Installing and Updating HP-UX

HP 9000 Series 300/400

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Where to Begin

This manual explains how to install and update on Hewlett-Packard Series 300/400 computer systems. Table 1-1 gets you started.

Table 1-1. Where to Begin

If you are unfamiliar with the install/update process:	Read chapter 2 (Concepts), to understand the steps you'll be performing.
If you're ready to begin installing HP-UX:	Go to chapter 4 (Installing HP-UX) for the step-by-step procedure.
If you're ready to update your system to the current version of HP-UX:	Go to chapter 5 (Updating HP-UX).
If you want to set up a network server to distribute update software:	Go to Chapter 6 "Setting Up a Network Server for Updating".
If you want reference information on the available filesets in HP-UX Release 8.0:	See Chapter 3 "Planning What Software to Load on Your System".
If you need in-depth information on system parameters, device drivers, etc.:	See the HP 9000 Series 300/400 *System Administration Tasks Manual*, HP part number B1862-90008 and the HP 9000 Series 300/400 *Installing Peripherals*, HP part number B1862-90007.

2

Concepts

Overview

This chapter explains the concepts behind installing and updating HP-UX on Hewlett-Packard Series 300/400 computers. Understanding these concepts will help you if you run into problems during install/update or if you want to learn more about your system. Reading this chapter, however, is not required to install or update HP-UX.

HP-UX During Normal Operation

The HP-UX operating system is composed of modules, each with a distinct function.

The central module of HP-UX is the **kernel**. The HP-UX kernel handles housekeeping chores for the system, such as, for example, managing input/output, the file system, and memory. As Figure 2-1 shows, the kernel isolates users and the application programs from the complexities of the hardware.
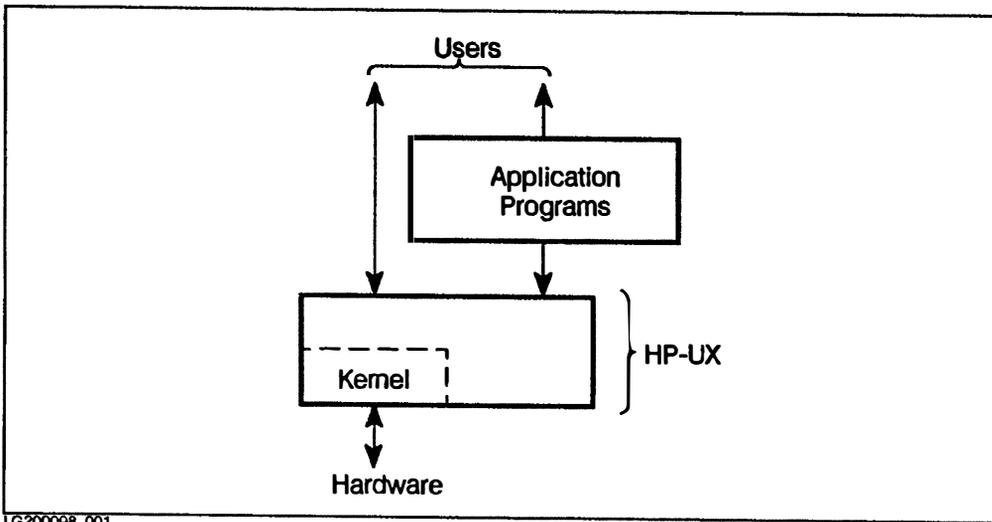
Figure 2-1. The HP-UX Kernel Isolates the User From the Hardware

During normal operation, the HP-UX kernel resides in main memory (RAM) in the computer system's SPU (System Processing Unit). However if power for the memory cards is lost, then the HP-UX kernel in main memory is also lost. This happens, for example, when the system is powered down, or if there is a power failure and the system does not have a battery back-up unit (BBU). To bring the HP-UX kernel back into memory, you must boot from the system disk.

Booting From Disk

Although the HP-UX kernel may be lost from main memory, it still exists on the system disk drive (Figure 2-2). The **system disk drive** contains all the files for HP-UX, including the files needed for the kernel.

Computer
SPU

The kernel is loaded
into the main memory.

System Disk
Drive

LG200098_004e
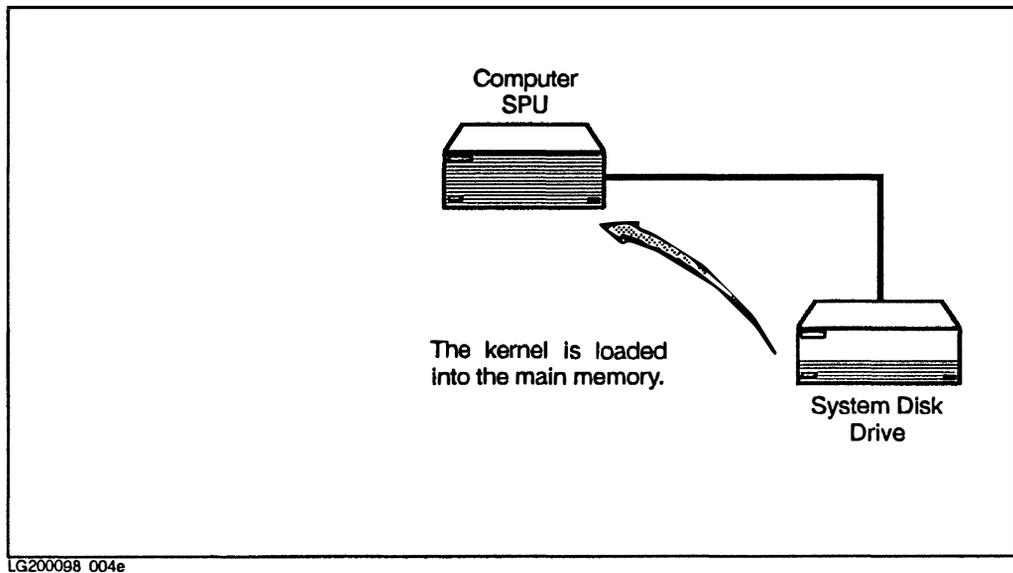
Figure 2-2.
Booting From Disk: The Kernel Is Loaded into Memory From the System Disk

To load the HP-UX kernel back into memory, the computer system **boots from disk**: the system goes to the system disk, loads the necessary files into memory, then starts HP-UX running again. Normal operation of the system can then continue. The system normally boots from disk whenever the system is powered back on or is reset.

Installing HP-UX

When a Series 300/400 computer system is initially installed, the system disk
is blank and the system cannot boot. Therefore the first item of business after
the system hardware is installed is to install HP-UX (Figure 2-3). **Installing
HP-UX** means copying the HP-UX files from the installation media (tapes or
CD-ROM discs) onto the system disk.

Note	Some systems may be shipped from Hewlett-Packard with the HP-UX operating system pre-installed and pre-configured. If you have received such a system, then you don't need to perform an installation.

LG200098_004d
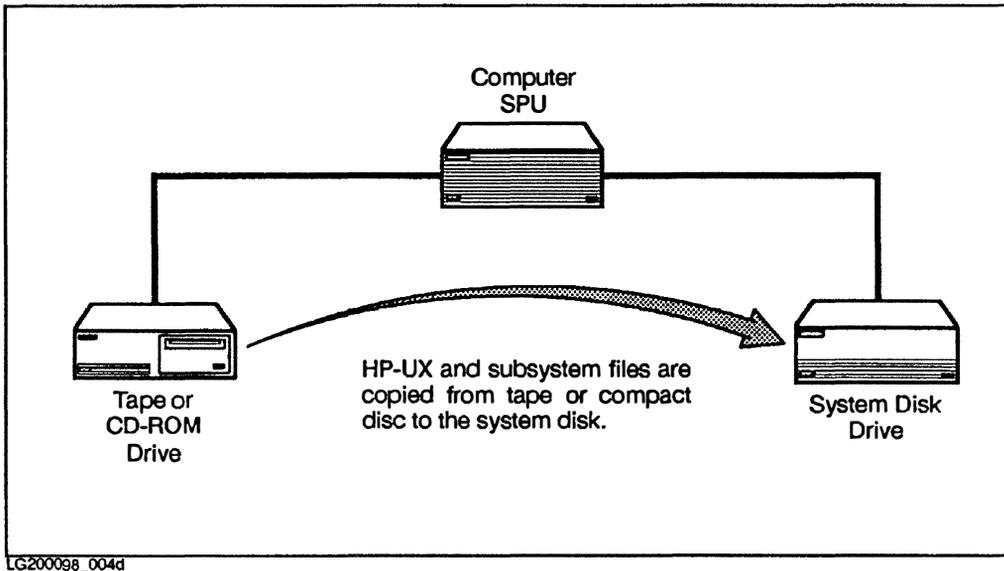
Figure 2-3.
Installing HP-UX: Copying Files From Tape or CD-ROM to the System Disk

To install HP-UX, you need installation media and update media; these
media can be cartridge tape or CD-ROM discs supplied by Hewlett-Packard.

After mounting the media labelled "INSTALL" on the drive, enter a series of commands at the system console. The program tells you when to change tapes or CD-ROM discs and asks for the information it needs to configure HP-UX for your particular system.

The time required to complete an installation depends on the amount of software you load on the system. Typically an installation takes from one hour to several hours. Installing from CD-ROM is faster than installing from cartridge tape.

When installation is complete, the system automatically boots.

After installing HP-UX, you can proceed to other system administration tasks required for setting up a system (for example, creating a password for the superuser and adding users).

Updating HP-UX

Periodically, Hewlett-Packard releases a new version of the operating system, such as HP-UX 7.0, HP-UX 7.02, and HP-UX 8.0. New versions of HP-UX may support new peripherals or have additional features. The **update** process replaces the outdated portions of HP-UX with current versions (Figure 2-4).

LG200098_004c
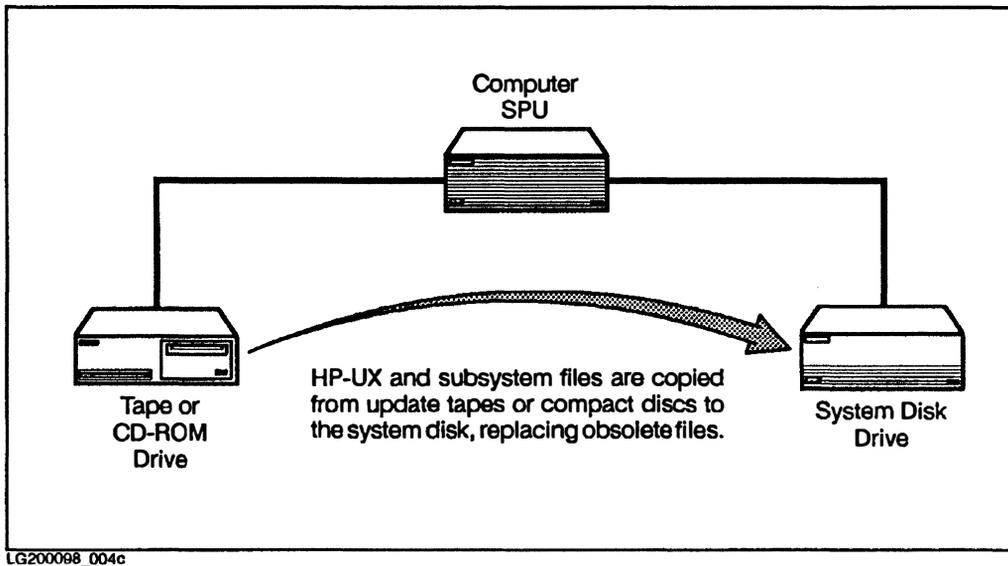
Figure 2-4.
Updating HP-UX: Copying Newest Version of Files From Tape or CD-ROM to the System Disk

To perform an update, you use the update tape or CD-ROM disc labelled "UPDATE " supplied by Hewlett-Packard. You mount the tape on a tape drive, or CD-ROM disc on a CD-ROM drive, run the update program, and follow the instructions given by the program.

If you are installing from CD-ROM, you'll need to enter a codeword supplied by Hewlett-Packard. This codeword allows you to extract your purchased software from the CD-ROM disc.

The procedure is almost exactly the same as the second half of the installation procedure.

The Update Program

Note	The term "update" means two different things. First, it can refer to the update process, whereby the HP-UX operating system is updated to a more current version. Secondly, it can refer to the update program which is the program that transfers files. The update program is used both in the install process and in the update process.

The update program (which is also the second part of the install process) is a menu-driven program which transfers files (HP-UX and subsystem files) from tape or CD-ROM to the system disk.

In the first part of the update program, you choose the subsystems to be copied to the system disk.

The program then estimates the disk space required. If there is enough space on the system disk, you can proceed. If there is not enough space, the program displays a warning message, indicating the need to free disk space or change the selection. (Instructions for freeing disk space are given in Chapter 5.)

After the update program determines that you have enough disk space, it loads the software you have selected and customizes various files.

The update program then generates the kernel, boots the new customized version of HP-UX, and installation is complete.

Modifying HP-UX

As you saw in Figure 2-1, the kernel is the module of HP-UX that deals directly with the hardware. Therefore, if the hardware changes, the kernel may have to change.

For example, if you add a peripheral that requires a driver not already configured into the kernel, you'll need to change the kernel. (The term **peripheral** refers to hardware such as disk drives, tape drives and printers, and also to the cards to which they are attached.)

You may also want to remove a driver from your kernel if your system no longer uses any peripherals of that type. (This is not an absolute requirement, but it's desirable, since a smaller kernel is more efficient.)

Another reason to modify HP-UX is to change system parameters. Kernel parameters are set to default values when you first install your system. These values are correct for most systems, but under some circumstances you may decide to change one or more parameters—to accommodate a specialized application, for example, or an exceptionally large number of users.

Note	The I/O configurations and system parameters supplied by Hewlett-Packard are appropriate for most Series 300/400 customers. You will probably not have to modify HP-UX.

If you do need to modify HP-UX there are two methods:

- Using the menus in the SAM (System Administration Manager) utility.
- Using the direct method of entering commands and editing files.

The simpler way is to use the menus in the SAM utility.

On the other hand, you have greater control and flexibility with the direct method. Briefly, the direct method requires making changes to the configuration file **/etc/conf/dfile**, generating new device files, and generating the kernel with the **/etc/config** program. See Chapter 11: "Reconfiguring the HP-UX Kernel" of the *System Administration Tasks Manual*, HP part number B1862-90008 for detailed instructions.

3

Planning What Software to Load on Your System

Use this chapter as a reference if you want more information on 8.0 software functionality; you do NOT need to read this chapter to complete an install or update.

Selectively Loading Software

If you are concerned about conserving disk space for user files or additional applications, you can choose not to load all of the HP-UX operating system software available on your install and update media.

HP-UX software has been structured to make it easy for you to load software selectively. The software is organized into filesets and partitions. Files are logically grouped into filesets; filesets are logically grouped into partitions.

The update program manages dependencies between filesets for you. When during update you select a fileset that represents functionality you want, update ensures that the other filesets needed to support that fileset are either already present on your system, or will be loaded at the same time. As a result, you can select for loading just the filesets that represent the functionality you want.

If the supporting filesets are already current on the system, update will not force you to load them again.

For example, if you want system accounting functionality, load the ACCOUNTNG fileset; if not, don't load the fileset.

During the install/update process, the update program will display a software list that accurately reflects what software is available to you (depending on what you've purchased). The update procedure covered in Chapter 5 explains

how to choose individual filesets or partitions you want to load. After you've selected the filesets, the **update** program calculates whether there is enough space on your system for the filesets you've selected, and will caution you before loading if there's a problem.

Note	You can also remove unwanted filesets or partitions after you finish installing or updating using the **rmfn** (remove functionality) tool.
	See "Removing Unwanted Software Using rmfn" in Chapter 4 and *rmfn*(1) in the *HP-UX Reference Manual*

Partition and Fileset Descriptions

The following tables list the partitions and filesets included in 8.0 HP-UX along with fileset descriptions and recommendations on when to load particular filesets. Use these tables as a reference if you need more information about filesets during update.

Note	You may not see the entire list of filesets and partitions shown here when you are installing or updating, or you may see some additional filesets, depending upon the software you purchased.

Partition	Description
DIAGNOSTICS	Diagnostic products - You may want to pick and choose from the filesets in this partition.
GRAPHICS	Graphics products
NETWORKING	Networking products
NLS	Support for local languages
NLIO	Native Lanuage I/0
OS-ADMIN	System Administration commands and SAM utility
OS-CORE	Core filesets essential to system operation
OS-FEATURES	Selectable operating system features - You may want to pick and choose from the filesets in this partition.
PROG-LANGUAGES	Programming tools
REFERENCE-DOC	Reference documentation (manual pages)
SHARED-LIBS	Shared Libraries
WINDOWS	Windowing products

Table 3-1. DIAGNOSTICS Partition - Fileset Descriptions

Fileset Name	Products	Fileset Description	When to Load
CE-UTIL	Runtime	Customer Engineer Utility	If a customer engineer needs to test and diagnose various peripherals and add-on products, including tests for optical storage, VME, CS80, CRTs, EISA, SCSI, and system functionality. This fileset is typically used by customer engineers only.
GRAPH-SRX-DIAG	Runtime	98730A/98720A Diagnostics	If your system has a 98720A or 98730A graphics subsystem,
GRAPH-VRX-DIAG	Runtime	98705A/98735A Diagnostics	If your system has a G98705A(B,C) or G98735 graphics subsystem.

Table 3-2. GRAPHICS Partition - Fileset Descriptions

Fileset Name	Products	Fileset Description	When to Load
FAFM-PRG	optional	FAFM Programming Environment	If you plan to write programs using the Fast Alpha Font Manager for Starbase.
FAFM-RUN	Runtime	FAFM Run-time Environment	If you have Starbase application programs that use the Fast Alpha Font manager.
FAFAM-SHLIBS	Runtime	Fast Alpha Font Manager shared libraries	If you plan to run or write programs using shared libraries and the Fast Alpha Font Manager for Starbase.
HPGKS	optional	GKS for HP-UX	If you plan to run or write programs using GKS graphics.
HPGKS-SHLIBS	optional	HPGKS shared libraries	If you plan to run or write programs using shared libraries and GKS graphics.
SBDL-DEMO	optional	Starbase Display List Demo Programs	If you want Starbase Display List programming examples.
SBDL-PRG	optional	Starbase Display List Programming Environment	If you want to write programs using Starbase Display List.
SBDL-SHLIBS	Runtime	Starbase Display List shared libraries	If you plan to run or write programs using shared libraries and Starbase Display List.
STAR-DEMO	optional	Starbase Demo Programs	If you want Starbase programming examples.
STAR-PRG	optional	Starbase Programming Environment	If you plan to write Starbase graphics programs.
STAR-RUN	optional	Starbase Run-time Environment	If you plan to run Starbase graphics programs.
STAR-SHLIBS	Runtime	Starbase shared libraries.	If you plan to run or write Starbase graphics programs that use shared libraries.

Table 3-3.
NATIVE LANGUAGE SUPPORT Partition - Fileset Descriptions

Fileset Name	Products	Fileset Description	When to Load
AMERICAN	Runtime	American Language	If applicable.
ARABIC	Runtime	Arabic Language	If applicable.
ARABICW	Runtime	Western Arabic Language	If applicable.
BULGARIAN	Runtime	Bulgarian Language	If applicable.
CFRENCH	Runtime	French Canadian Language	If applicable.
CHINESES	Runtime	Simplified Chinese Language	If applicable.
CHINESET	Runtime	Traditional Chinese Language	If applicable.
CZECH	Runtime	Czechoslovakian Language	If applicable.
DANISH	Runtime	Danish Language	If applicable.
DUTCH	Runtime	Dutch Language	If applicable.
ENGLISH	Runtime	English Language	If applicable.
FINNISH	Runtime	Finnish Language	If applicable.
FRENCH	Runtime	French Language	If applicable.
GERMAN	Runtime	German Language	If applicable.
GREEK	Runtime	Greek Language	If applicable.
HEBREW	Runtime	Hebrew Language	If applicable.
HUNGARIAN	Runtime	Hungarian Language	If applicable.
ICELANDIC	Runtime	Icelandic Language	If applicable.
ITALIAN	Runtime	Italian Language	If applicable.
JAPANESE	Runtime	Japanese Language	If applicable.
KATAKANA	Runtime	Japanese-Katakana Language	If applicable.
KOREAN	Runtime	Korean Language	If applicable.

Table 3-3.
NATIVE LANGUAGE SUPPORT Partition - Fileset Descriptions
(continued)

Fileset Name	Products	Fileset Description	When to Load
NLS-CORE	Runtime	NLS Core System Utilities	If applicable.
NORWEGIAN	Runtime	Norwegian Language	If applicable.
POLISH	Runtime	Polish Language	If applicable.
PORTUGUES	Runtime	Portuguese Language	If applicable.
RUMANIAN	Runtime	Rumanian Language	If applicable.
RUSSIAN	Runtime	Russian Language	If applicable.
SERBO-CROATIAN	Runtime	Serbocroation Language	If applicable.
SLOVENE	Runtime	Slovene Language	If applicable.
SPANISH	Runtime	Spanish Language	If applicable.
SWEDISH	Runtime	Swedish Language	If applicable.
TURKISH	Runtime	Turkish Language	If applicable.

Table 3-4. NETWORKING Partition - Fileset Descriptions

Fileset Name	Products	Fileset Description	When to Load
APPLTALK	Runtime	AppleTalk protocol kernel library.	If you want to run Mt. Xinu's Appletalk.
ARPA-INC	Runtime	Include files containing structures and definitions for ARPA/Berkeley protocols.	If you plan to develop programs using the ARPA/Berkeley protocols.
ARPA-RUN	Runtime	ARPA/Berkeley networking services, providing remote login, file transfer, electronic mail, and Domain-name system (DNS) capability.	If you want your system on a network for file transfers, remote logins, and/or electronic mail.
BSDIPC-SOCKET	Runtime	Unix Domain and Berkeley IPC header files, kernel libraries and commands, and related man-pages.	If you need Socket IPC, Unix Domain Sockets, or NetIPC.
LAN	Runtime	Kernel Support: DUX, LLA, etc. This fileset requires a Series 300 DIO LANIC card (98171A).	If you want to use the LAN/9000 product, ARPA services, Berkeley services, NFS, HP Network services, DUX (HP cluster product), LAN LLA (LAN Link Level Access) and Appletalk interface over a Local Area Network.
NCSNCK-RUN	Runtime	CS Networking Computer Kernel	If you want to run the NCS or NetLS products. (For more information on NetLS, see the discussion at the end of this chapter.)
NET	Runtime	Networking support routines, SLIP driver, and related man-pages.	If you want to run networking.
NETINET	Runtime	Support for Internet commands and protocols (TCP, UDP, IP, SLIP), header files, demos, kernel libraries and related man pages.	If you want to use TCP, UDP, IP, and SLIP proctocols.

Table 3-4.
NETWORKING Partition - Fileset Descriptions (continued)

Fileset Name	Products	Fileset Description	When to Load
NETIPC	Runtime	NetIPC header files, command and kernel libraries, demos, and related man-pages.	If you want to use NetIPC.
NETTRACELOG	Runtime	Network tracing and logging commands, library, and related man-pages.	If you want to run networking.
NFS-INC	Runtime	NFS Header Files	If you want to run NFS
NFS-RUN	Runtime	NFS Executables and Libraries	If you want to run NFS.
NS-SERV	optional	Network Services (NFT)	If you want to run Network Services or DSCOPY.
SRM	optional	Shared Resource Manager Access Utilities	Only for SE distribution tapes.
VT3K	optional	Virtual Terminal to the HP 3000	If you want to make a virtual terminal connection to the HP 3000. VT3K also contains NSSERV and NFT.
X25-COM	optional	X.25 user commands for starting up the X.25 network and header files. Requires pdn PSI card.	If you want to run the X.25 networking.
X25-IP	optional	X.25/IP Kernel Library. Requires pdn PSI card.	If you want to run X.25 networking.
X25-PA	optional	X.25 Programmatic Access Library (that is, PAD Emulation, X29server, X29uucpd, X29printed, etc.), and the x25pa kernel library. Requires pdn PSI card.	If you want to run X.25 networking.
XNS	optional	XNS header files, kernel library, and related man pages.	If you want to run XNS.

Table 3-5.
NL (NATIVE LANGUAGE) I/0 Partition - Fileset Descriptions

Fileset Name	Products	Fileset Description	When to Load
HLVTC-JPN	optional	Japanese Helvetica-like Font	If applicable.
KFA-FM	optional	Kanji Font for FAFM Library	If applicable.
NLIO-CHS	optional	Simplified Chinese NLIO	If applicable.
NLIO-CHT	optional	Traditional Chinese NLIO	If applicable.
NLIO-JPN	optional	Japanese NLIO	If applicable.
NLIO-KOR	optional	Korean NLIO	If applicable.
NLIO-MIN	optional	NLIO Core	If applicable.
NLX11-CHS	optional	Simplified Chinese X11 NLIO	If applicable.
NLX11-CHT	optional	Traditional Chinese X11 NLIO	If applicable.
NLX11-JPN	optional	Japanese X11 NLIO	If applicable.
NLX11-KOR	optional	Korean X11 NLIO	If applicable.
NLX11-SUB	optional	Alternative Font File for X11	If applicable.
ROMAN-JPN	optional	Japanese Roman-like Font	If applicable.
ROMAN-KOR	optional	Korean Roman-like Font	If applicable.
SMPLX-CHT	optional	Simplex Chinese-t Font	If applicable.
SMPLX-JPN	optional	Simplex Japanese Font	If applicable.
SMPLX-KOR	optional	Simplex Korean Font	If applicable.
STICK-CHS	optional	Simplified Chinese Stick Font	If applicable.
STICK-CHT	optional	Traditional Chinese Stick Font	If applicable.
STICK-JPN	optional	Japanese Stick Font	If applicable.
STICK-KOR	optional	Korean Stick Font	If applicable.

Table 3-6. OS-ADMIN Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
LSSERVER-ADMIN	Runtime	LSSERVER administrative tools	If you want to run NetLS (Network License System). Load this fileset only on systems from which you will be administering NetLS. See the section "Installing NetLS (Network License System) Filesets" at the end of this chapter for more information.
SAM	Runtime	Menu-driven system administration utility.	Recommended for all systems. Makes many system administration tasks easier. Only experts should consider not loading.
SYS-ADMIN	Runtime	Commands needed to perform system administration tasks.	Recommended for all systems.
SYS-VERIFY	Runtime	Utility to verify system I/O configuration	Recommended on all systems.

Table 3-7. OS-CORE Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
02-USER	2-user Runtime	2-user license for running software.	If applicable.
CMDS-MIN	Runtime	Minimum HP-UX Commands	On all systems
CORE-DIAG	Runtime	Minimum diagnostic core, including system, memory, and mux diagnostics.	On all systems.
KERN-BLD	Runtime	Minimum tools and libraries needed to build a HP-UX kernel without optional subsystems.	On all systems.
MULTI-USER	32-user Runtime	Multiple-user license for running software.	If applicable.
TOOL	Runtime	Tools for updating and removing software.	On all systems.
UX-CORE	Runtime	Core HP-UX	On all systems.

Table 3-8. OS-FEATURES Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
ACCOUNTNG	Runtime	System Accounting	If you want to run system accounting.
AUDIT	Runtime	HP Security Monitoring Utility	If you want to track individual user activities.
BIF-CMDS	Runtime	Bell Interchange Format Utilities	If applicable.
CMDS-AUX	Runtime	Auxiliary HP-UX Commands	Recommended On all systems.
DISKLESS	Runtime	Support for diskless clusters: server/client information, administration commands, and kernel libraries.	If you want to run an HP-UX cluster.
DISKLESS-BLD	Runtime	HP-UX Cluster diskless kernels	If you want to run an HP-UX cluster.
DOS-UTILS	Runtime	MS-DOS File Utilities	If applicable.
DQUOTA	Runtime	Disk Quota Commands	If you want to limit the disk space an individual user can use.
DRIVERS	Runtime	Driver examples for programmers	If you want to write drivers.
ECC-TOOLS	Runtime	Error Correcting Code Tools	If your system has ECC memory. If you're in doubt, load the fileset.
EDITORS	Runtime	Text Editors: vi and ex	On all systems.
FPA	Runtime	Floating Point Card Support	If your system has a floating point card. If you're not sure, load the fileset.
IGNITION	Runtime	Support for HP VUE environment	If you want to run the HP Visual User Environment (VUE).

Table 3-8.
OS-FEATURES Partition - Fileset Descriptions (continued)

Fileset Name	Product	Fileset Description	When to Load
KEYSHELL-RUN	Runtime	Context-sensitive softkey shell: provides hierarchical softkey menus and context-sensitive help to aid in building command lines.	Recommended on all systems.
LP-SPOOL	Runtime	Printer Management Utilities	If you want to manage printing jobs.
LSSERVER-RUN	Runtime	LSSERVER Node executables	If you want to run NetLS (Network License System). Load only on systems selected to manage licenses on a network. See "Installing NetLS (Network License System) Filesets" at the end of this chapter.
MAILERS	Runtime	System Mail Utilities	If you want to use system mail.
NONHPTERM	Runtime	Terminfo Data, Non-HP Terminals	If you want to use non-HP terminals.
PAM	Runtime	Personal Application Manager	If you want to run the Personal Application Manager.
SDF-CMDS	Runtime	Series 500 SDF Filesystem Tool	If you want to use Series 500 SDF Filesystem tools.
SPELL	Runtime	Spelling Checker	If applicable.
SYSCOM	Runtime	Sys Communications: kermit,cu,and vt	If you want to use kermit, cu, or vt.
TERM-MNGR-MIN	optional	Terminal Session Manager (TSM)	If you want to use multi-sessioning (windows) on HP ascii terminals.
TERM-MNGR-NHP	optional	Terminal Session Manager, Non-HP	If you want to use multi-sessioning (windows) on Non-HP ascii terminals.
TEXT-FMT	Runtime	Text Formatters: nroff, tbl, and neqn	If you want to do text formatting.
UUCP	Runtime	UNIX-to-UNIX COPY Utilities	If you want to use UUCP.

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Table 3-9. PROG-LANGUAGES Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
C	optional	C Compiler	If you want to do C program development.
C-INC	Runtime	C Programming Header Files	If you want a programming environment.
C-MIN	Runtime	Restricted C compiler commands	On all systems.
C-TOOLS	optional	C programming tools, including lint, cxref, lex, and yacc	If you want to do C program development.
DEBUGGERS	optional	Symbolic debuggers: cdb, pdb, fdb, and xdb.	If you want to debug C, PASCAL, or FORTRAN programs.
FORTRAN-PRG	optional	FORTRAN Compiler.	If you want to do FORTRAN program development.
PASCAL-PRG	optional	Pascal programming environment: includes compiler, libraries, and compiler message catalogue.	If you want to program in Pascal.
PASCAL-RUN	optional	Pascal run-time error message catalogs.	If you want to run Pascal programs.
PROG-AUX	optional	Auxiliary Programming Tools	If you want a programming environment.
PROG-MIN	optional	Minimum Set of Programming Tools	If you want a programming environment.
SRC-CNTL	optional	Source Code Control Utilities	If you want to control source code or documents.

Table 3-10. REFERENCE-DOC Partition - Fileset Description

Fileset Name	Products	Fileset Description	When to Load
ACCOUNTNG-MAN	Runtime	System Accounting Man-pages	If applicable.
ADA-MAN	optional	Ada Compiler Man-pages	If applicable.
ALLBASE-MAN	optional	Allbase Man-pages	If applicable.
ARPA-MAN	Runtime	Arpa/Berkeley Services Man-pages	If applicable.
AUDIT-MAN	Runtime	Auditing Man-pages	If applicable.
BIF-CMDS-MAN	optional	BIF Utilities Man-pages	If applicable.
C-MAN	Runtime	C Programming Man-pages	If applicable.
CMDS-AUX-MAN	Runtime	Auxilliary HP-UX Commands Man-pages	If applicable.
CMDS-MIN-MAN	Runtime	Minimum HP-UX Commands Man-pages	If applicable.
DEBUGGERS-MAN	optional	Symbolic Debuggers Man-pages	If applicable.
DISKLESS-MAN	Runtime	Diskless Clusters Man-pages	If applicable.
DOS-UTILS-MAN	Runtime	MS-DOS Man-pages	If applicable.
DQUOTA-MAN	Runtime	Disk Quotas Man-pages	If applicable.
ECC-TOOLS-MAN	optional	Error Correcting Code Man-pages	If applicable.
EDITORS-MAN	Runtime	Text Editors Man-pages	If applicable.
FAFM-MAN	optional	FAFM Man-pages	If applicable.
FORTRAN-MAN	optional	FORTRAN Man-pages	If applicable.
HPIMAGE-MAN	optional	HP IMAGE DBMS Man-pages	If applicable.

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Table 3-10.
REFERENCE-DOC Partition - Fileset Description (continued)

Fileset Name	Products	Fileset Description	When to Load
KERN-BLD-MAN	Runtime	Kernel Build Man-pages	If applicable.
KEYSHELL-MAN	Runtime	Keyshell Man-pages	If applicable.
LISP-MAN	optional	Lisp Programming Man-pages	If applicable.
LAN-MAN	Runtime	LAN Man-pages	If applicable.
LP-SPOOL-MAN	Runtime	Printer Management Man-pages	If applicable.
LSSERVER-MAN	Runtime	NetLS Man-pages	If applicable.
MAILERS-MAN	Runtime	System Mail Utilities Man-pages	If applicable.
MIRROR-MAN	optional	Disk Mirroring Man-pages	If applicable.
NCSNCK-MAN	Runtime	CS Networking Computer Kernel Man-pages	If applicable.
NFS-MAN	Runtime	NFS Man-pages	If applicable.
NLIO-JPN-MAN	optional	Japanese NLIO support Man-pages	If applicable.
NLIO-MIN-MAN	optional	Native Language I/O Man-pages	If applicable.
NLS-CORE-MAN	Runtime	NLS Core System Man-pages	If applicable.
NS-MAN	optional	Network Services Man-pages	If applicable.
PAM-MAN	Runtime	Personal Applications Manager Man-pages	If applicable.
PASCAL-MAN	optional	Pascal Man-pages	If applicable.
PROG-AUX-MAN	optional	Aux Programming Tools Man-pages	If applicable.

Table 3-10.
REFERENCE-DOC Partition - Fileset Description (continued)

Fileset Name	Products	Fileset Description	When to Load
PROG-MIN-MAN	optional	Minimum Set of Programming Tools Man-pages	If applicable.
SAM-MAN	Runtime	SAM Utility Man-pages	If applicable.
SBDL-MAN	optional	Starbase Display List Man-pages	If applicable.
SDF-CMDS-MAN	Runtime	S500 SDF Tools Man-pages	If applicable.
SPELL-MAN	Runtime	Spelling Checker Man-pages	If applicable.
SRC-CNTL-MAN	optional	Source Control Man-pages	If applicable.
STAR-MAN	optional	Starbase Man-pages	If applicable.
SWITCHOVER-MAN	optional	Switchover Man-pages	If applicable.
SYS-ADMIN-MAN	Runtime	System Administration Man-pages	If applicable.
SYSCOM-MAN	Runtime	System Communication Man-pages	If applicable.
TERM-MNGR-MAN	Runtime	Terminal Manager Man-pages	If applicable.
TEXT-FMT-MAN	Runtime	Text Formatting Man-pages	If applicable.
TOOL-MAN	Runtime	Update Tool Man-pages	If applicable.
UUCP-MAN	Runtime	UNIX-to-UNIX Copy Man-pages	If applicable.
UX-CORE-MAN	Runtime	Core HP-UX Commands Man-pages	If applicable.
WIN-MAN	optional	Windows/9000 Man-pages	If applicable.
X11-PRG-MAN	optional	X11 Programming Env Man-pages	If applicable.
X11-RUN-MAN	Runtime	X11 Run-time Man-pages	If applicable.
X25-MAN	optional	X.25 Man-pages	If applicable.

Table 3-11. SHARED-LIBS Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
CORE-SHLIBS	Runtime	HP-UX Core Run-time Libraries	On all systems.
LANG-SHLIBS	Runtime	Fortran and Pascal shared libraries	If you want to run or write Fortran or Pascal programs that are compiled using shared libraries. (If you are unsure what languages your programs use or how they were compiled, then load this fileset to avoid possible problems.)
X11-SHLIBS	Runtime	X11 shared libraries	If you want to run or write X11 programs that are compiled using shared libraries. (If you are unsure what languages your programs use or how they were compiled, then load this fileset to avoid possible problems.)

Table 3-12. WINDOWS Partition - Fileset Descriptions

Fileset Name	Product	Fileset Description	When to Load
AGRM	Runtime	GRAPHICS Resource Daemon	This fileset is automatically selected when you select the X11-SERV fileset for loading. It is necessary for the X11 server.
BMS	Runtime	Broadcast Message Server used by the VUE portion of the X11 fileset. This fileset is also used by SoftBench tools.	This fileset is automatically selected for you when you select the X11-RUN fileset.
MKFONTDIR	Runtime	Font utility programs used by the X11 server (X11-SERV) and scalable font utilities. Executables are: mkfontdir, stlicense, stmkdirs. Man-pages for these utility programs are also included.	This fileset is automatically selected for you when you select the X11-SERV fileset for loading. It is also automatically selected when any of the X11-FONT[ABC] filesets are selected.
NJWSERV	optional	Kanji/Katakana Support in Windows/9000	If you want Kanji/Katakana Support in Windows/9000
WIN-DEMO	optional	Windows Demo Programs	If you want Windows/9000 programming examples.
WIN-PRG	optional	Windows Programming Environment	If you plan to write programs for Windows/90000
WIN-RUN	optional	Windows Run-time Environment	If you want to use the Windows/9000 windowing system.
X11-FONTA	Runtime	X11 Roman-8 Fonts (109 'scf' font files) and the scalable character sets (26 'sym' files) and typefaces (14 'ifo' files).	If want to access either the Roman-8 fonts or the scalable font engine.
X11-FONTB	Runtime	X11 ISO8859-1 (Latin1) Fonts - 201 fonts in 100 dot per inch format and the same 201 fonts in 75 dots per inch format for a total of 402 '.scf' files.	If want to use the X11 ISO8859-1 (Latin1) fonts.

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Table 3-12. WINDOWS Partition - Fileset Descriptions (continued)

Fileset Name	Product	Fileset Description	When to Load
X11-FONTC	Runtime	X11 Standard Fonts - 211 miscellaneous fonts in '.scf' format and 5 kana fonts in '.scf' format.	If want to use X11 standard fonts.
X11-PRG	optional	The X11-R4 and Motif 1.1 programing environment. This includes header files, archive libraries, lint libraries, sample programs and message catalogs.	If you want to write programs using X11-R4 and Motif 1.1 for use with X11 windowing systems.
X11-RUN	Runtime	This fileset inlcudes all of the MIT X11 clients as well as the HP VUE clients and special HP clients for X11. Included also are all the support files, bitmaps, message catalogs and user configurable system app-defaults and rc files.	If you want to use the HP VUE system and run-time clients which are supplied with the X11 R4 server.
X11-SERV	Runtime	The X11 R4 server and supporting files (a few fonts, system default files, executables to start the server, and three executables for use with the scalable font engine.	If you want to run the X11 R4 server on a bit-mapped display connected to your system.

Installing NetLS (Network License System) Filesets

The Network License System, NetLS, is the Hewlett-Packard standard software licensing tool.

You need three primary filesets to run NetLS licensed products: LSSERVER-ADMIN, LSSERVER-MAN, and LSSERVER-RUN. The LSSERVER-ADMIN fileset contains a number of tools that a system administrator will use to administer licenses. The LSSERVER-RUN fileset contains the license server, which is used to manage all licenses except nodelocked licenses. It also contains a tool to determine a given node's target id, for NetLS licensing purposes. Finally, the LSSERVER-MAN fileset contains manual entries for all of the LSSERVER components.

To run NetLs, you need to install these three LSSERVER filesets on only a small number of systems in a given network. There are three basic system types from the LSSERVER perspective. These are: client systems, server systems, and administrative systems.

Client systems have software installed that is licensed with NetLS 2.0. None of the LSSERVER filesets need be installed on client systems, as none of the LSSERVER fileset contents are needed to allow licensed software to execute on a client system.

Server systems are those systems that you have selected to run the NetLS server. The server is used to manage all licenses in a network, except for nodelocked licenses. When you obtain a license from a software vendor, you will need to supply the target ID of the server systems where the NetLS server will run. Licenses are locked to a specific server to prevent unauthorized duplication of licenses. Therefore, it is important that you carefully choose which systems will act as server systems. The LSSERVER-RUN fileset must be installed on every server system. The number of server systems required is dependent on many network specific factors, such as the number of users, the number of systems, the number of licenses, etc. It is recommended that at least two systems be selected as server nodes, so that some licenses remain available should one of the server nodes fail.

Lastly, **administrative systems** are those systems used by license administrators to administer the installation and use of licenses on the network. Typically, administrative systems are those where the system administrator logs on.

Therefore, the LSSERVER-ADMIN fileset needs to be installed on only those systems used by the system administrator.

One important point is that there is no limitation on the roles a given system may play. So, a single system could be a client system, server system, and administrative system, if that is appropriate for that network and system. More typically, client systems will be systems users are assigned to, server systems will be administered network server systems, and administrative systems will be the systems the system administrator is assigned to.

Finally, the LSSERVER-MAN fileset should be installed on only those nodes that need to be able to provide online man-pages for their users.

For More Information ...

Please see the *Managing Software Products with the Network License System* manual (Part Number D-11272-B), for more details on the use of the LSSERVER product, and license administration.

4

Installing HP-UX

Beginning the installation implies compliance with licensing requirements. You should have read the *HP Software Product License Agreement and Limited Warranty* and any other licensing requirements included with your system and software.

Before You Install . . .

- Obtain the install media (either tapes or CD-ROM discs) for release 8.0 of HP-UX.

- Have a properly configured and tested hardware system as follows:

Computer	Series 300, Models: 318, 319, 320, 330, 332, 340, 345, 350, 360, 370, 375, or 380.
	Series 400, Models: 400T, 400S, 400DL, 425S, 425T, 425E, or 433S.
Disk drive	At least one hard disk drive (for example, a C2213A disk) with:
	□ approximately 80 Mbytes minimum disk space.
	□ at least 130 Mbytes recommended for a workstation.
	□ at least 300 Mbytes recommended for a cluster server.
Tape or CD-ROM	A tape drive that reads an HP 16-track cartridge (for example, an HP 9144A) or an HP-supported CD-ROM drive (such as an HP 1707A).
RAM	At least 4 Mbytes; 8 Mbytes recommended. For a 300/400 cluster server, at least 16 Mbytes; 16-32 Mbytes recommended.

For more information on a properly configured system, see available hardware configuration manuals and data sheets, such as the *HP9000 Series 300 Hardware Configuration Guide*.

■ **If you are installing from CD-ROM, check if you need a codeword.**

Note	You do **NOT** need a codeword to install the 2-user Runtime software product on your system. If you have purchased the 2-user Runtime product (without any additional software), you can go on to the next item now.

However, if you have purchased software other than the 2-user Runtime product, you will need a codeword to extract your purchased software from the CD-ROM disc.

In most cases, the one or more codewords you need are listed on the CD-ROM Certificate you received along with your software purchase.

If there is no codeword specified, follow the instructions in the CD-ROM Certificate to obtain a codeword. For additional information, see the HP-UX CD-ROM Booklet shipped with the CD-ROM discs.

The CD-ROM codeword you receive is tied to a specific hardware ID. Therefore, you can only use the codeword on a system that includes that piece of hardware.

For example, if the codeword is tied to a system's SPU (System Processing Unit) ID, then the codeword will only allow you to extract software from a CD-ROM connected to that system.

If, on the other hand, the codeword is tied to the hardware ID of a CD-ROM drive or an HP-HIL module, you can move these pieces of hardware between systems, using the codeword to extract the software on different systems.

Have your codeword available when you're installing. You'll need to enter it during the update portion of the install process.

- At the end of the install process, you'll be prompted to enter:
  - a time zone.
  - a time and date.
  - a hostname and internet protocol address

    If you want to set up your system for networking at the time of installation, specify the hostname and internet proctocol address in response to the prompts at the end of the install process. Alternatively, you can respond to the prompts by setting up your system as a standalone at install time, and then optionally configure it for networking at a later time.

    If you want to set up networking at installation, you should determine the hostname and internet protocol address before installing, so that the install process won't be delayed. Speak to your system or network administrator, see the *System Administration Tasks Manual* or *Installing and Administering LAN/9000* for more information.

Overview of Installing

Here is a brief overview of the installation process:

- During the installation process, you work through a series of menus that provide options or ask questions. To help you avoid problems, the steps in this chapter recommend certain options and decisions.

- After the installation, you need to complete tasks such as adding users, configuring the printers, and setting up networking.

- A typical installation takes 4 to 6 hours from cartridge tape, 2 to 3 hours from CD-ROM discs. For most of this time, the system loads filesets. During these times, you can leave the system unattended (except for changing tapes or CD-ROM discs).

Go on to Step 1 when you are ready.

Step 1: Getting Your System Ready

The following table describes what you must do to get your system ready for an installation:

Situation	Your Actions and Requirements
New hardware No operating system You want to do install the operating system.	Turn OFF your computer and all peripherals.
Old operating system. (Prior to 8.0 HP-UX) You want to re-install the operating system.	1. Become superuser (login as **root**) if the old system is HP-UX. 2. Back up any files you want saved. See the *System Administration Tasks Manual* for instructions on performing backups. For an existing HP-UX system, at least back up **/users** (all pre-existing data on the disk will be overwritten by the installation process). 3. Make printouts of all your customized files (for example, **/etc/rc, /etc/passwd, /etc/hosts.local**), so you can easily restore the customizations on the new system. (You could collect the files in a special directory, use **tar** to make a tape archive, and restore them later, making adjustments that accommodate the new release.) 4. Shut down the system. *Be sure to warn all users to log off*, then enter: **/etc/shutdown** 5. When the shutdown is complete, turn OFF the computer and all peripherals.

Go on to Step 2.

Step 2: Inserting the Release 8.0 HP-UX Install Media

1. Turn on the install drive.

   - **If you are installing from tape . . .**

     Turn ON the tape drive that will contain the 8.0 HP-UX install tape. If the tape drive is built into the disk drive, turning on the disk drive turns on both the tape and disk drives.

     The tape drive is called the **source device** later when you see the installation menus.

   - **If you are installing from CD-ROM . . .**

     Turn ON the CD-ROM drive that will contain the 8.0 HP-UX Install CD-ROM disc. (The CD-ROM drive is called the **source device** later when you see the installation menus.)

2. Turn ON the disk drive you plan to use as the startup (boot) disk for HP-UX.

   - This drive is called the **destination device** later when you see the installation menus.

   - Eventually, you can mount additional disk drives that HP-UX can use, but they are not important now because installation deals with only one disk.

3. Wait until the drive warms up (no red or orange lights on; the green light is steady).

4. Load the install media.

   If you are installing from tape . . .

   Ensure that the protect switch on the HP-UX cartridge tape points to SAFE or PROTECT. Then insert the HP-UX cartridge tape in the tape drive, and wait until the busy light stays OFF (about 2 to 5 minutes).

   If you are installing from CD-ROM . . .

   Insert the CD-ROM HP-UX Install disc in the CD-ROM drive.

Go on to Step 3.

Step 3: Loading the Installation Software

1. The install media is loaded in the drive and the disk drive is ON. Now, turn ON the:

    a. Expander (if present)
    b. Terminal or monitor (if it has its own switch)

2. Leave other peripheral devices OFF until the installation is complete.

3. If you are installing from a Series 300 system, or if you are reinstalling an existing Series 400 system, continue with this step. **However, if you are installing a new Series 400 system, skip to Step 4.**

    a. Turn ON the computer SPU, and **IMMEDIATELY PRESS THE SPACE BAR** until you see `Keyboard` displayed on the left side of the display.
    b. Release the space bar and wait. In a moment, a list of the available systems displays on the upper right of the screen.

    Skip Step 4 and go to Step 5 now.

4. This step applies only if you are installing a *new* Series 400 system.

    a. Turn ON the computer SPU.
    b. The Configuration Control Mode screen appears in the upper-right corner when you first turn a new system on:

    ```
    Configuration Control
    Keys Control Class
    -----------------------------
       1  I/O Configuration
       2  Boot Mode Selection
       A  Abort without changes
    -----------------------------
    Type [key] RETURN ?
    ```

    To choose **Boot Mode Selection**, type: 2 (Return)

c. The Boot Mode Selection menu appears:

```
           Boot Mode Selection
        Keys Mode                 Status
        -----------------------------
           1   Domain Compatible
           2   HP-UX Compatible
           3   Undefined            P

           C   Clear temporary
           E   Execute
           A   Abort without changes
        -----------------------------
        Type [key] RETURN ?
```

To select the **HP-UX Compatible** mode, type: 2 (Return)

d. **READ THROUGH THIS ENTIRE STEP BEFORE CONTINUING.**

This prompt appears below the Boot Mode Selection menu.

```
        2   HP-UX Compatible
   Temporary or Permanent
   Type T or P RETURN ?
```

Type: P (Return)

After you type "P" and hit (Return), **IMMEDIATELY PRESS THE SPACE BAR**, and hold it down until the word "keyboard" appears on your screen. Release the space bar and wait. In a moment, a list of the available systems displays on the upper right of the screen.

Note   If your Series 400 does not display the configuration control screens shown above, the boot mode selection may have already been set to HP-UX Compatible, or your system may have a non-standard configuration. See the Owner's Guide that came with your Series 400 for more details about the boot process.

Go on to Step 5.

5. The available systems listed depend upon your system configuration.

  a. If you're installing a **new** system from tape you'll see something like:

     ```
     : HP9144 TAPE, 700, 1, 0
     1H SYSHPUX
     ```
     The model number (e.g., 9144) indicates your tape drive.

  If you're installing a new system from CD-ROM, you'll see something like:

     ```
     HP1707, REMV, 707, 0, 0
     1H SYSHPUX
     ```
     The model number (e.g, 1707) indicates your CD-ROM drive.

  b. An **existing** HP-UX system displays something like this:

     ```
     : HP7958, 701, 0, 0
     ```
     Current operating system on destination disk

     ```
     1H SYSHPUX
     1D SYSDEBUG
     1B SYSBCKUP
     : HP9144 TAPE, 700, 1, 0
     ```
     The install tape model number; or if you are installing from CD-ROM, the CD-ROM model number.

     ```
     2H SYSHPUX
     ```

6. Type the characters preceding the system shown for the tape. If you have a Series 300 graphics monitor, do *not* shift for a capital "H" and do *not* press (Return)). (If you have a Series 400 system, do press (Return).) For example:

   1H *for the new system ("a"), in the example above*
   2H *for the existing system ("b"), in the example above*

If you are installing from tape, the tape drive's busy light comes on. The system takes several minutes to boot. You will soon see some messages (messages will differ differ depending on your configuration):

```
Booting /hp-ux

CONSOLE is ITE
...
Root device major is 0, minor is 0xe0010, root site is 0
```

Go on to Step 4.

Step 4: Interpreting the Welcome Screen

In a few minutes you see the Welcome Screen, which provides an overview of
the installation process:

```
Welcome to HP-UX install.  There are basically 4 steps to install-
ing HP-UX, which this and other utilities will lead you through.
:

Press "Return" when you're ready to proceed ... >
```

Read the overview carefully.

Tips on Using Menus

Note that the keys explained here will not work until you proceed to the next
step.

- Arrow keys (⬆, ⬇, ▶, ◀): Use to highlight menu items.

- "Select Item": Use to select the highlighted menu item.
  ("Select Item" is one of several labels along the bottom of menus throughout
  the installation process. These labels correspond to **function keys** on the top
  row of your keyboard—(f1), (f2), ... (f8). The "Select Item" function key will
  always be (f4).)

- (Return): Same as "Select Item" function key. Also use after entering values
  you have typed at the keyboard.

Go on to Step 5.

Step 5: Select the Destination Device

You should see the Destination Menu, below. (If you do not see this menu, something is wrong. Unload the install tape from the tape drive and remove the tape, or if installing from CD-ROM, remove the CD-ROM install disc from the CD-ROM drive, turn everything OFF, and start the process again):

```
        HP-UX INSTALLATION UTILITY -- DESTINATION MENU

    If the disk shown below (name and system location) is the
    desired destination device, press "Select Item".
    If the desired disk is not listed, make sure it is connected
    properly and turned on, then select the "Search Again" option.
    If your disk is still not recognized, you can use the
    "Other disk" option to enter the Disk address.


                   Select   Bus    Unit    Vol
      Disk         Code     Addr   Num     Num
    ------------------------------------------------
    :
    :

    Search Again
    Other disk



                       Select                         Exit
                       Item                            Install
```

Selecting the Destination

The Destination Menu lists all connected disks, including the disk's select code, bus address, unit number, and volume number. From the Destination Menu, select the **destination disk** (that is, the disk on which you want to install HP-UX) as follows:

1. Using the arrow keys, move the highlight bar until you've highlighted the name of the disk that will be the destination disk.

2. Press either "Select Item" ($\boxed{\text{f4}}$) or $\boxed{\text{Return}}$.

The Destination Disk Is Not Listed

If you do not see your destination disk listed on the menu, make sure the disk is connected properly and turned on. Then follow these steps:

1. Select the "Search Again" option.

2. If you still don't see your destination disk listed on the Destination Menu, select the "Other disk" option.

3. Type in the correct information:

   - Major number (0 for HP-IB/CS80 disks; 7 for SCSI disks)

   - Select code (set on the interface card connected to the disk; usually 14 for high speed HP-IB or SCSI, or 7 for standard HP-IB)

   - Bus address (set on the disk with DIP switches or a rotary switch; usually 0 for the root disk. On Series 400 only, a SCSI root disk is usually set to address 6.)

   - Unit number (usually 0)

   - Volume number (usually 0)

4. Press ⌐Return⌐. You should see your destination device listed on the Destination Menu. Use the arrow keys to highlight the disk, and press "Select Item".

Installing onto a Used Disk

If you are installing 8.0 HP-UX onto a disk that contains a previous version of HP-UX, the program issues the following message as a safety check to prevent you from accidentally overwriting an existing system:

```
Note: There appears to be an HP-UX system already on this disk.
Press [Return] to continue.
```

At this point, you must continue (press (Return)). If you do not want to install HP-UX on this disk, you can exit install from the menu that follows.

Go on to Step 6.

Step 6: Continue the Program or Alter Parameters

After you select a destination device, you see the Main Menu, below. This menu lets you continue the installation, change the destination device, or change file system parameters. You also can exit the program; however, if you decide to exit at this point, you will have to reboot your system and start over.

The three subsections on this and the following page describe the Main Menu options. Read these sections, and proceed accordingly.

```
            HP-UX INSTALLATION UTILITY -- MAIN MENU

         Major    Select   Bus       Unit     Volume
         Number   Code     Address   Number   Number    Model

Source:       4     14       0         0        0       Tape
Destination:  0      7       5         0        0       HP 7959

     If the destination device shown above is correct and you
     do not want to modify file system parameters (normally the
     case), select the "CONTINUE" option below.

                        Description

     CONTINUE installation process...
     Change DESTINATION device...
     Change FILESYSTEM parameters...
```

                              Select   Exit
                              Item   Install

CONTINUE installation process ...

Select this option if you are satisfied with the current destination and file system parameters and want to continue the installation. Use the arrow keys to highlight this option, and press "Select Item" or (Return). Proceed to Step 7.

Change DESTINATION device . . .

Select this option if you are not satisfied with the current destination. To change to a different destination device, proceed as follows:

1. Use the arrow keys to highlight this option:

       Change DESTINATION device ...

2. Press "Select Item", which returns you to the Destination Menu. Follow the instructions in "Step 5: Select the Destination Device". From this menu, you also can return to the Main Menu ((f2)) or you can exit install ((f8)).

Change FILESYSTEM parameters . . .

The installation process initializes the file system (the disk) using default parameters suitable for most HP-UX use. Do not change the values for file system parameters unless you have expert knowledge of HP-UX and know why you need to change them.

If you do need to change the parameters, proceed as follows:

1. Use the arrow keys to highlight this option:

       Change FILESYSTEM parameters ...

2. Press "Select Item", which brings up the Filesystem Parameters Menu. To change file system parameters, follow these steps:

   a. Use the arrow keys to highlight the parameter you want to change. (Typically, the only parameter you might need to change is "swap space"; see the following page for a discussion of swap space.)

   b. Type the new parameter value; the value appears at the bottom of your display for verification.

   c. Press (Return) to verify the value you just typed. *Changes are immediate.*

   d. When you have changed all necessary file system parameters, press "Done" ((f4)). You will return to the Main Menu.

Go on to Step 7.

Step 7: Verifying Swap Space

When you continue from the Main Menu, you see the following menu:

```
                    Swap space verification

   The current swap space is xxxxx blocks (1 block = 512 bytes)
   Is this correct? (Enter y or n) >> _
```

Swap space is space on the disk that is reserved for operating system use. The swap space, together with file system space, make up the disk capacity. Thus, if you increase your swap space, you decrease your file system space (and vice versa).

With the 8.0 release, *you can easily add swap space any time after the installation* (see the *System Administration Tasks Manual*); however, if you allocate more swap space now, you cannot easily *deallocate* that extra swap later, and use it for file system space. In most cases, then, the default value (*xxxxx*) is adequate—simply enter Ⓨ, and go to Step 8.

For more recommendations, see the next page.

Note	You should have a *minimum* of 20,000 blocks (512 bytes/block) of swap on the installation disk.

If you want to provide for more swap space than the default, find your case below and take the corresponding action; however, remember that it is difficult to *decrease* the amount of swap space if you set it up in this way:

Standalone System	For a standalone system on which you plan to run a few applications, the default value is adequate. Enter Ⓨ.
Typical Workstation	For a workstation on which you plan to run, for example, the X11 Window System and subsystems such as The SoftPC, networking, and BASIC-UX, the default value is adequate. Enter Ⓨ.
	If you plan to run large, complex applications, examine the documentation for the applications, and enter a swap space value that will accommodate the applications.
Cluster Server	A cluster server needs a disk that provides approximately 300 Mbytes of file system space. And, depending on the applications you decide to run, you could need 30 Mbytes (60,000 512-byte blocks) of swap space for each cluster node installed on the system, including the cluster server. Remember that as you increase swap space, you decrease file system space.

Entering Ⓨ moves you to Step 8; entering Ⓝ gives you another chance to specify the swap space.

Step 8: Verifying the Destination Device

You see the following information:

```
             Destination device verification


     Destination Device: . . .
     ------------------------------------------------
```

WARNING! If you continue with the installation you will destroy
everything on your destination disk . . .

Following the information you see a question:

Do you wish to continue? (Enter y or n) >> _

Pressing Ⓝ returns you to the Main Menu, which gives you a chance to alter
previous decisions.

Pressing Ⓨ means you are satisfied with the destination and the file system
parameters (including swap space). You will not have another chance to change
these values after you press Ⓨ. To install the system, you eventually need to
continue to Step 9.

Step 9: Initializing the Destination Disk

Again, you get to make a decision.

You see the following information:

```
                    Initializing destination disk

   Before loading HP-UX ...
```

Following the information you see a question:

```
Do you want to initialize your destination disk? (Enter y or n) >> _
```

If You Have a SCSI Disk ...

In general, you should **NOT** perform a media initialization of your SCSI destination disk as part of an install.

Press [N] and go on to Step 10 under the following conditions:

- The destination disk is new (has never been used).

- Your disk is running an operating system.

Press [Y] to initialize a SCSI disk only if:

- You know or suspect your disk has damaged surfaces.

- You want a different interleave than the disk currently has.

  Many SCSI disks require a very specific interleave factor for proper media initialization. Unless you are certain that the interleave factor as shown on the FILESYSTEM parameters menu is correct for your destination disk, do not initialize your disk.

If You Have a Non-SCSI Disk ...

- Press Ⓨ to initialize the disk if you have any of the following conditions:
  - □ The destination disk is new (has never been used).
  - □ Your disk has not had HP-UX on it before.
  - □ You want a different interleave than the disk currently has.

□ You know or suspect the disk is corrupt.

□ You have used the disk for some time and want the disk hardware to re-format and initialize the disk and media.

■ Otherwise, press ⟨N⟩ and go to Step 10.

If you enter ⟨Y⟩, you get the following display:

```
        HP-UX INSTALLATION UTILITY -- EXECUTION TRACE
  It will be about time before any input is required.
  Initializing destination disk.
```

Time varies according to your disk. Usually initialization takes between 40 minutes and an hour.

When the initialization is complete, go on to Step 10. Otherwise, go to Step 10 now.

Step 10: Loading Partitions Containing Filesets

Regardless of whether you initialized your disk, you see the following information ten minutes to an hour later:

```
Making file system on destination device.
Mounting destination device.
Making directory:  /dev
...
```

The system then reboots. After it reboots, the following message is displayed:

```
         HP-UX INSTALLATION UTILITY -- EXECUTION TRACE


Unpacking tar files
         .
         .
         .
```

About 5 minutes later, you see this message:

```
Ensure that the install media has been removed and an
update media unit is online and prepared for reading.

      ------Press Return to Continue------
```

You are now ready for the next stage in the install process, loading HP-UX filesets onto your disk.

If you're installing from tape, unload the tape currently in the tape drive and put the first tape of the set entitled "HP9000 Series 300/400 HP-UX ... UPDATE format" into the drive.

If you're installing from CD-ROM, unload the disc currently in the CD-ROM drive and put the disc entitled "HP9000 Series 300/400 ... HP-UX Core Operating System Software" into the drive.

Press [Return] after loading the HP-UX update media; wait for the busy light to go out on the tape or CD-ROM drive before performing any actions in the Main Menu.

In Case of Error ...

Situation	Possible Error Message	What to Do

Updating from CD-ROM. You did not remove the HP-UX Install disc and insert the HP-UX Core Operating System disc as instructed in Step 10.	`Cannot update from source directory "UPDATE_CDROM"; invalid update media.`	1. Go back to the Main Menu, and press ▓Shell▓ to escape from the update program.
		
		 2. Unmount the HP-UX Install disc.
		
		    `umount /UPDATE_CDROM`
		
		 3. Remove the HP-UX Install disc and then insert the HP-UX Core Operating System disc.
		
		 4. Mount the HP-UX Core Operating System disc.
		
		    `mount -o ro /dev/bsrc /UPDATE_CDROM`
		
		 5. To test access to the disc, enter:
		
		    `ll /UPDATE_CDROM`
		
		 6. Type `exit` to return to the `update` program.

4

The Main Menu appears:

Note	See the following pages for descriptions of the various Main Menu choices. If you need assistance in using the screens, highlight "How to Use Install" and press Help. To get information about any item on the screens, highlight the item and press Help.

4

```
    INSTALL                        Main Menu


        Highlight an item and then press "Return" or "Select Item".
        To refresh the screen press CTRL-L.


        Source:  Tape Device              Destination: Local System
                 /dev/update.src                       /



                 Select All Filesets on the Source Media ->
                 Select Filesets for a Minimum System ->
                 Select/View Partitions and Filesets ->



                 How to Use Install


    [Help]       [Shell] [Select        [        ] [        ] [        ] [Exit
                         Item]                                           Update]
```

Note	If you are installing from CD-ROM, *and* you are installing software other than the 2-user Runtime product, select the **Enter Codeword** field and enter your codeword. See the description of the **Enter Codeword** form following. (If you are installing only the 2-user Runtime product, you do NOT need to enter a codeword.)

If you are installing from tape, or if you are installing only the 2-user Runtime product from CD-ROM, go on to the next page now.

If You Are Installing from CD-ROM ...

If you are installing from CD-ROM, you'll see **Enter Codeword** displayed in Main Menu. Selecting **Enter Codeword** brings up the codeword screen.

```
                    From CD-ROM (directory) to Local System

        Modify the desired fields and press "Done".


        Source Directory: /UPDATE_CDROM

        Destination Directory: /

        Codeword Certificate:

        Codeword :____ ____ ____ ____
                    ----short form-----

        Verified Hardware ID:
```

In the **Codeword** field, enter the appropriate codeword from your CD-ROM Certificate. If a codeword is not listed, see the instructions on the certificate for obtaining one. For more information, see the HP-UX CD-ROM Booklet.

To list the hardware IDs available on your system, highlight the **Verified Hardware ID** field and press Help. (Note that you are not allowed to enter anything in the **Verified Hardware ID** field; it is informational only.)

From the Main Menu, choose what software you wish to load from your update source media.

The choices are:

Select All Filesets on the Source Media ->

Choosing "Select All Filesets on the Source Media ->" directs update to automatically select every fileset on the source media. You will then see the "Select All ... " screen appear. If you wish to examine the filesets selected for loading, choose "Modify/View Partitions and Filesets". You can make adjustments to filesets marked for loading, deselecting those you don't want.

Select Filesets for a Minimum System->

Selecting this item causes the following minimum set of filesets (plus the appropriate user license) to be selected:

  UX-CORE
  KERN-BLD
  TOOL
  CORE-SHLIBS
  CORE-DIAG
  C-MIN
  EDITORS
  CMDS-MIN

You will then see the "Select Filesets for a Minimum System" screen appear. You will probably want to choose the menu item "Modify/View Partitions and Filesets" and choose additional filesets to build your system.

View/Select Partitions and Filesets->

Selecting this item directs update to advance you to the "View or Select Individual Partitions" screen (shown following). You can use this screen to tailor the functionality you load onto your system.

```
                   View or Select Individual Partitions

       Mark "y" or "n" to make a selection.
       Press "Partit'n Screen" to return to the partition selection screen.

       Select    Partition            Partition Description      Size in Kbytes

       p     DIAGNOSTICS          Hardware Diagnostic Programs        37663
       y     NETWORKING           Networking Products                 8919
       y     NLS                  Native Language Support              472
       y     OS-ADMIN             Recommended Administration Cmds      2292
       y     OS-CORE              Recommended System Core              5517
       y     OS-FEATURES          Selectable OS Features               8176
       y     PROG-LANGUAGES       Programming Languages                8542
       y     REFERENCE-DOC        Reference Manual Pages                348
       y     SHARED-LIBS          Runtime Shared Libraries             2757
       y     WINDOWS              Windowing Products                   102


   ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐  ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐
   │ Help │ │      │ │Shell │ │Start │  │ Disk │ │ View │ │Global│ │ Main │
   │      │ │      │ │      │ │Loading│ │Space │ │Filesets│ │Select│ │ Menu │
   └──────┘ └──────┘ └──────┘ └──────┘  └──────┘ └──────┘ └──────┘ └──────┘
```

"View or Select Individual Partitions" Screen

About the **View or Select Individual Partitions** Screen ...

If you want to load an entire partition mark it with a **y**. To load individual filesets within a partition, press **View/Filesets** and then mark the filesets you want loaded with a **y**. (After you select individual filesets within a partition for loading, the partition is automatically marked with a **p** for partially selected.)

To deselect a fileset or partition, mark it **n**. Note that sometimes when you mark a partition **n**, a **p** appears instead. The **p** means that one or more filesets within the partition are still selected, either because they are among the minimum required filesets or because other selected filesets depend on them.

Note	Update checks for dependencies between filesets. When you select a fileset that represents functionality you want, update checks that the other filesets needed to support that fileset are also selected for loading.

When you deselect a fileset, update checks to see if other
selected filesets depend on it.

When you are satisfied with your choice of software, select "Start Loading".

As `update` (or `updist`) loads filesets, a screen appears showing information
about each fileset.

Progress messages are displayed and recorded in **/tmp/update.log**.

After the filesets are loaded, update runs customization scripts for individual
filesets, and the kernel is reconfigured.

Note that the system may reboot twice while loading filesets.

When loading is completed, the system prompts you to specify:

- a time zone.

- the time and date.

- a hostname and an internet protocol address. (This is an optional step if you
  want to set up your system for networking at this time).

  If you haven't already done so, it's a good idea to collect the information you
  need now. Speak to your system or network administrator, or see *Installing
  and Administering LAN/9000* or the *System Administration Tasks Manual*
  for more information.

  When the login prompt appears, go on to Step 11.

Step 11: Congratulations! You Installed HP-UX

After successfully installing the operating system, you will need to perform various setup tasks.

After Installing HP-UX

Important tasks are:

- Logging in as superuser (`root`) and checking for problems in `/tmp/update.log`. Follow any instructions you find in this file.

- Adding additional applications from CD-ROM. If you purchased optional application software that is on the HP-UX Applications Software disc, load it by running the update program. See Chapter 5 for instructions.

- Setting up system security

    □ Begin by setting a password for the **root** user (see Chapter 2 of the HP 9000 Series 300/400 *System Administration Tasks Manual*, HP part number B1862-90008.)

    □ Convert to a Trusted System if you wish to implement full security features (see chapter 2 of *HP-UX System Security*, part number 92453-90029).

- Adding peripherals

    If you wish to add additional peripherals, see the HP 9000 Series 300/400 manual *Installing Peripherals*, HP part number B1862-90007.

- Optionally setting up HP VUE. See the *HP Visual User Environment Configuration Guide*, HP part# B1171-90021.

- If your system has EISA boards, configuring your system to use them. See the *E/ISA Configuration Guide for HP-UX*, HP part# B2370-90000.

- Customizing the system

    Tasks include:

    □ Adding users

    □ Adding groups

    □ Mounting file systems

□ Setting up the LP Spooler

□ Setting up UUCP

□ Creating system run levels

□ Creating an accounting system

□ Removing extraneous software using the **rmfn** command. (See the section on **rmfn** later in this chapter for more information.)

□ Backing up your system.

See the HP 9000 Series 300/400 *System Administration Tasks Manual*, HP part number B1862-90008 for instructions.

Removing Unwanted Software Using rmfn

After you finish installing you may find you do not need all of the software you've loaded on your system.

You can use the rmfn (remove functionality) utility to remove system software you don't need. rmfn's interactive screens allow you to remove software in groupings at the level of **filesets** and **partitions**. (A fileset is a logical group of files that make up a piece of software functionality. A partition is a logical group of filesets.)

Before removing filesets, rmfn checks dependencies. If a fileset or partition you select for removal is depended upon by other filesets, rmfn queries you as to whether you want to remove these dependent filesets as well.

The rmfn command keeps a log of its actions in **/tmp/rmfn.log**.

Caution	Although rmfn checks dependencies to prevent you from inadvertantly removing functionality, you still need to be cautious. This tool is designed to help you quickly remove major pieces of software, so it's important to avoid making mistakes.

Important Points

- The filesets and partitions that rmfn displays depend on the contents of the directories **/etc/filesets** and **/system** . Do not change the contents of these directories or rmfn will display an inaccurate list of filesets.

- The rmfn command checks that removing the selected filesets will not harm the integrity of your system.

  For example, rmfn will not allow you to remove a minimum set of filesets needed by the system. For instance, you cannot remove UX-CORE.

- The rmfn command will not remove files on a remote mounted system (NFS).

How to Use rmfn

To use **rmfn** command, log in as superuser, and enter:

    /etc/rmfn

The example below shows a typical **rmfn** main screen.

If you want to remove an entire partition mark it with a y. To remove individual filesets within a partition, press Select/Filesets and then mark the filesets you want removed with a y. (After you select individual filesets within a partition for removal, the partition is automatically marked with a p for partially selected.)

To deselect a fileset or partition (to keep it on your system), mark it n.

```
  rmfn                       Delete Partitions

  Mark "y" or "n".  To pick and choose individual filesets within a partition,
  press "Select Filesets".  A "p" means that some filesets have been selected
  within a partition.  Press "Start Removing" when selection is complete.


  Delete     Partition           Partition Description       Size in Kbytes

  p    DIAGNOSTICS          Hardware Diagnostic Programs       37663
  n    NETWORKING           Networking Products                8919
  n    NLS                  Native Language Support             472
  n    OS-ADMIN             Recommended Administration Cmds    2292
  n    OS-CORE              Recommended System Core            5517
  n    OS-FEATURES          Selectable OS Features             8176
  n    PROG-LANGUAGES       Programming Languages              8542
  n    REFERENCE-DOC        Reference Manual Pages              348
  n    SHARED-LIBS          Runtime Shared Libraries           2757
  n    WINDOWS              Windowing Products                  102



  Help            Shell    Start            View     Select          Exit
                           Removing         Selected Filesets         rmfn
```

Figure 4-1. rmfn: **"Delete Partitions" Screen**

5

Updating HP-UX

This chapter describes how to update the HP-UX operating system from one release to another, and how to install optional products such as Starbase Graphics or Arpa Services. (The procedure is the same whether you are updating the operating system or adding products.)

Caution	Do not use this chapter if you are using the HP-UX Install tape or CD-ROM HP-UX Install disc to install or re-install your system disk. Use Chapter 4 "Installing HP-UX" instead.

The following table tells you where to go for information.

If You Plan to ...	Where to Go Next ...
Update interactively the HP-UX operating system and core product files to 8.0.	Use this chapter and the online help screens. (You must have HP-UX Release 7.0 or later.)
Add new optional applications or update existing applications on a system running HP-UX 8.0.	Use this chapter, the online help screens, and the documentation accompanying the application software.
Update to HP-UX 8.0 operating system on a system running a software version *earlier* than 7.0.	■ Update to 7.0; then use this chapter and the online help screens to update to 8.0. ■ Or, back up your system, and then re-install to 8.0. See Chapter 4 for instructions on reinstalling.

If You Plan to ...	Where to Go Next ...
Perform a non-interactive update.	Refer to *update*(1M) in the *HP-UX Reference* and "Running Update Non-interactively" in this chapter.
Convert a system into a network software distribution server.	See Chapter 6 "Setting Up a Network Server to Update HP-UX" or *netdistd*(1M) in the *HP-UX Reference*.
Convert your system to an HP-UX secure system.	Before continuing in this book see "Setting Up and Maintaining Your Secure System" in the *HP-UX System Security Manual*.
Update an HP-UX cluster.	See the manual *Managing Clusters of HP 9000 Computers*, HP part number B1862-90006.

5

New Features in 8.0 Update

The 8.0 update program differs from previous HP-UX update programs in the following ways:

- At 8.0 you can update from CD-ROM. The previously available methods of updating from cartridge tape or network server remain as well.

- Update has enhanced functionality that better manages dependencies between filesets. When you select a fileset that represents functionality you want, update ensures that the other filesets needed to support that fileset are either already present on your system, or will be loaded concurrently. If the supporting filesets are already current on the system, update will not force you to load them again.

  As a result, you can be selective about what functionality you want to load on your system during update. For example, if you want accounting functionality, load the ACCOUNTNG fileset; if not, don't load the fileset.

  The update procedure covered later in the chapter explains how to choose individual filesets or partitions during the update procedure. Selectively loading filesets may be of particular interest to you if you are concerned about saving disk space. (Chapter 3 of this manual has information about partitions and filesets.)

- Fileset (and partition) definitions and names have changed for the 8.0 release; fileset contents may differ between 8.0 and previous releases. It is possible that not all obsolete files will be removed. Also, if you choose to update only the filesets that exist on both the source and destination, it is possible that all files might not be updated.

Interactive Update

The update program described in this book is **interactive** and uses menus, prompts, and help screens to guide you through the procedure.

If you are updating on a ANSI (VT-100) or ASCII (Wyse 30) terminal ...

At 8.0, the interactive update program supports ANSI (VT-100) and ASCII (Wyse 30) compatible terminals. This includes Xterm windows since they run as VT-100 compatible. Update recognizes the following settings for the $TERM variable.

The TERM variables for ANSI (VT100-like) terminals are:

```
TERM=vt100
TERM=vt100-am
TERM=vt102
TERM=xterm
TERM=ansi
```

The TERM variables for ASCII (WYSE 30-like) terminals are:

```
TERM=30
TERM=wy30
TERM=700-41
```

If you have a terminal which is ANSI (vt100) or ASCII (Wyse 30) compatible, which is not in the preceding lists, you can run interactive update by setting the TERM value to a value in the lists. If you are trying to run update on an ANSI or ASCII terminal and it is not working properly, make sure the TERM value is set to one of the values on the list recognized by update.

Non-interactive Update

A **non-interactive** (command line) interface is also available, but is less friendly than the interactive update program. You might want to use the non-interactive interface under these conditions:

- You have a non-HP terminal that is incompatible with the screen control used in the interactive version of update.

- You use update regularly and want to bypass the interaction.

If you want to do a non-interactive update, refer to *update*(1M) in the *HP-UX Reference* for descriptions of command line options.

If Problems Occur During an Interactive Update ...

Many errors can be handled immediately during an interactive update. If an error occurs during the `update` program, a message is displayed telling you what happened. This message (together with any other error messages) is also recorded in `/tmp/update.log`. For additional information, see "Checking the update.log File" and "A Guide to Troubleshooting" in this chapter.

If Problems Occur During a Non-interactive Update ...

Errors during `update` produce messages which are sent to the file `/tmp/update.log` and to standard error. If these errors occur before fileset loading begins, `update` will quit immediately. If these errors occur after fileset loading starts, `update` continues. Review the errors after loading completes.

For additional information, see *update*(1M) in the *HP-UX Reference*. Also see "Checking the update.log File" and "A Guide to Troubleshooting" in this chapter.

Before Running Update

Before All Updates

This section lists things you need to do *before* you update a system.

See associated documentation.

- See the *Read Me Before Installing or Updating HP-UX* document supplied with your update media.

- See the 8.0 Release Notes.

- If you are updating an HP-UX cluster, see the book *Managing Clusters of HP 9000 Computers*, HP part number B1862-90006.

- If you want to set up HP VUE, see the *HP Visual User Environment Configuration Guide*, HP part number B1171-90021.

- If you are installing networking products, you may need to see:

    □ *Installing and Administering ARPA Services* (part number B1014-90007)

    □ *Installing and Administering NFS Services* (part number B1013-90009)

    □ *Installing and Administering LAN/9000* (part number 98194-60526)

If you're using an NFS Server ...

If any portion of your operating system is obtained from an NFS server system, update the server system first.

Clean up files on root disk.

- Delete any obsolete files on the root disk. Archive and remove files that must be kept but do not have to be online.

    To clean up the root section before starting an **update**, follow these steps:

Caution	Only an experienced system administrator familiar with this particular system should do this.

1. Identify any non-standard HP-UX files and directories in the / (root) directory.

   The standard files under / (root) are:

   a. Files: .profile, hp-ux (kernel), SYSBCKUP (backup of kernel)

   b. Directories: bin, dev, etc, lib, system, lost+found, /usr, /users

   c. All mounted file systems. The mount command will list the file systems mounted at bootup.

2. Find any standard directories under / (root) which are larger than expected:

   ```
   du -s /etc      the size of /etc should not exceed 12 megabytes
   du -s /dev      the size of /dev should not exceed 50 kilobytes
   du -s /bin      the size of /bin should not exceed 6 megabytes
   du -s /lib      the size of /lib should not exceed 6 megabytes
   du -s /system   the size of /system should not exceed 1.5 megabytes
   ```

   Note that there may be directories and/or files already symbolically linked to other sections.

3. If any directory exceeds the maximum size, scan the directory and identify files that do not belong in the / (root) section, such as:

   a. user files

   b. core dump files (these can be very large)

   c. extra backups of the kernel (only one backup - SYSBCKUP - is necessary)

   (Check for extra copies of the kernel in / and /etc/conf/*.)

4. Non-standard files and directories identified in Step 1 and files identified in Step 3 are candidates for removal from the root section. If the file or directory must be online, move it to another section that has room. Otherwise back it up to tape and remove it.

Note   If you are not sure whether or not you can remove any file or directory from the root section, DO NOT remove it.

---

5. The files **/etc/btmp** and **/etc/wtmp** should be truncated periodically (they grow without bound).

Check that your system has adequate disk space.

The table below gives you some guidelines for the amount of disk space needed to run HP-UX 8.0.

If You Have ...	You Need ...
Series 300/400	■ 90 Mbytes for the Series 300/400 Runtime product. ■ Also consider space needed for additional applications. ■ Adequate space for user files. ■ Adequate swap space.
Mixed cluster	■ Enough space for Series 300/400 filesets *and* Series 600/800 filesets. The Series 300/400 Runtime product requires approximately 90 Mbytes; the Series 600/800 Multi-user Runtime product requires 75 Mbytes, and the Series 600/800 Server Runtime product requires 105 Mbytes. ■ Also consider space needed for additional applications. A mixed cluster server, for example, probably will need at least 400 Mbytes of space—plus space for future growth.

Note For information on analyzing and freeing disk space, see the section "If You Need to Free Up Disk Space" later in this chapter.

For a detailed discussion of disk space, see the manual *How HP-UX Works: Concepts for the System Administrator*, HP part number B1852-90005.

Make sure you can recover your system.

If you make a mistake during **update**, you will be able to recover your data *only if you have backed up the system*. Refer to the HP 9000 Series 300/400 *System Administration Tasks Manual*, HP part number B1862-90008 for information on how to do a system backup.

If You are Updating from Tape ...

Find out the correct device file name for your tape drive. On a Series 300/400, the program defaults to **/dev/update.src.** However, the device file names can vary: if your system does not have the default device file, determine the name of the source device's device file name now.

You can also determine device file names by examining **/dev** directory listings. Type the following:

☐ **ll /dev** (if all your device files are in the **/dev** directory).

☐ **ll /dev/rct** (if your device files are grouped in sub-directories).

If You Are Updating from a Network Server ...

Before you can update over the network, you must set up the **netdist** server. See Chapter 6 "Setting Up a Network Server to Update HP-UX" for instructions. If your server is already set up and you are ready to update, you need to find out the hostname of the **netdist** server from which you will update, and the port number. You can find the port number in the **/etc/services** file on the **netdist** server (typically, this number is **2106**). To find the hostname, enter **hostname** on the **netdist** server. Then continue with this procedure.

If you are updating from CD-ROM ...

There are a couple of things you need to check if you are updating from CD-ROM.

☐ **Check that the CD-ROM drive is connected and configured.**

1. To find out if the CD-ROM drive is configured into the kernel, check the **/etc/conf/dfile** to see if it includes the driver name "cdfs". If this driver name is not present, then you must add it.

2. If you edited the **dfile**, then you need to regenerate the kernel. See Chapter 11 of the *System Administration Tasks Manual*, HP part number B1862-90008 for instructions.

☐ Physically connect the CD-ROM drive (if not already done).

1. Shutdown your system (*be sure to warn users to log off first*) by entering:

```
/etc/shutdown
```

2. **Turn off your system.** Attach the CD-ROM drive as instructed in the hardware installation guide that accompanies the drive. Then turn on the system again.

■ **Check If You Need a CD-ROM Codeword.**

Note   You do **NOT** need a codeword to install the 2-user Runtime software product on your system. If you have purchased the 2-user Runtime product (without any additional software), you can go on to the next item now.

However, if you have purchased software other than the 2-user Runtime product, you will need a codeword to extract your purchased software from the CD-ROM disc.

In most cases, the one or more codewords you need are listed on the CD-ROM Certificate you received along with your software purchase.

If there is no codeword specified, follow the instructions in the CD-ROM Certificate to obtain a codeword. For additional information, see the HP-UX CD-ROM Booklet shipped with the CD-ROM discs.

Have your codeword available when you're updating. You'll need to enter it during the update process.

If You are Updating a Cluster ...

If you are updating a cluster, see the book *Managing Clusters of HP 9000 Computers*, HP part number B1862-90006.

Check file systems to be mounted

The /etc/update facility will mount all file systems listed in /etc/checklist. If you don't want a file system to be mounted (for example, /users), comment out the line in /etc/checklist by putting a # sign in front of it before you start the update program. Leave NFS file systems (if any) in the checklist file. However, update will not alter files that are on a NFS-mounted file system.

If you are updating the operating system ...

- Make sure users are logged off the system.

- If the system is not currently running on **/hp-ux**, you might want to reconfigure the kernel and reboot the system on **/hp-ux** (see the *System Administration Tasks Manual*, HP part number B1862-90008).

- Shut down the cluster nodes if updating an HP-UX cluster. See *Managing Clusters of HP 9000 Computers*, HP part number B1862-90006 for instructions.

- If you are updating the operating system or loading filesets that cause the system to reboot, you should bring the system to a single-user state.

| Note | If you have remote file systems mounted via NFS that will be updated, these file systems must be mounted during the update. NFS must be active to detect which files are remote, although **update** will not write to NFS-mounted file systems. (To use NFS or to update from a **netdist** server, bring up the system in multi-user state, then shut down to single-user state.) |

To run the **shutdown** command, *first, make sure all users are logged off the system*, and then bring your system to a single-user state by entering:

```
/etc/shutdown
```

For more information on the **shutdown** command, see *shutdown*(1) in the HP-UX Reference.

The system will take sometime (perhaps a minute or more) to shut down. Then it will start up in the single-user state and issue the **root** user prompt (normally **#**).

After you've shutdown your system, run a simple check on the integrity of your file systems. The HP-UX program that performs this function is called **fsck**. Enter:

```
fsck -p
```

For additional information on this command, see *fsck*(1M) in the *HP-UX Reference* and Appendix A of *Solving HP-UX Problems*.

If updating from CD-ROM, mount the CD-ROM drive.

Note	You need to perform this step after running `/etc/shutdown` since the `shutdown` command will unmount the CD-ROM drive.

1. If it doesn't already exist, make a directory where the CD-ROM will be mounted, enter:

   ```
   mkdir /UPDATE_CDROM
   ```

2. Insert the HP-UX Core Operating System Software disc or the HP-UX Application Software disc (whichever you need to access) in the CD-ROM drive.

3. To mount the CD-ROM drive, enter a command similar to:

   ```
   /etc/mount  /dev/dsk/2s0 /UPDATE_CDROM -t cdfs
   ```

   This command mounts the CD-ROM drive at directory `/UPDATE_CDROM`. The drive is associated with the device file `/dev/dsk/2s0`. The `-t cdfs` option indicates the file system type on the CD-ROM disc. If an appropriate device file does not exist, you need to create it using the `mknod` command.

   For example, if you have an HP-IB CD-ROM drive (for instance, an HP1707) at select code 14 using bus address 2, use a `mknod` command line similar to the following:

   ```
   mknod /dev/dsk/2s0 b 0 0x0e0200
   ```

   For more information on creating device files, see the manual *Installing Peripherals*, HP part number B1862-90007, Chapter 9.

   (If you want the CD-ROM drive to be automatically mounted at boot time, you need to make an entry in the `/etc/checklist` file. See *System Administration Tasks Manual*, HP part number B1862-90008 for instructions.)

Establish adequate swap space for the update process.

The 8.0 update process requires at least 24 megabytes swap space. Some system disks (those with 304 megabytes) have a default swap space of 16

megabytes. If you are updating a system with only 16 megabytes swap, you need to increase it to 24 megabytes. Enter:

```
mkdir /swap
swapon /swap 100 8192 200 0
```

The increased swap space will be available until the system is rebooted.

For more information on changing swap space, see the HP 9000 Series 300/400 *System Administration Tasks Manual*, HP part number B1862-90008.

More Tips on Updating

- **Users of 700/92 Terminals:** your screen may go blank after a while if you don't enter anything from the keyboard. To turn the display back on, press the ⟨Shift⟩ key; this key is not interpreted as input. Do not use use any other key for this.

- Don't run console jobs in the background during an update: unexpected output to the terminal might result in unreadable update screens.

- Ensure that your TERM environment variable is set correctly; otherwise the display might behave strangely during the interactive update process (setting the TERM variable is described in *A Beginner's Guide to HP-UX*). You can use ⟨CTRL⟩-⟨L⟩ to refresh the screen except when **update** is loading filesets.

Where to Go Next ...

If You Plan to ...	Move on to Section ...
Update from cartridge tape, CD-ROM, or **netdist** server.	Work through the section "Running the Update Program." Then move to "Tasks to Perform after the Update."
Set up a **netdist** server to update over the network.	Go to Chapter 6 "Setting Up a Network Update Server" Then, if you want to perform an update, move to "Running the Update Program."

Running the Update Program

Procedure

1. If you have not already done so, see the preceding section "Before Running Update".

2. Become the superuser on the system you want to update.

3. If you are updating the operating system or loading filesets that cause the system to reboot, and you have not already done so, use the **shutdown** command to bring the system to a single-user state. See "Before Running Update" for instructions.

Note	If you are loading optional filesets that do not require a system reboot, you can run update without going to single-user state. The update program reboots the system if you select a fileset (or filesets) that are flagged to indicate a reboot is necessary. If a reboot is necessary, you will be warned before loading begins. You then have the option of proceeding or exiting the **update** program, bringing the system to a single-user state, and re-starting **update**.

4. You need to load the 8.0 update TOOL fileset from your update source media onto your system. See the following tables for the appropriate instructions.

How to Extract the Update TOOL Fileset from your Source Media

If Updating from ...	Do This ...
Cartridge tapes	The protect switch must point to **SAFE** or **PROTECT**. Insert the first tape; proceed when the BUSY light remains off. At the system prompt (#), change to the root directory (`cd /`), then type the following: `tcio -iZ /dev/update.src	tar -xvf - TOOL` (NOTE: Device files may vary. See "Before Running Update.") If you are using an autochanging device as your source drive, use the switch on the back panel to set the unit to "sequential" mode. Load the update tapes in sequential order in the autochanger magazine starting with slot 1 (bottom slot). Then load the magazine in the drive and wait until the drive is ready.

CD-ROM	To extract the TOOL fileset enter:
	
	`cd /`
	`tar -xvf /UPDATE_CDROM/TOOL`
	
	The directory `/UPDATE_CDROM` is the default location where **update** expects to find the CD-ROM drive mounted. However, if the location is different on your system, you need to specify the appropriate directory.
	
	If you have not inserted the CD-ROM disc and mounted the CD-ROM drive, you may get an error message telling you the update source media is invalid. See the section "Before Running Update" for information on mounting the CD-ROM drive.

5

**How to Extract the Update TOOL Fileset from your Source Media
(continued)**

If Updating from ...	Do This ...
Netdist server	Have a server configured for network distribution, and have the **update** program available to clients (see Chapter 6 "Setting Up a Network Server to Update HP-UX".)
	Copy the 8.0 TOOL fileset from the configured **netdist** server to the system you want to update (for information on using/setting up anonymous ftp, see *sam*(1M) or *Installing and Administering ARPA Services* part number B1014-90007).
	a. Type: **ftp** *netdist_server* (*netdist_server* is the name of the server from which you are copying **update**).
	b. At the login prompt, type: **ftp**
	c. At the password prompt, type: **anonymous**
	d. You should see the prompt **ftp>**:
	Type:
	`    get dist/TOOL.300 /tmp/TOOL`
	e. You should see messages similar to these:
	`    Opening data connection for dist/ ....` `    n bytes received ....`
	f. When you see the **ftp>** prompt again, type: **quit**
	g. At the local system prompt, type: **cd /**
	h. Then type: **tar -xvf /tmp/TOOL**

5. After executing the **tar** command, wait several minutes for the first TOOLS file to be extracted; once the process begins, these files are extracted rapidly. When the last TOOLS file is echoed to the display, wait five to seven minutes, and press (BREAK) to end the tar process.

6. Make sure you're in the root directory (**cd /**). (If updating from a **netdist** server, remove **/tmp/TOOL**.)

7. If you are updating from tape, from netdist server, or loading only the 2-user Runtime product from CD-ROM, go on to Step 8 now.

If you are updating from CD-ROM, and you have purchased software other than the 2-user Runtime product, continue with this step.

To display a list of legal hardware IDs for your system, enter:

```
/etc/update -i
```

Check your CD-ROM Certificate to make sure that the hardware ID listed on your certificate is matched by one of the displayed IDs. If there is a correct match, go on now to Step 8. If there is no match, your codeword (which is tied to the hardware ID listed on the certificate) will not work.

The CD-ROM codeword you receive is tied to a specific hardware ID. Therefore, you can only use the codeword on a system that includes that piece of hardware.

For example, if the codeword is tied to a system's SPU (System Processing Unit) ID, then the codeword will only allow you to extract software from a CD-ROM connected to that system.

If, on the other hand, the codeword is tied to the hardware ID of a CD-ROM drive or an HP-HIL module, you can move these pieces of hardware between systems, using the codeword to extract the software on different systems.

You may be missing the necessary hardware ID if, for example, your codeword is tied to an HP-HIL module hardware ID, and this module has been removed from your system. In this case, you need to reconnect the hardware with the matching hardware ID to your system.

If no codeword is listed on your certificate, or if you cannot establish a correct hardware ID, you may need to get a new codeword. See the instructions in the CD-ROM Certificate for obtaining one.

8. To invoke the interactive update program, type:

```
/etc/update
```

9. When you invoke the interactive update program, you see the Main Menu. From this point, the update process is interactive: select items from a menu, and use the online help screens to explain specific options.

Before making any selections from the Main Menu, see Step 10.

```
  UPDATE                        Main Menu

     Highlight an item and then press "Return" or "Select Item".
     To refresh the screen press CTRL-L.


     Source: Tape Device              Destination: Local System
             /dev/update.src                       /

             Change Source or Destination ->

             Load All Filesets on the Source Media ->
             Select Only Filesets Currently on Your System ->
             Select/View Partitions and Filesets ->


             How to Use Update



   ┌────────┐ ┌──────┐ ┌────────┐   ┌──────┐ ┌──────┐ ┌──────┐ ┌────────┐
   │ Help   │ │      │ │ Shell  │ Select │      │ │      │ │      │ │ Exit   │
   │        │ │      │ │        │ Item   │      │ │      │ │      │ │ Update │
   └────────┘ └──────┘ └────────┘        └──────┘ └──────┘ └──────┘ └────────┘
```

Note   Tips on Navigating in Update ...

You navigate in **update** the same way you navigate in SAM.
For details on navigating, use the arrow key to highlight the
"How to Use Update" menu item in the Main Menu, and
press ░Help░ (function key (f1)). See also "Using the System
Administration Manager" (SAM) in chapter 1 of the *System
Administration Tasks* manual.

During the update process, you will progress through a series
of screens. If you are uncertain about the function of certain
menu items or data entry fields, highlight that item or field,
and press ░Help░.

---

10. The default source for update on Series 300/400 systems is
    `/dev/update.src`: the default destination is root (/). If you're updating
    from tape and the source and destination shown in the Main Menu are
    correct, go on to Step 11 now.

    If the source or destination needs to be changed or if you are updating
    from `netdist` server or CD-ROM, look in the following table to find out
    the next step in the procedure.

If You Plan to ...	Go to ...
Update from cartridge tape and the source or destination shown in the Main Menu is NOT correct.	Go to Step a, to change the source or destination.
Update from a `netdist` server.	Go to Step b to change the source or destination.
Update from CD-ROM.	Go to Step c to change the source or destination.
Update from cartridge tape, and the source and destination shown in the Main Menu are correct.	Go to Step 11 to choose what software to load.

5

a. **To change the source or destination for a tape drive,** select "Change Source or Destination" from the Main Menu. Then select "From Tape Device to Local System". The following menu appears.

```
                    From Tape Device to Local System

                  Modify the desired fields and press "Done".

         Enter a "y" in the field to create or change the address of
         /dev/update.src or specify the name of a device to update from.


         Create or change the address of          Address of current source
         /dev/update.src? (y or n)  _                major number: __
                                                      select code:  __
            Source:  _____                        bus address:  _
                                                      unit number:   _
                                                    volume number: _



         Destination Directory:  _____

       Help             Done                                   Exit
                                                               Window
```

To change the **Source** field, enter the name of the device file, or regular file containing a tar archive, from which you want to update. The default is **/dev/update.src.**

Fill in the address fields if necessary. For information about device addressing see *Installing Peripherals*, HP part number B1862-90007.

To change the **Destination** field, enter the name of the directory on the local system where the files should be loaded. The default is root (**/**) for update and **/netdist** for **updist** (if you are setting up a network update server.)

Caution   If the new source or destination entered is shorter than the old source name, you must use the space bar to "wipe out" the

remaining characters in the field, or they will be considered part of the new name.

When you're finished making changes, press `Done` to return to the Main Menu.

Go On To Step 11

b. **To update from a netdist server,** select "Change Source or Destination" from the main menu. Then select "From Netdist Server to Local System". The following menu appears.

```
           From Netdist Server to Local System


          Modify the desired fields and press "Done".

          Netdist Server (source):

          Port Number:  2106



          Destination Directory:  /


  Help              Done                              Exit
                                                      Window
```

In the **Source** field enter the system name or the internet protocol address of the netdist server that will be the source of the update. To find out the system name, enter hostname on the netdist server, or look in the /etc/hosts file for the internet address. There is no default.

The **Destination** field indicates the name of the directory on the local system where the files should be loaded. The default is root (/).

The **Port Number** field indicates the network port number where the netdist server's netdistd command is responding to requests for updates. The default is 2106 or the number associated with the "netdist" entry in the local system's /etc/services file.

Note If you're updating a mixed cluster server or running updist ...

During update, the "HP9000 Series (300/400 or 600/800)" field indicates the type of system files (300/400 or 600/800) you want to load. This field is displayed during an update if your system is a mixed cluster server. With a mixed cluster server,

you may want to load files of either architecture. The default displayed is the architecture of the system where update is being run. You must update the host architecture files before updating the files of the alternate architecture.

During updist (used when you're setting up a netdist server), this field is always displayed, since you may want to load files of either 300/400 or 600/800 architecture for redistribution via netdist. The default is the architecture of the system where updist is being run.

When you're finished making changes, press Done to return to the Main Menu.

Go On To Step 11

5

c. **To update from a CD-ROM**, select "Change Source or Destination", and then select "From CD-ROM (directory) to a Local System".

```
                 From CD-ROM (directory) to Local System

       Modify the desired fields and press "Done".

       Source Directory: /UPDATE_CDROM

       Destination Directory: /

       Codeword Certificate:

       Codeword :____ ____ ____ ____ ____
                      ----short form-----

       Verified Hardware ID:
```

The **Source** field indicates the path of the directory to update from. The default is /UPDATE_CDROM.

The **Destination** field indicates the name of the directory on the local system where the files should be loaded. The default is root (/) for update and /netdistfor updist.

Caution	If you type in a new destination or source name, shorter than the old name, use the space bar to "wipe out" the remaining characters in the field.

The **codeword field** is where you enter your codeword, which allows you to extract purchased software from the CD-ROM disc.

Note	If you are loading only the 2-user Runtime software product, you do **NOT** need to enter a codeword. If you are loading additional software products, then you do need to enter a codeword.

If you need to enter a codeword, see the CD-ROM Certificate (shipped with your CD-ROM software purchase). If a codeword is not listed, see the instructions on the certificate for obtaining one. For more information, see the HP-UX CD-ROM Booklet shipped with the CD-ROM discs.

To list the hardware IDs available on your system, highlight the **Verified Hardware ID** field and press `Help`. (Note that you are not allowed to enter anything in the **Verified Hardware ID** field; it is informational only.)

When you're finished, press `Done` to return to the Main Menu.

Go On To Step 11

5

11. From the Main Menu, choose what software you wish to load from your update source media.

The choices are:

Select All Filesets on the Source Media ->

Selecting this item directs update to automatically select every fileset on the source. You will then see the "Select All ... " screen appear. If you wish to examine the filesets selected for loading choose "Modify/View Partitions and Filesets ... ". You can make adjustments to filesets marked for loading, deselecting those you don't want.

Select Only Filesets Currently on Your System ->

Selecting this item causes update to automatically select filesets from the source that match the functionality already existing on your system.

To match the functionality·on your system, **update** surveys the **/etc/filesets** directory on the destination system and selects from the source new filesets whose names match those in **/etc/filesets**. Since some fileset names have changed at Release 8.0, update maps old fileset names in **/etc/filesets** to new fileset names on the source media.

Select/View Partitions and Filesets->

Selecting this item directs update to advance you to the "Select or View Individual Partitions" screen. You can use this screen to tailor the functionality loaded on to your system.

```
          View or Select Individual Partitions

   Mark "y" or "n" to make a selection.
   Press "Partit'n Screen" to return to the partition selection screen.

   Select    Partition            Partition Description      Size in Kbytes

   p      DIAGNOSTICS          Hardware Diagnostic Programs      37663
   y      NETWORKING           Networking Products               8919
   y      NLS                  Native Language Support            472
   y      OS-ADMIN             Recommended Administration Cmds   2292
   y      OS-CORE              Recommended System Core           5517
   y      OS-FEATURES          Selectable OS Features            8176
   y      PROG-LANGUAGES       Programming Languages             8542
   y      REFERENCE-DOC        Reference Manual Pages             348
   y      SHARED-LIBS          Runtime Shared Libraries          2757
   y      WINDOWS              Windowing Products                 102


   ┌──────┐        ┌──────┐ ┌──────┐     ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐
   │ Help │        │Shell │ │Start │     │ Disk │ │ View │ │Global│ │ Main │
   │      │        │      │ │Loading│    │Space │ │Filesets│ │Select│ │ Menu │
   └──────┘        └──────┘ └──────┘     └──────┘ └──────┘ └──────┘ └──────┘
```

5

"View or Select Individual Partitions" Screen

About the **View or Select Individual Partitions** Screen ...

If you want to load an entire partition mark it with a **y**. To load individual
filesets within a partition, press View/Filesets and then mark the filesets
you want loaded with a **y**. (After you select individual filesets within a
partition for loading, the partition is automatically marked with a **p** for
partially selected.)

To deselect a fileset or partition, mark it **n**. Note that sometimes when you
mark a partition **n**, a **p** appears instead. The **p** means that one or more filesets
within the partition are still selected, since other selected filesets depend on
them.

Note	Update checks for dependencies between filesets. When you select a fileset that represents functionality you want, update checks that the other filesets needed to support that fileset are either also selected for loading, or are already present on your

system. If the supporting filesets are already current on the
system, update will not force you to load them again.

When you deselect a fileset, update checks to see if other
selected filesets depend on it.

When you are satisfied with your choice of software, select "Start Loading";
the system will calculate whether disk space is adequate to load the selected
filesets. If adequate space is available, loading starts.

Note   If the system calculates that the amount of free disk space after
loading will be below the recommended minimum, the following
message appears.

> ```
> It is recommended you free up n kbytes....
> Loading the selected filesets would result in less free disk space ...
> ```

If there is insufficient space to load the selected filesets, this
message appears:

```
You MUST free up n kbytes.
Loading the selected filesets is impossible due to insufficient space on
one or more file systems....
```

One way to free up disk space is to return to the "Modify/View
Filesets and Partitions" screen or "View Filesets" screen and
deselect some filesets. You can also press SHELL to escape
the update program and then use various methods to free up
disk space. See the following section "If You Need to Free Up
Disk Space" for more detailed instructions. When you're done,
type exit to return to the update program. For a detailed
discussion of disk space, see the *System Administration Tasks
Manual*, HP part number B2437-90006.

As update (or updist) loads filesets, progress messages are displayed and
recorded in /tmp/update.log.

After the filesets are loaded, update runs customization scripts for individual
filesets, and depending on the subsystems being loaded, the kernel may be
reconfigured.

The system may also reboot twice while loading filesets.

When loading is completed, the login prompt appears. Go on to the section "Tasks to Perform After Update".

5

If You Need to Free Up Disk Space

The `update` program determines if you have sufficient disk space before it begins loading filesets and warns you if space is insufficient or if it is less than the recommended minimum. (See the messages listed in Step 11 in the update procedure.) To calculate the amount of free disk space, update searches all mounted volumes to find where the files to be updated reside. It learns whether those volumes are writable (not NFS mounts or read-only disks) and it compares the sizes of existing files on the destination with the filesets on the update source. The amount of disk space available on your destination depends on these factors:

- The files on your system.

- The file system capacity of your disk (or disks).

- The minimum free space required on your system's mounted file systems.

- Swap space requirements on your system.

- The partitions and filesets you select to load.

- Future expectations for space requirements on your system. To deal with space problems over the long term, you might consider mounting an additional disk device or adjusting swap space.

Dealing with Minimum Free Space Requirements

You must have a certain amount (10% by default) of free disk space on each mounted file system to which you will load files. This space is called "minimum free space," or *minfree*. Only the superuser (a person logged in as `root`) can allocate space on a file system with less than *minfree*.

As you run `update`, you might see one of these messages:

```
It is recommended you free up n kbytes
Loading the selected filesets will result in less free disk space ...
```

Either message means that less than *minfree* will remain on one or more file systems to which you will load files. If you are using `update` interactively, you are permitted to proceed with loading. (Non-interactive update aborts in this case.) However, it is recommended that you first free the minimum free space (see "How to Free Disk Space" in the following section).

Dealing with Insufficient Disk Space

As you run `update`, you might see one of these messages:

```
You MUST free up n kbytes
Loading the selected filesets is impossible due to insufficient space on one
or more file systems....
```

Either message means that you do not have sufficient disk space on one or more file systems to complete your update, and you cannot proceed with loading. You must free a sufficient amount of the file system's disk space before you can proceed with the program (see "How to Free Disk Space" on the following page).

How to Free Disk Space

You can free disk space by de-selecting filesets or removing files, by mounting another file system, or by creating symbolic links.

De-select Filesets or Remove Files Interactively

While in the `update` program, you can free disk space by de-selecting filesets using the Partition Selection screen, the Fileset Selection screen, or the Disk Space Analysis screen.

Alternatively, you can remove unnecessary files from the file system by pressing the `Shell` function key, removing files, and returning to the `update` program. To inspect files larger than n kbytes, use the `find` command with a size parameter (see *find*(1) in the *HP-UX Reference*).

The specific files you might want to remove will vary. To start, however, check the following directories for unnecessary files: `/tmp`, `/etc/*tmp*` (you might remove `wtmp` or `btmp`), `/usr/adm`, `/usr/local`, `/usr/contrib`, `/usr/tmp`, `/users`. You can remove unnecessary filesets using the `rmfn` command (see Chapter 4 in this manual or *rmfn*(1M) in the *HP-UX Reference*).

Note	Do not remove files or directories under `/system`. If you do, you won't be able to convert to (or create) an HP-UX cluster. Also, system customization may fail if you decide to load new filesets later.

Mount Another File System

The chapter in this manual titled "Managing the File System" describes how to mount additional file systems to free disk space.

Create Symbolic Links

You can free disk space by moving files or directories and creating "pointers" (**symbolic links**) from the old locations to the new locations. Symbolic links can span file systems and refer to directories as well as files. Create symbolic links with the command ln -s (see *ln*(1) in the *HP-UX Reference*).

For example, to move /usr/man from /usr to /extra/man (where /extra/man is a file system in which more free space exists), follow the steps below. Because /usr/man is approximately 5 Mbytes, you will be freeing 5 Mbytes in the /usr file system and consuming that amount in /extra:

1. `cd /usr`
    `find man -print | cpio -pdumv /extra`
    1. Copy the subdirectory from /usr to /extra.

2. `mv /usr/man /usr/man.old`
    2. Temporarily rename the original man (this is your "backup").

3. `ln -s /extra/man /usr/man`
    3. Create a symbolic link between the directory's new location and its old location.

4. `ls /usr/man`
    4. List the contents of the directory.

5. `ls /usr/man.old`
    5. List the contents of your "backup"; the output should match the output of Step 4.

6. `rm -rf /usr/man.old`
    6. If the outputs match, remove your "backup."

If the outputs from Step 6 *don't* match, remove the link, and start over at Step 1. To remove the link, type the following:

```
rm -rf /usr/man /extra/man
mv /usr/man.old /usr/man
```

Caution	Do not create symbolic links under the root (/) file system. In particular do not create symbolic links under **/bin**, **/etc**, **/lib**, **/dev**, or **/system**.

Getting More Information

- Refer to *update*(1M) in the *HP-UX Reference* to learn more about using **update** non-interactively.

- Refer to the **rmfn** command discussion in Chapter 4 in this manual or *rmfn*(1M) in the *HP-UX Reference* to learn more about using the **rmfn** command.

- Refer to *ln*(1) in the *HP-UX Reference* to learn more about using the **ln** command.

- Refer to the *How HP-UX Works: Concepts for the System Administrator*, HP part number B1852-90005 manual for a more detailed discussion of swap space, disk space requirements, and *minfree*.

5

Tasks to Perform after the Update

After the `update` program has completed, you need to perform various tasks to set up the system for users. These tasks include the following:

1. Log in and check the following files and directories:

Check this ...	For this Information ...
`/tmp/update.log` file	Contains a description of the events and any errors that occurred during the update process. For more information, see "Checking the update.log File" in this chapter.
`/etc/newconfig/ReleaseNotes` directory	Contains files with software product update information.
`/etc/newconfig/README` file	Contains useful information about files in `/etc/newconfig`.
`/etc/newconfig` directory	Contains new versions of some files normally put into the `/etc` directory (for example, `rc`, `brc`, `backup`, `backupf`). Because you might have edited the original versions of these files, they are not replaced by either `update` or customize scripts. You can use the `diff` command to find the differences between old files and the new files placed in `/etc/newconfig`. Incorporate your changes into the new files, move them to `/etc`, and use the new files.

2. To create a new recovery system, see the *System Administration Tasks Manual*, HP part number B1862-90008.

3. To set up HP VUE, see the *HP Visual User Environment Configuration Guide*, HP part number B1171-90021.

4. If you're updating a cluster, or want to convert a standalone system to a cluster server, see *Managing Clusters of HP 9000 Computers*, HP part number B1862-90006.

Checking the update.log File

After running the **update** or **updist** programs, check **/tmp/update.log** for a description of the events and any errors that occurred during the process. This log file has a time and date heading that corresponds to each update session. After you've reviewed this log, you might want to remove it: the **update** program will continue to append to this log file, and it could become large.

The **update.log** file contains three broad kinds of messages:

1. Output from **update** or **updist**. These messages are indented and may be preceded by a message label:

=======	Indicates that a task is beginning or has completed. For example: **======= ... BEGINNING UPDATE PROGRAM** **======= ... COMPLETED UPDATE PROGRAM**
ERROR:	Indicates the program cannot proceed, or that it needs corrective action. For example: **ERROR: Destination directory "/mount" is invalid:** **No such file or directory.**
WARNING:	Indicates the program can continue. However, something went wrong or requires attention, either now or later. For example: **WARNING: Cannot access /etc/checklist file: No such file or directory.**
NOTE:	Indicates that something out of the ordinary or worth special attention has happened. For example: **NOTE: Saved /hp-ux in /SYSBCKUP.**
asterisk (*)	Indicates generic progress and status messages. For example: *** Beginning to load fileset "KERN_BLD".** *** Successfully loaded fileset "KERN_BLD".**

   All **ERROR** and **WARNING** messages are also displayed to the screen, whether **update** or **updist** runs interactively or from the command line.

2. Output from fileset customize scripts, which should be in the same format described above.

3. Output (standard output or standard error) from programs executed by `update`, `updist`, or a customize script. For example, the following output is from a program executed by `update`:

```
Following is output from "/bin/make":
=====================================================================
Compiling conf.c ...
    /bin/cc  +O1 +M -Wc,-Nd3500,-Ns3500 -Dhp9000s200 -D_hp9000s300 -D_hp90

...
```

A Guide to Troubleshooting

The table in this section describes some of the possible situations and error messages that you might encounter during the interactive update process.

Situation	Possible Message(s)	What to Do
Updating from a local tape drive.	`... Cannot verify the specified source. Change the source specified, or ensure the media is loaded and ready to read.`	1. Ensure that the cartridge drive is finished loading the tape (the busy light is out). 2. Ensure your source is correct: ■ *Series 300/400:* Default source is **/dev/update.src**. ■ *Series 600/800:* Default source is **/dev/rmt/0m** (that is, *zero*m). If your system does not have the default device file, if you are updating from tape, you must specify the correct name of the source device's device file. See "Before Running Update" in this chapter.

Situation	Possible Message(s)	What to Do
Updating from a local source.	`Cannot open source` *name*`:`	Ensure your source is correct: ■ *Series 300/400:* Default source is `/dev/update.src`. ■ *Series 600/800:* Default source is `/dev/rmt/0m` (that is, *zerom*). □ If your system does not have the default device file, if you are updating from a different source, or if you are updating a Series 600/800 from cartridge tape, you must specify the correct name of the source device's device file. See "Before Running Update" in this chapter.
You selected filesets that caused a system reboot, but unexpected processes are running.	`... non-essential process (other than those expected at the time of system reboot) ...`	You have several options: ■ Continue, and the processes will terminate when `update` reboots the system; users may lose work in progress. ■ Exit `update`, and run `shutdown`; then restart the program by typing `/etc/update`). You will lose any partition/fileset selections already made. ■ Do a shell escape and run `/tmp/update.killall`, a script built by update to terminate non-essential processes.

Situation	Possible Message(s)	What to Do
Updating from a netdist server.	1. `Netdist server host` *name* `is not in the hosts database.` 2. `Cannot connect to netdist server running on host` *x* `at port` *y*`: Server not running or connection refused.` 3. `Connection closed by netdist server on host` *name*`: Access to this server is restricted.` 4. `... Server has no filesets for this architecture.`	For each of these messages, first check that the host name and port number are correct. If you do not know the correct name/number, see the network or system administrator. 1. Either add an entry for the server host to the hosts database, or use the server host's internet address instead of its host name. 2. The `netdist` server probably is not running on the specified host. Contact the network administrator. 3. The network administrator must modify the server's security file so your system can use the `netdist` service. 4. The server specified is not distributing software for your system type. (For example, you're updating a Series 300/400 system, and the server has no Series 300/400 filesets.) Either locate a server that can distribute software for your system type, or configure the server specified so it can distribute the appropriate software.

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Situation	Possible Message(s)	What to Do
Updating from CD-ROM.	You don't see all the software that you purchased on the CD-ROM disc displayed.	You didn't enter a codeword, or you entered an incorrect codeword. Return to the Main Menu and select the menu item **Enter Codeword**. Check your CD-ROM Certificate (shipped with your software purchase) for your codeword. Re-enter it correctly.
Updating from CD-ROM. You entered an incorrect codeword.	`The codeword you entered cannot be verified ...`	■ Check that you typed in the codeword correctly. ■ Check that the hardware ID matched to your codeword is present on the system. Highlight the **Verified Hardware ID** field and press Help. Make sure that the hardware ID listed on the CD-ROM Certificate matches one of the displayed legal IDs. If the hardware ID is not present on your system, you need to connect the hardware device represented by that ID, for example, an HP-HIL module or an HP-IB CD-ROM drive. ■ Check that the correct CD-ROM disc is inserted in the drive.

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Situation	Possible Message(s)	What to Do
Updating from CD-ROM. The CD-ROM disc is not mounted.	`Cannot update from source directory "UPDATE_CDROM"; invalid update media.`	1. Press ▓Shell▓ to escape from the **update program**. 2. Mount the CD-ROM drive as instructed in the section of this chapter called "Before Running Update". 3. Type **exit** to return to the **update** program. 4. Select **Change Source or Destination**, then select **From CD-ROM (directory) to Local System**. Fill in the CD-ROM information and proceed with the update.

Updating from CD-ROM. You inserted the HP-UX Install disc instead of the HP-UX Core Operating System disc or HP-UX Application Software disc.	`Error: Cannot copy file "UPDATE_CDROM/system/INDEX" to file "system/INDEX": I/O error (errno=5)`	1. Press ▓Exit▓ to leave the update program.
		
		2. To umount the HP-UX Install disc, enter:
		
		    `umount /UPDATE_CDROM`
		
		3. Remove the HP-UX Install disc.
		
		4. Insert the correct disc. Mount the disc as instructed in this chapter in the section "Before Running Update".
		
		5. To test if the update disc is mounted, type:
		
		    `ll /UPDATE_CDROM`
		
		6. To reinvoke the update program, type
		
		    `/etc/update`

Situation	Possible Message(s)	What to Do
Updating a cluster.	1. `The Series 300/400 software on this update media cannot be loaded correctly on a Series 800 clustered system due to missing CDF information.` 2. `The software on this update media might not function correctly on a clustered system due to missing CDF information.`	1. On a Series 800 cluster, `update` requires CDF information that does not exist on pre-7.0 media. Obtain a 7.0 version of this software. 2. If you are planning to convert this system into a cluster server, you need a 7.0 version of this software. If you do not intend to convert the system into a cluster server, you can ignore this message.
Configuring a `netdist` server (running `updist`).	`The software on this update media cannot be distributed by a netdist` server due to missing CDF information."	Network distribution requires CDF information that does not exist on pre-7.0 media. Obtain a 7.0 version of this software.
Starting the `netdistd` program.	1. Network service $name$/tcp is not in the services database. 2. `Address already in use`	1. Either add an entry to the `/etc/services` file, or specify a port number using the `-P`$port$ option (see $netdistd$(1M) in the *HP-UX Reference* and $services$(4) in the *Networking Reference*). 2. Another `netdist` server program is running on the specified (or default) port. Specify a different port using the `-P`$port$ option.

Situation	Possible Message(s)	What to Do
You neglected to load the 8.0 version of the update program on your system.	`A file size line for fileset "+DR,555" was encountered in the /tmp/INFO file, but that fileset does not appear in the /tmp/INDEX file. The files are inconsistent.`	1. Exit the update program. 2. Go to Step 4 of the "Running the Update Program" procedure in this chapter and load the 8.0 version of the update program on your system. 3. Enter **/etc/update**
You've inserted the first update tape.	1. `... The media type appears to be Logical Interchange Format (LIF)....` 2. `... The media is an unrecognized (invalid) type, or it might be corrupt.` 3. `... The information files on the media did not exist or could not be read....`	1. Perhaps you inserted a tape in pre-7.0 format. 2. If you suspect the tape itself is corrupt, call Hewlett-Packard.
A customize script has failed.	`Type "exit" to return to update.`	Check **/tmp/update.log**, and re-run the customize script as indicated.
Garbled display or odd behavior after the update.	No error message	You may have set **TERM** incorrectly. Setting **TERM** is described in *A Beginner's Guide to HP-UX*. CTRL-L refreshes the screen.

6

Setting Up a Network Server to Update HP-UX

Use this chapter to set up a server to update HP-UX software and applications over the network. Go to Chapter 5 "Updating HP-UX" for step-by-step instructions on the update procedure.

Overview of the netdist Program

Setting up a network server to distribute update software is particularly useful if you have a large group of networked systems that must be updated to a new HP-UX release.

You can set up a network distribution (netdist) server on your network to distribute HP-UX software and applications over the network. A netdist server of either 300/400 or 600/800 architecture can distribute software to other systems of either architecture.

Other systems on the network run the standard /etc/update program, specifying the netdist server as their update source instead of tapes or CD-ROM discs.

To set up a netdist server, you run the updist program (a variant of update) on the server. The updist program transfers files from the update tapes or CD-ROM discs to the server disk.

You then start the netdistd daemon running on the server, enabling other systems to draw filesets from a server directory, usually called /netdist. (This directory is set up when you run the updist program.) The netdistd daemon delivers the filesets from the /netdist directory over the network to the requesting system.

Note that updating from a netdist server does *not* require a tape or CD-ROM drive on the requesting system.

Before Setting Up a Network Distribution Server

You need to meet the following requirements before you can set up a netdist server.

Hardware Requirements

■ **Networking hardware installed.**

Have the necessary networking hardware set up and configured.

For information, see the *LAN Interface Controller (LANIC) Installation and Reference Manual* and the *LAN Cable and Accessories* Manual.

■ **Meet disk space requirements.**

Make sure the server has adequate disk space. For HP-UX 8.0, you need a *minimum* of 90 Mbytes for the Series 300/400 runtime product and 75 Mbytes for Series 600/800 Multi-user runtime product. The Series 600/800 Server runtime product requires 105 Mybytes. Also, you need to leave space for additional applications.

For a mixed cluster, you need space for both Series 300/400 and Series 600/800 filesets, plus space for additional applications. A mixed cluster server, for example, probably will need at least 400 Mbytes of space—plus space for future growth.

In fact, you might want to mount a separate disk on the netdist server to contain the /netdist directory, from which the server distributes files. (For information on adding disks and mounting file systems, see the *System Administration Tasks* Manual).

□ For example, to distribute software for Series 300/400 HP-UX systems only, you might mount a 304 megabyte disk at /netdist.

□ To distribute software for both Series 300/400's and Series 600/800's, the server must have files for both types of systems; a 660 megabyte disk might be more appropriate for the `/netdist` directory.

Software Requirements

■ **Update the netdist server to the 8.0 operating system**

Before you set up the system as a `netdist` server, you must update the server to HP-UX 8.0 (see the `update` procedure described in chapter 5). Include the 8.0 LANLINK software. If you plan to set up anonymous ftp for file transfer (see below), also include ARPA software.

■ **Set up networking software.**

After updating the server to HP-UX 8.0, configure the 8.0 LANLINK software instructed in the networking documentation. See the following books:

□ *Installing and Administering ARPA Services* (part number B1014-90007)
□ *Installing and Administering LAN/9000 Series 800* (part number 98194-60526)

To transfer files between the `netdist` server and client systems, you might want to set up ftp (file transfer protocol) in the "anonymous" mode. Anonymous ftp is not the only method you can use to transfer files, but it provides a fast, effective vehicle for file transfer among networked systems. If you do not have anonymous ftp on your system, you can set it up using *sam*(1M) or by consulting the manual *Installing and Administering ARPA Services* (part number B1014-90007).

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Setting Up a Network Distribution Server

1. If you have not already done so, read the preceding section "Before Setting Up a Network Distribution Server".

2. On the server, create the directory **/netdist** if it does not already exist.

3. Make sure the **/etc/services** file contains an entry for the **netdist** server. The entry should look something like this:

   ```
   netdist          2106/tcp         # network file distribution
   ```

   2106 is the default port number on the server.

   If the entry does not exist, add it by typing the above example into the **/etc/services** file on the server.

4. On the server, enter,

   ```
   /etc/updist
   ```

   The updist program (a variant of **update**, see Chapter 5) transfers filesets from tape, CD-ROM, or another server to a hierarchical structure beneath the **/netdist** directory. These filesets are the ones the **netdist** server delivers to other systems on request: the filesets you select using updist are the only ones the **netdist** server can provide.

   To distribute software for both Series 300/400 and Series 600/800 systems, run the updist program with each set of 8.0 update tapes or CD-ROM discs.

   After both sets of software are loaded, they are contained in separate directories beneath the **/netdist** directory.

5. When updist completes, to bring up the server, enter

   ```
   /etc/netdistd -l     lowercase L
   ```

   The netdistd program is the daemon that monitors the network for netdist requests. The -l argument causes the **netdist** daemon to log activity and error information to /usr/adm/netdist.log. The netdist.log file is described later in this chapter. For other options to netdistd, see *netdistd*(1M) in the *HP-UX Reference*.

6. Make the `update` program on the server available for network distribution to client systems.

   a. On the server, build the TOOL archive from the `/netdist` directory. Enter the following commands at the system prompt:

      - *Series 300/400* - To distribute software for a Series 300/400, type:

        ```
        cd /netdist/300/TOOL/product
        tar -cvf /tmp/TOOL.300 etc system
        ```

      - *Series 600/800* - To distribute software for a Series 600/800, type:

        ```
        cd /netdist/800/TOOL/product
        tar -cvf /tmp/TOOL.800 etc system
        ```

      - *Series 300/400 and Series 600/800.* To set up the server to distribute software for the Series 300/400 and Series 600/800, type both sets of commands, as shown above.

   b. This step assumes that anonymous ftp has been set up on your system (see "Before Setting Up a Network Distribution Server" earlier in this chapter):

      Make the TOOL archive available to requesting systems by putting the archives in a place where other systems can get them. Type one of these sets of commands at the system prompt:

      Series 300/400:
      ```
      mkdir /users/ftp/dist
      mv /tmp/TOOL.300 /users/ftp/dist/TOOL.300
      chmod 444 /users/ftp/dist/TOOL.300
      ```

      Series 600/800:
      ```
      mkdir /users/ftp/dist
      mv /tmp/TOOL.800 /users/ftp/dist/TOOL.800
      chmod 444 /users/ftp/dist/TOOL.800
      ```

7. Check that the requesting systems have permission to access the `netdist` server. Permissions are set up in the `/usr/adm/inetd.sec` file on the server. See *inetd.sec* (5) in the *HP-UX Reference* for details.

Getting More Information ...

For additional information on the `netdist` daemon, see *netdistd*(1M) in the *HP-UX Reference*.

For additional information on using or setting up anonymous ftp, see *sam*(1M) or *Installing and Maintaining NS-ARPA Services.*

For additional information on disk space, see the *HP-UX System Administration Concepts Manual.*

For additional information on networking hardware, see available hardware configuration manuals and data sheets, such as the *HP9000 Series 300 Hardware Configuration Guide.*

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Shutting Down the Network Distribution Server

You'll need to shutdown an existing `netdist` server before updating it to distribute a new version of software.

Procedure

1. The `netdistd` daemon spawns a child process to handle each incoming update request. Thus, if three update requests are being serviced, four copies of the `netdistd` daemon are running (one parent and three child processes).

   Determine which process is the *parent* process by viewing the file in `/usr/adm/netdist.log`.

   The line showing the parent process in the log file will look something like this:

   ```
   netdistd.560 14:59:46...Started on port 2106
   ```

   Lines in the log file beginning with `netdistd` indicate a "parent" daemon. The parent daemon's process ID (PID) is the number immediately following `netdistd` (in the example above, this number is 560). (see the following section "Checking the netdist.log File" for additional information on the `netdist.log` file.)

2. Kill the original parent daemon using the PID number (see *kill*(1) in the *HP-UX Reference*), and wait for any child daemons to terminate normally. Killing the parent daemon prevents any new connections from being established.

Caution	Do not kill the child process—if you do, you will interrupt an update in progress.

For example, to kill the parent process in the above example, enter:

```
kill 560
```

Adding and Updating Filesets on the Network Distribution Server

Prerequisite

- Read the previous section, "Shutting Down the Network Distribution Server".

Adding New Filesets to an Existing Server

1. Run the updist program on the server, as described in Step 4 of "Setting Up a Network Distribution Server". Load the new filesets you want.

2. When the updist program has completed, you need to kill and restart the parent netdistd daemon. To kill the parent daemon see "Shutting Down the Network Distribution Server".

   To restart the netdistd daemon, enter:

       /etc/netdistd -l   *lowercase L*

Updating Existing Filesets on the Server

1. Shut down the netdist server (see the previous section "Shutting Down the Network Distribution Server"). If you don't shut down the server, you might update files of a fileset that is being distributed to a remote system or cause a core dump.

2. Run the updist program, as described in Step 4 of "Setting Up a Network Distribution Server" to update existing filesets with filesets on the update source media.

3. When updist completes, restart the netdistd daemon by typing

       /etc/netdistd -l   *lowercase L*

   The -l argument causes the netdist daemon to log activity and error information to /usr/adm/netdist.log. For additional information on the netdist.log file, see the following section "Checking the netdist.log File".

Checking the netdist.log File

The `netdistd` daemon records events in **/usr/adm/netdist.log** if you specify the **-l** argument when you start the daemon (**/etc/netdistd -l**).

The `netdist.log` file contains the following information:

- The process ID of the parent `netdistd` daemon.

- The number of remote, incoming requests for the `update` program.

- The number of `update` program requests currently being serviced. By default, a `netdist` server can service twenty remote update sessions simultaneously. To change the default, use the **-C** option, as described in *netdistd*(1M) in the *HP-UX Reference*.

Here is an example of a `netdistd.log` file (the example is explained on the following page):

```
Version @(#)$Revision: 64.7 $
Startup
Building database 14:56:42


Database ready 14:59:46


netdistd.560 14:59:46...Started on port 2106
Parent daemon
netdistd.560 14:59:46...Connection limit is 2


1.562 15:09:22...Begin service for hptest on port 2106
First child daemon
1.562 15:09:22 update @(#) $Revision: 64.492 $


1.562 15:09:22 HP-UX hptest A.B7.00 B 9000/800 15453


2.570 15:10:36...Begin service for hpclient on port 2106
Second child daemon
2.570 15:10:36 update @(#) $Revision: 64.492 $


2.570 15:10:36 HP-UX hpclient 7.0 B 9000/300
```

```
1.562 15:13:02...End service for hptest

2.570 15:27:17...End service for hpclient
```

Startup: The first three lines in the preceding example print when you start the `netdistd` program. The first line shows the version of the `netdistd` program; the second and third lines indicate that the database was initialized successfully.

Parent daemon: Entries beginning with `netdist` indicate a "parent" daemon. The parent daemon's process ID (PID) is the number immediately following `netdist` (in the example, opposite, this number is 560). When shutting down the `netdist` server, use this PID to kill the parent daemon process.

Child daemons: Entries beginning with a digit indicate "child" daemons. The first number (for example, the 1 in 1.562) is a counter that increments by one each time a child daemon is spawned. This counter lets you determine the number of update sessions that have used this `netdist` server since the server was started. In the opposite example, two child daemons (1.562 and 2.570) have been spawned from the parent daemon (560).

                                   The number following the counter (for example, the 562 in 1.562) is the child daemon's process ID (PID). *Do not kill the child process*—if you do, you will interrupt an update in progress.

Finding Out What Filesets Are Available to Network Update

You can determine what filesets are available on the `netdist` server for network update by checking the `MAIN.pkg` file.

Checking the MAIN.pkg File

This `MAIN.pkg file is automatically created or modified when you run the updist` program; it describes the filesets available on the server for network distribution. The file's contents will look something like this:

```
source "/netdist/300/ACCOUNTING/netdist.pkg";
source "/netdist/300/ALLBASE1/netdist.pkg";
```

Statements beginning with `source` identify which filesets are available for network distribution. To prevent a fileset from being distributed, place a pound sign (#) at the beginning of the statement to comment it out, or remove the statement from the file (see the following section for the complete procedure).

Checking Dependencies between Filesets

Dependencies exist between some filesets. A fileset that depends on one or more other filesets will have a comment directly beneath its `source` statement. For example:

```
...
source "/netdist/800/NS-SERV/netdist.pkg";
#NOTE:   NS-SERV depends on LANLINK
...
source "/netdist/800/NFS-RUN/netdist.pkg";
#NOTE:   NFS-RUN depends on LANLINK
...
source "/netdist/800/LANLINK/netdist.pkg";
...
```

In the example above, the `NS-SERV` and `NFS-RUN` filesets depend on the `LANLINK` fileset. Do not comment out the source statement for `LANLINK` unless you also comment out the lines for `NS-SERV` and `NFS-RUN`.

The update program issues an error message if the netdist server from which the program is updating contains unsatisfied fileset dependencies. For example:

```
ERROR:  Fileset "NS-SERV" depends on fileset "LANLINK", which does
not appear to be on this media.
```

To verify that the dependencies are correct, type the following command on the client system once the netdist server is running:

```
update -s server_hostname -c
```

Modifying What Filesets are Available to Requesting Systems

To change what filesets are available on the netdist server for distribution to requesting systems you can modify the MAIN.pkg file. To modify the MAIN.pkg file once netdistd is running, follow these steps:

1. Shut down the netdist server (see "Shutting Down the Network Distribution Server" in this chapter).

2. Determine which filesets you do not want to distribute over the network.

3. Edit the MAIN.pkg file. Use vi (or any appropriate text editor) to place a pound sign (#) at the beginning of the statement or to remove the line. Be aware of possible fileset dependencies, as described in the preceding section.

4. Re-start the netdist server with /etc/netdistd -l (lowercase L).

A

Product to Fileset Mapping

Product/Fileset Lists

This appendix contains lists of the filesets that are contained in the various Series 300/400 HP-UX 8.0 release product offerings.

Product List:

HP-UX 2-User Runtime S300/400
HP-UX 32-User Runtime S300/400
HP-UX/X.25 S300/400
ANSI/C Compiler S300/400
C/ANSI C Developer's Bundle S300/400
Developer's Toolkit S300/400
Fortran S300/400
Pascal S300/400
HP GKS S300/400
Japanese NL I/O S300/400
Simplified Chinese NL I/O S300/400
Traditional Chinese NL I/O S300/400
Korean NL I/O S300/400
HP Windows/9000 S300/400
Network Services S300/400
Terminal Session Manager S300/400
General Programming Tools S300/400

HP-UX 02-User Runtime S300/400
HP-UX 32-User Runtime S300/400

Product Numbers:

B1861A	2-user Runtime
B1862A	32-user Runtime

Filesets:

ACCOUNTNG	DANISH
ACCOUNTNG-MAN	DISKLESS
AGRM	DISKLESS-BLD
AMERICAN	DISKLESS-MAN
APPLTALK	DOS-UTILS
ARABIC	DOS-UTILS-MAN
ARABICW	DQUOTA
ARPA-INC	DQUOTA-MAN
ARPA-MAN	DRIVERS
ARPA-RUN	DUTCH
AUDIT	ECC-TOOLS
AUDIT-MAN	ECC-TOOLS-MAN
BIF-CMDS	EDITORS
BIF-CMDS-MAN	EDITORS-MAN
BMS	ENGLISH
BSDIPC-SOCKET	FAFM-RUN
BULGARIAN	FAFM-SHLIBS
C-INC	FINNISH
C-MAN	FPA
C-MIN	FRENCH
CE-UTIL	GERMAN
CFRENCH	GRAPH-SRX-DIAG

A

```
CHINESES              GRAPH-VRX-DIAG
CHINESET              GREEK
CMDS-AUX              HEBREW
CMDS-AUX-MAN          HUNGARIAN
CMDS-MIN              ICELANDIC
CMDS-MIN-MAN          IGNITION
CORE-DIAG            ITALIAN
CORE-SHLIBS          JAPANESE
CZECH
KATAKANA                  RUSSIAN
KERN-BLD             SAM
KERN-BLD-MAN         SAM-MAN
KEYSHELL-MAN         SBDL-SHLIBS
KEYSHELL-RUN         SDF-CMDS
KOREAN               SDF-CMDS-MAN
LAN                  SERBOCROATIAN
LAN-MAN              SLOVENE
LANG-SHLIBS          SPANISH
LP-SPOOL             SPELL
LP-SPOOL-MAN         SPELL-MAN
LSSERVER-ADMIN       STAR-RUN
LSSERVER-MAN         STAR-SHLIBS
LSSERVER-RUN         SWEDISH
MAILERS              SYS-ADMIN
MAILERS-MAN          SYS-ADMIN-MAN
MKFONTDIR            SYS-VERIFY
MULT-USER            SYSCOM
NCSNCK-MAN           SYSCOM-MAN
NCSNCK-RUN           TEXT-FMT
NET                  TEXT-FMT-MAN
```

A

```
NETINET             TOOL
NETIPC              TOOL-MAN
NETTRACELOG         TURKISH
NFS-INC             UUCP
NFS-MAN             UUCP-MAN
NFS-RUN             UX-CORE
NLS-CORE            UX-CORE-MAN
NLS-CORE-MAN        X11-FONTA
NONHPTERM           X11-FONTB
NORWEGIAN           X11-FONTC
PAM                 X11-RUN
PAM-MAN             X11-RUN-MAN
POLISH              X11-SERV
PORTUGUES           X11-SHLIBS
RUMANIAN
```

A

HP-UX/X.25 S300/400

```
Product Number:

B36941A

Filesets:

BSDIPC-SOCKET
NET
NETINET
NETIPC
NETTRACELOG
X25-COM
X25-IP
X25-MAN
X25-PA
```

ANSI/C Compiler S300/400

Product Number:

B2371A

Filesets:

C
C-TOOLS
DEBUGGERS
DEBUGGERS-MAN

A

C/ANSI C Developer's Bundle S300/400

Product Number:

B1863A

Filesets:

C
C-TOOLS
DEBUGGERS
DEBUGGERS-MAN
FAFM-MAN
FAFM-PRG
PROG-AUX
PROG-AUX-MAN
PROG-MIN
PROG-MIN-MAN
SBDL-DEMO
SBDL-MAN
SBDL-PRG
SRC-CNTL
SRC-CNTL-MAN
STAR-DEMO
STAR-MAN
STAR-PRG
X11-PRG
X11-PRG-MAN

A

Developer's Toolkit S300/400

Product Number:

B1865A

Filesets:

FAFM-MAN
FAFM-PRG
PROG-AUX
PROG-AUX-MAN
PROG-MIN
PROG-MIN-MAN
SBDL-DEMO
SBDL-MAN
SBDL-PRG
SRC-CNTL
SRC-CNTL-MAN
STAR-DEMO
STAR-MAN
STAR-PRG
X11-PRG
X11-PRG-MAN

A

Fortran S300/400

Product Number:

B2372A

Filesets:

DEBUGGERS
DEBUGGERS-MAN
FORTRAN-MAN
FORTRAN-PRG

Pascal S300/400

Product Number:

B2373A

Filesets:

DEBUGGERS
DEBUGGERS-MAN
PASCAL-MAN
PASCAL-PRG
PASCAL-RUN

A

HP GKS S300/400

Product Number:

B2362A

Filesets:

HPGKS
HPGKS-SHLIBS

Japanese NL I/O S300/400

```
Filesets:

KFA-FM
MKFONTDIR
NLIO-JPN
NLIO-JPN-MAN
NLIO-MIN
NLIO-MIN-MAN
NLX11-JPN
NLX11-SUB
STICK-JPN
```

Simplified Chinese NL I/O S300/400

```
Filesets:

MKFONTDIR
NLIO-CHS
NLIO-MIN
NLIO-MIN-MAN
NLX11-CHS
NLX11-SUB
STICK-CHS
```

A

Traditional Chinese NL I/O S300/400

Filesets:

MKFONTDIR
NLIO-CHT
NLIO-MIN
NLIO-MIN-MAN
NLX11-CHT
NLX11-SUB
STICK-CHT

Korean NL I/O S300/400

Filesets:

MKFONTDIR
NLIO-KOR
NLIO-MIN
NLIO-MIN-MAN
NLX11-KOR
NLX11-SUB
STICK-KOR

A

HP Windows/9000 S300/400

Product Number:

B2360A

Filesets:

NJWSERV
WIN-DEMO
WIN-MAN
WIN-PRG
WIN-RUN

Network Services S300/400

Product Number:

B1012B

Filesets:

NS-MAN
NS-SERV
VT3K

A

Terminal Session Manager S300/400

Product Number:

B2351A

Filesets:

TERM-MNGR-MAN
TERM-MNGR-MIN
TERM-MNGR-NHP

General Programming Tools S300/400

Product Number:

B2379A

Filesets:

PROG-AUX
PROG-AUX-MAN
PROG-MIN
PROG-MIN-MAN
SRC-CNTL
SRC-CNTL-MAN

A

Index

Win an HP Calculator!

Your comments and suggestions help us determine how well we meet your needs. Returning this card with your name and address enters you in a quarterly drawing for an HP calculator*.

Installing and Updating HP-UX

B1862-90002   E0191

Use the "uname" command to provide information about your operating system and hardware.

Type   `uname -rvm`   to get this information: $\underline{\quad}.\underline{\quad}$ $\underline{\qquad\quad}$ $\underline{\qquad\qquad}$

release   o.s.version   hardware

Complete the remainder of this card only if you installed or updated HP-UX yourself. Use the column labeled "NC" if you have no comment or opinion regarding that topic.

	Agree				Disagree	NC
The product was easy to install.	O	O	O	O	O	O
The manual is well organized.	O	O	O	O	O	O
It is easy to find information in the manual.	O	O	O	O	O	O
Step-by-step procedures are easy to perform.	O	O	O	O	O	O
Overall, the manual meets my expectations.	O	O	O	O	O	O

Have you installed HP-UX before?   __ Yes   __ No

Did you need assistance?   __ Yes   __ No

fold ———

Please take the time to describe any problems you've had or any suggestions that would improve our product/manual.   Use additional pages if needed.   The more specific your comments, the more useful they are to us. Thank you.

Comments: _____

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__ **Check here if you would like a reply.**

*Offer expires 1/1/1993. (Manual: B1862-90002   E0191.)

Please Tape Here

Please print or type your name and address.

Name: _____

Company: _____

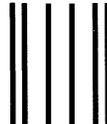**Address:** _____

City, State, Zip: _____

Telephone: _____

Additional Comments: _____

Installing and Updating HP-UX
HP Part Number B1862-90002
E0191