on-line:

1. On an HP-UX 11.0 system, run *swinstall* interactively:

```
/usr/sbin/swinstall
```

2. Highlight the patch bundle to select it, and press **Return**. This opens the patch bundle to the product level.
3. For any given product (shown as a patch number):
 - a. Highlight the product line to select it.
 - b. Select: **Actions -> Show Description of Software**. This generates a Software Description Dialogue box.
 - c. From the Software Description Dialogue box, select **Readme**. This will generate the Readme Viewer Dialogue box, through which you can scroll to find:
 - Affected filesets.
 - Whether the patch requires reboot.
 - Category tags used to create the patch.

Adding and Removing Individual Patches

- Symptoms the patch addresses.
- Description of the defect being fixed.
- Patch files and dependencies.
- Instructions for installing an individual patch.

To find out which patches are in a specific category tag, use `swlist`. For example, to list the patches (by product name) for all patches categorized as hardware enablement, enter:

```
/usr/sbin/swlist -d -l product *,c=hardware_enablement \  
@ $host:$depot
```

If you are running HP-UX 10.x, you will need to load the HP-UX 11.0 SD-UX tools before you can access the patches. Installing the `swgettools` utility is described in Chapter 3.

Updating LicensePower/iFOR

HP plans to remove LicensePower/iFOR from HP-UX in a future release. To download the latest versions or patches for LicensePower/iFOR, go to Isogon's web site:

<http://www.isogon.com/support/sptlpifor/sptlpifor.htm>

Convert the Database

When upgrading to the LicensePower/iFOR version 4.0 license server, any existing version 3.0.x databases must be converted to version 4.0. This will ensure that existing licenses are made available in the new database (for other changes, see the readme file installed with 4.0).

After installing version 4.0, perform this conversion:

1. Reconfigure the license server using the `i4config` from version 4.0.
2. Start the license server and run the `i4tv` verification utility to make sure the installation was successful.
3. Stop the license server.
4. Make sure that `/var/opt/ifor` is your current directory and that `/opt/ifor/ls/bin` is in your `PATH`.
5. Enter: **v3tov4**

This command completes without displaying messages.

6. Start the license server back up and run: **i4admin**. Licenses from the version 3.0.x database are now in the version 4.0 database.

IMPORTANT

Do not remove transition links while you are using this product.

Un-install Version 4

iFOR version 4 requires converting licenses from the previous version to a new format. If you un-install version 4 and then reinstall version 3.0.x, you will not be able to use the new version 4 database. You can restore the copies of the version 3.0.x database files that were saved with the "V3" extension in the `/var/opt/ifor` directory. This can be done by renaming these files and removing the "V3" extension. Doing this, however, will lose any licenses that were added when version 4 was installed.

Installing the Optional OnLineJFS

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.

A **Booting HP 9000 Systems**

This appendix describes booting various HP 9000 systems using the built-in Boot ROM firmware 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 the command: **help**

Halting the Autoboot Process

To halt the autoboot process:

1. Make sure any external devices connected to the target system are switched ON.
2. Switch ON the target computer or cycle power.
3. Insert the install media into the drive. At the Stop Autoboot message:
 - Workstations: Press and hold down **Esc**.
 - Servers: Press and hold down **Esc** or any other key.
4. 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**
You can also enter **sea**.
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**.)

Booting Workstations

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**

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

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 successive screens.

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
BOot [PRI|ALT|<path>]  Boot from specified path
PAth [PRI|ALT] [<path>]  Display or modify a path
SEArch [DIsplay|IPL] [<path>] Search for boot devices
COntfiguration 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.

Boot Older Servers

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

```
=====
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)?**, enter: **n**

TIP

To start over at this point, simply switch the system OFF and ON again.

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.

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 rebootsPP2000, POST version 3.1.4.0, compiled 1997/06/27 10:38:45 LAB #0001
```

```
...
```

```
Booting OBP.
```

```
...
```

```
System is HP9000 V2000 seriesAutoboot 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):

CommandDescription

Auto [B|O|S|E|A|O|N|O|F|F]Display or set the specified flag

B|O|O|t [P|R|I|A|L|T|<path> <args>Boot from a specified path

B|O|O|t|T|i|m|e|r [t|i|m|e]Display or set boot delay time

C|L|E|A|R|P|i|m|C|l|e|a|r PIM storage

C|P|U|c|o|n|f|i|g [<proc>] [O|N|O|F|F] Configure/Deconfigure Processor

D|E|f|a|u|l|t Set the sytem to defined values

D|i|s|p|l|a|y Display this menu

F|o|r|t|h|M|o|d|e Switch to the Forth OBP interface

I|O List the I/O devices in the system

L|S [<path>|f|l|a|s|h] List the boot or flash volume

O|S [h|p|u|x|s|p|p|u|x] Display/Select Operating System

P|A|S|S|w|o|r|d Set the Forth password

P|A|t|h [P|R|I|A|L|T|C|O|N] [<path>] Display or modify a path

P|D|T [C|L|E|A|R|D|E|B|U|G] Display/clear Non-Volatile PDT state

P|i|m|_i|n|f|o [c|p|u|#] [H|P|M|C|T|O|C|L|P|M|C] Display PIM of current or any CPU

R|E|S|E|T [h|a|r|d|d|e|b|u|g] Force a reset of the system

R|E|S|T|r|i|c|t [O|N|O|F|F] Display/Select restricted access to Forth mode

S|C|S|I [I|N|I|T|R|A|T|E] [b|u|s|s|l|o|t|v|a|l] 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   = 1/0:0.4.0Alternate boot path = 15/3Console path   =
15/1Keyboard path   = 15/1
```

Boot 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:cntlDirectory : LIFFile
: HPUXArguments : hpuxLoading      : HPUX ..... %xxxxxx% bytes
loaded.101456 + 61440 + 864184 start 0xd01cc0Boot:
disc(1/0/0.4.0;0)/disc(1/0/0.4.0;0):INSTALL7245824 + 1328048 + 706428 start
0x29168HPUX: 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: seaSearching for Devices with Bootable Media.Device Selection  Device
Path      Device
Type-----
P0          5/2:0.2.0      Disk   : SEAGATE ST34371W   0484P1
5/2:0.3.0    CD-ROM : TOSHIBA CDP2      1/2:0.9.0      Disk   :
SEAGATE ST19171W   0019P3      1/0:0.4.0      Disk   : SEAGATE
ST19171W   0019Command:
```

For this example, boot the CD with:

boot p1

The Install kernel then loads from the CD device.

B Troubleshooting

This appendix describes the following:

- Common install and update errors
- Intermittent sendmail problem
- Adjusting file system sizes
- Problems with large systems
- Un-installing HP-UX 11.0
- Re-installing SD
- Installing diagnostic drivers
- Installing and updating requirements
- Security situations
- Hardware and firmware requirements
- Application and compiler requirements
- General requirements
- Updating from 32-bit to 64-bit OS
- Web resources

When troubleshooting a problem with installing or updating HP-UX 11.0, be sure to review the *Read Before Installing or Updating to HP-UX 11.0* CD booklet. A copy of the latest version is also available on the web:

<http://docs.hp.com/hpux/os/11.0>

Other helpful installation resources on the web:

http://devresource.hp.com/STK/hpux_faq.html

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

Common Install and Update Errors

As an install or update progresses, you see messages being entered into the log file that relate to the progress. These messages usually refer to normal behavior; however, the ERROR and WARNING messages have the following significance:

ERROR	Indicates a serious problem, usually requiring action from the user in order to proceed with an installation.
WARNING	Indicates something out of the ordinary and <i>may</i> require action.

If you see a message or experience unusual behavior, see the pages in this appendix for likely solutions.

Intermittent sendmail Problem

Update from 10.20 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 the following is generated:

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

Start Task

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.

Adjusting File System Sizes

Update Requirements

The absolute minimum */usr* file-system sizes needed to update to HP-UX 11.0 are listed in Chapter 3, “Meeting System Requirements” on page 52. 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 get an error during the copy process. You can use *lvextend* and *extendfs* to create a larger file system.

You might have a problem updating your system(s) if any of these volumes are too small: */usr*, */opt*, */stand* or */var*. See Chapter 1, “Preparing for Software Migration,” on page 9, .

If you try an update, *swinstall* determines how much disk space is required. If sufficient space is not available, *swinstall* reports an error similar to the following:

```
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.

Increase */var*

Follow these steps to increase the size limit of */var*.

1. Determine if any space is available for the */dev/vg00*:

```
/sbin/vgdisplay /dev/vg00
```

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 4 MB extents available, in this case 79 (equivalent to 316 MB).

2. Change to single user state:

/sbin/shutdown

This allows */var* to be unmounted.

3. View mounted volumes:

/sbin/mount

You 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, because *extendfs* can only work on unmounted volumes. If you get a "device busy" error at this point, reboot the system and log on in single-user mode before continuing.

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.
10. Wait 10 minutes after changing the system state or rebooting to let processes complete before running SD-UX commands.

Increase */stand*

In some cases, you need to increase the size of */stand* to successfully update to HP-UX 11.0. If the update fails with a message indicating that */stand* is too small, follow these steps to increase the size of */stand*.

To increase */stand*, you first have to create a larger */swap* volume, because both require contiguous blocks and are adjacent volumes. Help with this procedure is in the *Managing Systems and Workgroups* manual available on the HP-UX Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

Start Task

1. As root, use SAM to create a new contiguous */swap* volume of the required size, for example, 300 MB. Name the new volume */dev/vg00/swap*.
2. Using SAM, verify that there is no bad block relocation and the new */swap* volume is contiguous.
3. As root from a console window, remove and add primary swap and dump devices:
 - a. Remove the current dump device:
`lvrmboot -v -d lvol2 /dev/vg00`
 - b. Add a new dump device:
`lvlnboot -d /dev/vg00/swap`
 - c. Remove the current swap device:
`lvrmboot -s /dev/vg00`
 - d. Add a new swap device:
`lvlnboot -s /dev/vg00/swap`

4. Verify your change:

lvlnboot -v

```
Boot Definitions for Volume Group /dev/vg00:
Physical Volumes belonging in Root Volume Group:
/dev/dsk/c0t6d0 (8/0/19/0.6.0) -- Boot Disk
Boot: lvol1      on:      /dev/dsk/c0t6d0
Root: lvol3      on:      /dev/dsk/c0t6d0
Swap: swap       on:      /dev/dsk/c0t6d0
Dump: swap       on:      /dev/dsk/c0t6d0, 0
```

5. If your changes are correct, reboot the system.
6. After the system reboots, view swap information:

swapinfo

Kb	Kb	Kb	PCT	START/	Kb			
TYPE	AVAIL	USED		FREE	USED	LIMIT	RESERVE	
PRI	NAME							
dev	307200	45936	216208	0%	0	-	1	
/dev/vg00/swap								
reserve	-	113748	-113748					
memory	85584	23492	62092	27%				

7. To verify that the same configuration exists as before the reboot, enter (again):

lvlnboot -v

8. As root, use SAM to remove the old *lvol2* entry from */dev/vg00*.
9. Using SAM, increase */stand* to the required new size. Also change the size of any other volumes as needed.
10. Define your new volume as the boot volume before the next reboot:

lvlnboot -b lvol1 /dev/vg00

11. Reboot your system again.
12. Return to Chapter 3 to update your system to HP-UX 11.0.

**Increase the Root
Volume Size**

An easy way to increase the size of the root (/) volume is by using Ignite-UX's `make_recovery` commands. First make a recovery (backup) archive of your root volume using `make_recovery`, `make_tape_recovery`, or `make_net_recovery`. Then interact with the recovery menu to change the root volume size when recovering the system from the archive.

For more details, see Chapter 11 in the *Ignite-UX Administration Guide*, available on the Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

Problems with Large Systems

After a system is cold installed, you may want 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 table 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 the 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:
 - Select an appropriate bundle of SAM-tuned parameters from SAM's kernel configuration **Actions** menu.
 - Raise maxusers to a large value, such as 200.

Determine the correct configuration for your system.

Un-installing HP-UX 11.0

If you cannot resolve problems after installing or updating to HP-UX 11.0, you may want to un-install it. The process depends upon the install/update process you followed:

- Assuming that you have made a `make_recovery`, `make_tape_recovery` or `make_net_recovery` tape using Ignite-UX, boot the system from that media to return the OS and any archived applications to the previous release. This is covered in Chapter 11 of the *Ignite-UX Administration Guide*, available on the HP-UX Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

If you do not use Ignite-UX or do not have a current make-recovery tape, read on...

- If your applications and data are on a separate disk from the OS, cold install the previous OS over HP-UX 11.0. This ensures a clean OS installation, removing all previous upgrade and patch information.
- If applications and/or data are on the same volume with the OS (not a recommended practice), boot from the previously-saved system recovery tape to return to a previous OS.

To determine what applications are on the system and where they are located, use `swlist`. If you only need to remove applications or patches from the system, use `swremove`. See the *Managing HP-UX Software with SD-UX* manual for details.

Re-installing SD

If your system needs re-updating and/or you find that Software Distributor (SD) needs updating, you must re-install SD. This is explained in Appendix C of the *Managing Software with SD-UX* manual, available on the HP-UX Instant Information CD and on the web:

<http://docs.hp.com/hpux/os/11.0>

Installing Diagnostic Drivers

If you could install HP-UX 11.0 as explained in Chapter 2 but deselect the diagnostic utilities when selecting software from the Support Plus CD, you will not be able to run the programs in the Support Tool Manager (STM) diagnostic system. Also, I/O and memory errors will not be logged, compromising HP's ability to support your system.

Start Task

After the update completes, check to see if the drivers are present; use SAM to install them if they are not:

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. Then select: **Actions -> Add Subsystem to Kernel**.

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

5. Select **Actions -> Process New Kernel**. Confirm that you want to reboot the system when prompted.

Help with using Support Tool Manager and the other diagnostics is in the *Support Plus: Diagnostics User's Guide*, available on the Support Plus CD in: **/cdrom/DIAGNOSTICS/DIAG_USR.PDF**

Installing and Updating Requirements

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

- *Read Before Installing or Updating to HP-UX 11.0* — Provides last-minute installation or update information.
- *Release Notes for HP-UX 11.0 Additional Core Enhancements, November 1999* — Describes changes included in ACE 9911 for workstations and technical servers. These notes are installed with the release in: `/usr/share/doc/RelNotesExtPak`

IMPORTANT

To prevent problems when updating, you ***must install the latest version of Ignite-UX*** on your Ignite-UX server(s).

Installing this latest version on your Ignite-UX servers ensures that HP-UX 11.0 and HP-UX 10.20 ACE installations will be successful for all HP 9000 workstations under all conditions. This version also fixes other problems in the Ignite-UX version supplied on HP-UX Applications CDs.

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.

Start Task

1. Run `bdf` and examine the size in kilobytes of the / partition. For the HP-UX 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 HP-UX 11.0 and restore user files from backup. A cold install using LVM will create a / partition (including /stand) of sufficient size to allow HP-UX 11.0 kernel builds (100 MB is the default). Or:
 - Reinstall the HP-UX 10.x system but configure a larger / partition (again, back up user files). Then restore user files from backup. Also see “” on page 98 .

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

Update Requirement

Updates from HP-UX 10.x to HP-UX 11.0 ACE 9911 on systems using a separate /stand LVM partition must have at least 47 MB available to build a new kernel. You can either increase the size of /stand before updating to HP-UX 11.0 (see “Increase /stand” on page 96) or create the available space needed in /stand to do the HP-UX 11.0 update:

1. Run `bdf` and examine the number of kilobytes available for the /stand partition. For the HP-UX 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.

/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.

Start Task

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 nowISL> 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 HP-UX 10.x to HP-UX 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/lvol7*).
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/lvol7  
/sbin/extendfs -F hfs /dev/vg00/r1vol7
```

5. Bring system to multi-user mode:

```
init 3
```

New HP-UX 11.0 Kernel Tunables

Use the latest SAM/ObAM patch to manage the new HP-UX 11.0 kernel tunables and drivers. See the Release Notes for new HP-UX driver and kernel tunables managed by the latest SAM/ObAM patch.

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.

Start Task

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

1. Verify that you have enough physical memory available:
 - a. Log on as root.
 - b. Run SAM:
/usr/sbin/sam
 - c. Select **Performance Monitors->System Properties->Memory**, 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. Select: **Actions -> 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 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 HP-UX 10.0, 10.01 or 10.10 that use these calls will not run correctly on HP-UX 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 HP-UX 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 Workgroups* manual in the “Using Network Information Service Plus” section on “Managing System Security: Step 1”.

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 HP-UX 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 discourages its use.

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 HP-UX 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.

Hardware and Firmware Requirements

Please check your disk firmware version before updating your system.

HP D6804A USB Hub Not Supported on HP-UX 11.0 ACE 9911

The HP-UX 11.0 ACE 9911 release does not support the HP D6804A Universal Serial Bus (USB) Hub. HP-UX 11.0 support for this device will be released at a later date. Please contact your HP Sales Representative if you have questions about support of this device on HP-UX 11.0.

Problems with Configuring LAN Cards

Configure PCI LAN After installing an add-on PCI LAN card, such as HP B5509BA, you may see this error message when attempting to configure the card with SAM:

ERROR: Invalid duplex value for interface

Although the configuration is successful, you will continue to see this incorrect error each time you try to configure the card.

After you see the above message, press **Cancel**. The next SAM menu will show that the card is as configured correctly and up.

This problem will be fixed in a future HP-UX 11.0 Support Plus release.

Remove VME Before Updating a Workstation from 10.20 to 11.0

Update Situation Workstations can fail to update from HP-UX 10.20 to HP-UX 11.0 due to a mk_kernel failure during swinstall. To prevent this from happening:

Start Task

1. If the driver is installed, remove it with sam. When SAM asks to reboot after the kernel is made, choose **Yes**.
2. Use swremove to remove VME Services before updating (that is, while still on HP-UX 10.20). To remove patch information, see "Removing Information About Prior Patches" on page 35.
3. Update to latest HP-UX 11.0.

To download the latest VME embedded system, do the following:

1. Go to the web: <http://www.hp.com/products1/vmesystems/index.html>
2. Select the appropriate model.
3. Select the Information Page menu.
4. Download the item.

To install the VME Services, go to the web:

http://www.hp.com/products1/vmesystems/support/vme_services_11.html

Graphics Driver Configuration May Be Needed

CAUTION

The graphics driver must be configured into the kernel of an HP-UX 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.

Start Task

Before you can use the new graphics hardware, you must configure the graphics **graph3** driver:

1. Use SAM to configure the graphics driver into the HP-UX kernel.
Select: **Kernel Configuration -> Drivers**

- If the graph3 driver's current state is **In**, the driver is already configured into your kernel.
- If the current state is **Out**, select the graph3 driver entry.

Select: **Actions -> 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 HP-UX 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 problem 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 HP Service Representative and for no-cost warranty service to enable the PCI I/O card(s).

Graphics and Memory Windows Incompatible

Until a fix is available, full graphics capabilities and enabled memory windows cannot exist on the same workstation 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`

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.

Start Task Reset GSP:

```
stty +resetGSP < /dev/GSPdiag1
```

Ignore the message `GSP reset failed` and wait for approximately 30 seconds, then verify the GSP status:

```
stty +queryGSP < /dev/GSPdiag1
```

64-bit OS Requirements

SCSI Message Logging Needs Patching

Your 64-bit OS may crash with messages such as:

```
panic in lbcopy_pcxu_method+0xc...
```

When a system is under high stress, device drivers can generate error messages like this during error recovery. These panic messages only occur when other SCSI errors are detected. You can review these errors in: */var/adm/syslog.d/syslog*

To avoid this problem, install patch PHKL_24004, in the March HWE, after installing or updating to HP-UX 11.0. This problem will also be fixed in a future HP-UX 11.0 Support Plus release. You can also download individual patches from the HP IT Resource Center web:

<http://itrc.hp.com>

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 HP-UX 10.20 system, remove it before updating to HP-UX 11.0 ACE 9911 or later:

Start Task

1. Determine whether HP Domain/Netscape Suitespot Pro is installed:
`/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 HP-UX 11.0 as explained in Chapter 3.
4. Install the HP-UX 11.0 HP Domain/Netscape Suitespot Pro from the June 1999 HP-UX Application CD.

This product has not been available since 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 HP-UX 10.20 system, remove it before updating to HP-UX 11.0:

Start Task

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 HP-UX 11.0 as explained in Chapter 3.
4. Install the HP-UX 11.0 HP Web Quality of Service from an 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 HP-UX 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

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.

Start Task

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.

Start Task

Install patch PHSS_25171 (or later) for HP ANSI C or PHSS_18330 (or later) for FORTRAN90 from HP. You can get these patches from the web:

<http://itrc.hp.com>

Alternatively, run compiles with the `" +DA2.0"` option to the compiler.

General Requirements

Patch Interaction Can Cause 3D Graphics Software Install Errors

When installing HP-UX 11.0 and 3D Graphics from a single "cold-install" depot, an interaction between patches for the Core OS and the 3D graphics will cause *swverify* errors in the *swverify.log* and *swagent.log* files. For example:

```
ERROR: File
"/opt/graphics/common/doc/GAG/Web/tables/5/xmodmapExpr.
html" missing.
```

```
ERROR: Fileset
"GraphicsSBaseDK.STAR-WEBDOC, l=/opt/graphics/starbase,
r=B.11.00.02" had file errors.
```

These errors are followed by a summary fullest error for GraphicsSBaseDK.STAR-WEBDOC.

To remove these error messages and ensure complete 3D installation, you should re-install 3D graphics after the initial cold install and boot process. For example, to re-install the 3D Graphics bundle (B2268AA) from the Core OS CD, use the command:

```
swinstall -s /cdrom/extra.depot -x reinstall=true \
-x reinstall_files=true B6268AA
```

The Core OS Options CD has been included in HP-UX 11.0 media kits for workstations since January 2000.

Patch May be Needed to Run SD

Update Requirement

If you wish to use *swinstall*'s Graphical User Interface (GUI) mode (that is, using a mouse for pointing and clicking) to update from HP-UX 10.01 to HP-UX 11.0, you need to install patch PHSS_18011 or later to update successfully. Buttons on *swinstall*'s Graphical User Interface (GUI) screens will be labeled incorrectly if the original version of */usr/lib/X11R5/libX11.1* is present. Graphical problems do not occur if you are updating from HP-UX 10.10 or later, or if you are using *swinstall*'s Terminal Interface.

Start Task

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'd GUI on a HP-UX 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 HP-UX 11.0.

Multiple LAN Cards Cause CDE Login Failure

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.

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.
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 HP-UX 10.01, 10.10, or 10.20, 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 HP-UX 11.0, when CDE desktop starts up the login daemon, it uses the `nobody` account. Typically on HP-UX 10.01 and HP-UX 10.10

General Requirements

systems, nobody has a GID greater than 59999 and remains unchanged when you update to HP-UX 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.

Start Task

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

- If you are updating from HP-UX 10.01 or 10.10, because the conversion can only be done *after* updating to HP-UX 11.0. (The conversion tool, *vxupgrade*, is a JFS Version 3 command.)
- If you are updating from HP-UX 10.20, you can do the conversion before updating to HP-UX 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/rlvol8vxfs 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 HP-UX 10.x system (that is, before updating to HP-UX 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::/:
```

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 HP-UX 10.01 or 10.10. A JFS version 3 file system can *only* be mounted on a system with release HP-UX HP-UX 10.20 or later.

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

```
/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 appmanager's **Uninstall HP-VUE** action in the **System_Admin** folder 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 `vue_swremove` as follows after updating.

- 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 r 10.20:

```
/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`

This item affects you if you are updating a HP-UX 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 HP-UX 11.0. Once your system comes up on HP-UX 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.

HP-UX 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 HP-UX 10.20 workstation and if PHKL_18506 or any superseding patch has not been installed.

CAUTION

Remove this patch *before* updating to HP-UX 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. Applications like `ld64` use `mmap` interface to read data from a file.

Start Task

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 or a superceding patch from the HP IT Resource Center web:

<http://itrc.hp.com>

Run-Time Software License Server Change

Update Requirement

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

The `i4lmd` daemon will not automatically start after you update to HP-UX 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 HP-UX 11.0.

Take the actions described below if your current system is pre-HP-UX 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`.

Start Task

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 HP-UX 11.0.
3. After the update completes and the system boots on HP-UX 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.

System Panic Caused by Streampipes

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.

Updating between 32-bit and 64-bit OS

NOTE

The 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.

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

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 patch for `/etc/.supported_bits` from the HP-UX 11.0

Install/Update/Recovery CD mounted at `/cdrom`, enter:

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

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

2. Query `/etc/.supported_bits` 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 HP-UX 11.0 or between the 32-bit and 64-bit versions of HP-UX 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.

Use the Software Transition Kit (STK)

Before updating to a 64-bit operating system, we strongly recommend that you use the Software Transition Kit (STK) available on this web:

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

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

IMPORTANT

You may have to remove some 32-bit applications, such as OnLine JFS, before converting to 64-bit OS to allow the 64-bit kernel to build correctly. Then re-install needed applications after converting the OS to 64-bit. The newest versions of HP-UX applications are on the HP-UX Applications CDs included in the HP-UX 11.0 media box.

Updating between 32-bit and 64-bit OS

Start Task

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. See the Supported Systems table in Chapter 1.
2. If you plan to transition between 32-bit and 64-bit (in either direction), you need to update the SD toolset. Before going any further, perform the procedure on “Updating the SD Toolset (swgettools)” on page 58.
3. Use SAM to determine if a driver from the next table is configured into the kernel. These drivers are supplied on the HP-UX 11.0 Install/Update/Recovery CD:

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

Table B-1

Device Drivers Required for 32/64-bit Conversion

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, osi1	OST/9000 S800
J2793B	syncio, nioxb, eisaxb, x25hal, sxb, wan, lapb, x25plp, x25sentry, x25idmap, plp2llc2, 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 Drivers” on page 87.

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 HP-UX 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
```
2. If you have not 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 or its replacement:

```
/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 or its replacement. 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 HP-UX 11.0 Install/Update/Recovery 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 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 by selecting **Actions -> 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 11.0 Install/Update/Recovery 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 **Resume Install** 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 85.

Convert between 32-bit and 64-bit OS without Additional Drivers

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.

Start Task

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 “Updating to 64-Bit Operation on New Systems” on page 61.

3. If you have not already done so, install SD Cumulative patch PHCO_18183 or its replacement. 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 SD-UX interactively:

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

To select 32-bit, replace 64 with 32.

CAUTION

Never use the `-x allow_incompatible=true` option when updating to HP-UX 11.0 or between the 32-bit and 64-bit versions of HP-UX 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 re-install options must be set in the **Options** menu:

1. Select: **Options -> Change Options**. In the window provided, select both of these 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. Use the right mouse button to select **Mark for Install**.
3. Select: **Actions -> Install (Analysis)**

From the Analysis and Execution dialog boxes, *do not press* the **Logfile** button in the terminal interface; closing the window on HP-UX 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 the 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`.

Web Resources

- Latest versions of HP-UX 11.0 manuals and white papers:
<http://docs.hp.com/hpux/os/11.0>
- Latest HP-UX 11.0/11i information:
<http://unix.hp.com/operating>
<http://devresource.hp.com/STK/hpuxoverview.html>
<http://forums.itrc.hp.com/cm/FamilyHome/1,1148,117,00.html>
- Ignite-UX information and download:
<http://software.hp.com/products/IUX>
- HP-UX 11.0 Software Transition Kit:
<http://devresource.hp.com/STK>
- Downloading HP-UX patches and patch information from the HP IT Resource Center web:
<http://itrc.hp.com>
Select the **maintenance and support** page, then select the appropriate **patching** tools. To receive HP Security Bulletins, select **maintenance and support** -> **support information digests**.
- Administering HP-UX systems:
<http://forums.itrc.hp.com/cm/FamilyHome/1,1148,117,00.html>
- European information:
<http://www.hp.com/euro>
- Software Distributor:
<http://www.hp.com/go/sd>
- LicensePower/iFOR from core HP-UX:
<http://www.isogon.com/LPowerifor/suppdwn.htm>
- HP-UX Support Plus:
http://software.hp.com/SUPPORT_PLUS

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