

CHAPTER 2

Installing HP-UX

Topics Covered in this Chapter

This chapter covers several topics related to installing HP-UX. These topics are covered in the order you would install the software when initially loading your system:

- Background on HP-UX 11i *Operating Environments*
- Installing the HP-UX 11i *Operating Environment*
- Setting system parameters at the time of first boot after loading HP-UX 11i with **set_parms**
- Viewing *Mission Critical Operating Environment* components and installing additional software with Software Distributor
- Download and install select patches on your system
- Software Distributor background
- Common HP-UX Environment Project Tasks

You would typically load software in this order: install the base *Operating Environment*; boot your system and use **set_parms**; load application software; and finally, download and install select patches.

Background on HP-UX 11i Operating Environments

HP-UX 11i is organized into *Operating Environments*. These are software groupings provided by HP that are integrated, tested, and supported by HP. There are the five operating environments at the time of this writing:

- Basic HP-UX OE
- Enterprise HP-UX OE
- Mission Critical HP-UX OE
- Minimal Technical OE
- Technical Computing OE

You can expect these OEs to change over time as the needs of 11i users change. Tables 2-1 and 2-2 show high-level contents of the three commercial OEs and two technical OEs respectively.

Table 2-1 HP-UX 11i Commercial OEs

HP-UX 11i v2 Base OE	HP-UX 11i v2 Foundation OE	HP-UX 11i v2 Enterprise OE	HP-UX 11i v2 Mission Critical OE
<p>Customer Selectable Software (Can be selected at installation)</p> <p>ATM (PCI) HyperFabric (PCII) MUX (PCI) TokenRing (PCI) HP-UX Install Utilities (many versions) IDS 9000 Servers only RAID Utilities Mobile IPV6 PkgBuilder PayPerUse JavaOOB Security Level 10, 20, and 30 iSCSI Netscape Directory Server (LDAP)</p> <p>Default Installed Software (Can be deselected at installation)</p> <p>Perl MySQL Security Tools ServiceControl Manager Judy Libraries GNOME GTK+Lib Bastille, Secure Shell Mozilla, Mozilla Source OpenSSL, IP Filter, ISEE Secure Path Check ParManager Java JRE, SDK (several revisions) HPUX Apache Web Server HPUX TOMCAT, HPUX Webmin HPUX XML</p> <p>Always Installed Stand Alone</p> <p>Online Diagnostics iCOD, OpenSSL WBEM Services, WBEM LAN Base-VXVM nPartition Provider</p> <p>Always-Installed Standalone Network Drivers</p> <p>USB, Gigabit Ethernet (PCI) FDDI (PCI) FibreChannel (PCI) RAID, scsiU320 IEther(PCI)</p> <p>Obsolescence Bundle Many obs* products</p> <p>Base AUX Contents</p> <p>Casey, ONC UpdateUX EMS Framework SWGETTOOLS Software Distributor Peripheral Device Tool SysMgmtBase</p>	<p>All items in <i>Base</i> plus the following:</p> <p>Foundation HP-UX 11i OE CIFS/9000 Server, CIFS/9000 Client Java JPI v1.3 and 1.4 PAM Kerberos, PAM Libraries</p>	<p>All items in <i>Base</i> plus <i>Foundation</i> plus the following:</p> <p>EMS HA Monitors MirrorDisk/UX Online JFS (v3.3) OV GlancePlus Pak (English) OV GlancePlus Pak (Japanese) Process Resource Manager</p>	<p>All items in <i>Base</i> plus <i>Foundation</i> and <i>Enterprise</i> plus the following:</p> <p>ECM Toolkit ServiceGuard (v11.16) ServiceGuard NFS Cluster Object Manager Workload Manager Workload Manager Toolkit</p>

Table 2-2 HP-UX 11 Technical OEs

HP-UX 11i v2 Minimal Technical OE	HP-UX 11i v2 Technical Computing OE
<p>All items in <i>Base</i> plus the following:</p> <p>3D Graphics Developers Kit and Runtime Env TechSysConf</p>	<p>All items in <i>Base</i> plus <i>Minimal Technical OE</i> plus the following:</p> <p>CIFS/9000 Server CIFS/9000 Client Java 3D Java JPI MLIB MPI PAM Kerberos</p>

Keep in mind that the contents of the OEs shown in the tables will be adjusted over time, and the OEs themselves may change, but these OEs and their contents are accurate at the time of this writing. In the installation example in this chapter we install the Mission Critical OE.

At the time of this writing, HP-UX 11i media consists of the operating system DVD, and applications DVD, Instant Information DVD, Internet Express DVD (which are a collection of open source tools that have been tested by HP) and some documentation related to 11i.

The next section covers installing HP-UX 11i; however, there is also the **update-ux** utility to update from a previous version of HP-UX to 11i. I suggest you look at the man page (1M) for this command and see documents on www.docs.hp.com, such as *HP-UX 11i Version 1 Installation and Update Guide*, if you are considering updating HP-UX to the latest version. Updates to 11i version 2 are supported for some older releases of HP-UX, such as 11i version 1.6.

The next section covers loading HP-UX 11i on an Itanium system.

Installing the HP-UX 11i Operating Environment

Installing HP-UX means installing one of the 11i *Operating Environments*, and later building your complete, fully functional HP-UX system by installing both HP and non-HP applications. The initial system is loaded from the 11i media, or from another system on the network using Ignite-UX. Later in this chapter, there is an example of mounting a DVD-ROM to begin loading software, as well as the complete process of selecting the Ignite-UX server as a source and loading software from it.

You can have your system delivered with instant ignition, which means that HP-UX is loaded on your system and you only have to add to it the application software that you need. I cover the complete installation process so you can see the process from start to finish. If you have instant ignition on your system, you may need to install additional software on your system in the future and can, therefore, use some of the techniques described in this section to load that software.

Integrity Early Boot and Begin Loading HP-UX from an Ignite-UX Server

On an Integrity (Itanium-based) server, the boot process is done with selections in EFI. On partitioned systems, it is common to have no DVD from which to load software, in which case you'd load HP-UX from an Ignite-UX server. In the first part of this section, I begin the boot process from an Ignite-UX server and then show loading from a DVD-ROM in the next section. The following listing shows two LAN cards: One is the built-in LAN on the Core I/O board, and the other is an independent LAN card. The Core I/O LAN card is shown in EFI in the following listing:

```
EFI Boot Manager ver 1.10 [14.60]

Please select a boot option

HP-UX Primary Boot: 1/0/0/2/0.6.0
Acpi(000222F0,0)/Pci(1|0)/Mac(00306E4B9AD9)
Acpi(000222F0,100)/Pci(1|0)/Mac(00306E4BAA28) <- Core I/O LAN
EFI Shell [Built-in]
LANlboot
Boot option maintenance menu

Use ^ and v to change option(s). Use Enter to select an option
```

You can also create a custom boot option, as I had done for LAN1boot in the previous listing, using the Boot option maintenance menu, but this is not required because you can just select the LAN interface.

After the boot process begins, information is downloaded from the Ignite-UX server to the client, as shown in the following listing:

```

Booting from Lan
Downloading file AUTO (26 bytes)
Press Any Key to interrupt Autoboot
AUTO ==> boot Rel_B.11.23/IINSTALL
Seconds left till autoboot - 0
AUTOBOOTING...
AUTO BOOT> boot Rel_B.11.23/IINSTALL
Downloading file Rel_B.11.23/IINSTALL (52628816 bytes)
> System Memory = 16351 MB
loading section 0
..... (complete)
loading section 1
..... (complete)
loading symbol table
Downloading file Rel_B.11.23/IINSTALLFS (29753344 bytes)
loading ram disk file (Rel_B.11.23/IINSTALLFS).
.....
(complete)
Launching Rel_B.11.23/IINSTALL
SIZE: Text:24913K + Data:5919K + BSS:5356K = Total:36189K

Console is on a Serial Device
Booting kernel...

```

The installation file is downloaded from the Ignite-UX server to this client.

After the installation file is downloaded and invoked, the standard HP-UX installation screen appears, as shown in the following listing:

```

Welcome to Ignite-UX!

Use the <tab> key to navigate between fields, and the arrow keys
within fields. Use the <return/enter> key to select an item.
Use the <return/enter> or <space-bar> to pop-up a choices list. If the
menus are not clear, select the "Help" item for more information.

Hardware Summary:                System Model: ia64 hp server rx8620
+-----+-----+-----+-----+ [ Scan Again ]
| Disks: 2 (205.1GB) | Floppies: 0 | LAN cards: 3 |
| CD/DVDs: 0 | Tapes: 1 | Memory: 16351Mb |
| Graphics Ports: 0 | IO Buses: 6 | CPUs: 4 | [ H/W Details ]
+-----+-----+-----+-----+

[ Install HP-UX ]

[ Run a Recovery Shell ]

[ Advanced Options ]

[ Reboot ] [ Help ]

```

From this point on a standard HP-UX installation takes place if you select *Install HP-UX* which is covered in the "Loading HP-UX" section.

Integrity Early Boot and Begin Loading HP-UX from Media

To load from a DVD-ROM on Integrity, you select the EFI shell, pick the DVD-ROM device (in this case, **fs0:**) and then run the **install.efi** program as shown in the following listing:

```
EFI Boot Manager ver 1.10 [14.61]

Please select a boot option

    HP-UX Primary Boot: 0/0/0/3/0.6.0
    Acpi(HWP0002,108)/Pci(1|0)/Pci(4|0)/Mac(000F202B33BC)
    EFI Shell [Built-in]
    Boot option maintenance menu

Use ^ and v to change option(s). Use Enter to select an option
Loading.: EFI Shell [Built-in]
EFI Shell version 1.10 [14.61]
Device mapping table
fs0  : Acpi(HWP0002,100)/Pci(3|1)/Scsi(Pun2,Lun0)/CDROM(Entry0)
blk0 : Acpi(HWP0002,100)/Pci(3|0)/Scsi(Pun6,Lun0)
blk1 : Acpi(HWP0002,100)/Pci(3|1)/Scsi(Pun2,Lun0)
blk2 : Acpi(HWP0002,100)/Pci(3|1)/Scsi(Pun2,Lun0)/CDROM(Entry0)
blk3 : Acpi(HWP0002,100)/Pci(3|1)/Scsi(Pun2,Lun0)/CDROM(Entry1)
blk4 : Acpi(HWP0002,108)/Pci(1|0)/Pci(1|1)/Scsi(Pun6,Lun0)

startup.nsh> echo -off

Welcome to HP-UX Install Media

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HP-UX Boot Loader for IPF -- Revision 2.018

Press Any Key to interrupt Autoboot
AUTO ==> boot :IINSTALL
Seconds left till autoboot - 9
Type 'help' for help

HPUX> exit
Exiting bootloader.

Shell> fs0:

fs0:\> dir
Directory of: fs0:\

    09/02/04 10:41p <DIR>          1,024  EFI
    09/02/04 10:41p                521,494  INSTALL.EFI
    09/02/04 10:41p                 16  AUTO
    09/02/04 10:41p                 174  STARTUP.NSH
    3 File(s)          521,684 bytes
    1 Dir(s)
```

```

fs0:\> install.efi

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HP-UX Boot Loader for IPF -- Revision 2.018

Press Any Key to interrupt Autoboot
\AUTO ==> boot :IINSTALL
Seconds left till autoboot - 0
AUTOBOOTING...
AUTO BOOT> boot :IINSTALL
> System Memory = 16367 MB
loading section 0
..... (complete)
loading section 1
..... (complete)
loading symbol table
loading ram disk file (:IINSTALLFS).
.....
(complete)
Launching :IINSTALL
SIZE: Text:24784K + Data:5919K + BSS:5364K = Total:36068K

Console is on a Serial Device
Booting kernel...

HP-UX will call firmware in physical-addressing mode

Memory Class Setup
-----
Class      Physmem          Lockmem          Swapmem
-----
System :   16367 MB          16367 MB          16367 MB
Kernel :   16367 MB          16367 MB          16367 MB
User :    15341 MB          13368 MB          13421 MB
-----

Loaded ACPI revision 2.0 tables.
krs_read_mfs: Error 5 opening MFS.
WARNING: GIO: read_ioconfig_file(): /stand/ioconfig read error.
ioconfig = NULL
NOTICE: cache_fs_link(): File system was registered at index 4.
NOTICE: nfs3_link(): File system was registered at index 7.

System Console is on the Built-In Serial Interface
igelan0: INITIALIZING HP A6794-60001 PCI 1000Base-T at hardware path 1/0/1/1/0/4
/0
Swap device table: (start & size given in 512-byte blocks)
entry 0 - auto-configured on root device; ignored - no room
WARNING: no swap device configured, so dump cannot be defaulted to primary swap.
WARNING: No dump devices are configured. Dump is disabled.
Starting the STREAMS daemons-phase 1
execve("/sbin/sh") failed, errno 0xffffffff
execve("/bin/sh") failed, errno 0xffffffff
Create STCP device files
Starting the STREAMS daemons-phase 2
$Revision: vmunix: B11.23_LR FLAVOR=perf Fri Aug 29 22:35:38 PDT 2003 $
Memory Information:
physical page size = 4096 bytes, logical page size = 4096 bytes
Physical: 16760080 Kbytes, lockable: 12555548 Kbytes, available: 14605548 Kbytes

===== 11/26/04 20:02:55 EST HP-UX Installation Initialization. (Fri Nov 26
20:02:55 EST 2004)
@(#) Ignite-UX Revision C.6.0.109
@(#) install/init (opt) $Revision: 10.303 $
* Scanning system for IO devices...
* Querying disk device: 1/0/0/3/0.6.0 ...
* Querying disk device: 1/0/1/1/0/1/1.6.0 ...
NOTE: Primary path not currently set to an existing disk device.
* Setting keyboard language.

```

Welcome to the HP-UX installation/recovery process!

Use the <tab> key to navigate between fields, and the arrow keys within fields. Use the <return/enter> key to select an item. Use the <return/enter> or <space-bar> to pop-up a choices list. If the menus are not clear, select the "Help" item for more information.

```
Hardware Summary:                System Model: ia64 hp server rx7620
+-----+-----+-----+ [ Scan Again ]
| Disks: 2 (136.7GB) | Floppies: 0 | LAN cards: 1 |
| CD/DVDs: 1         | Tapes: 0   | Memory: 16367Mb |
| Graphics Ports: 0 | IO Buses: 8 | CPUs: 2         | [ H/W Details ]
+-----+-----+-----+
                [ Install HP-UX      ]
                [ Run a Recovery Shell ]
                [ Advanced Options   ]

[ Reboot ]                [ Help ]
```

Selecting Install HP-UX brings up the installation screen shown in the next section. From there you can complete the installation.

Loading HP-UX

With the section of the Ignite-UX server, or DVD-ROM if you load from media, having been run, complete the installation by first selecting all the basic information, as shown in the following figure.