

# Ignite-UX Quick Start Guide

## Create an Ignite-UX Server and Cold-Install Clients

HP Part Number: 5992-4815  
Published: June 2008  
Edition: 3



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# About This Document

This document describes the most common procedure for setting up an Ignite-UX server, adding a client to the Ignite-UX server, and cold-installing HP-UX on that client.

Glossary terms are *italicized* when used for the first time in this manual.

## Intended Audience

This document is intended for system and network administrators with minimal experience installing, configuring, and managing HP-UX. Administrators are expected to have knowledge of operating system concepts, but not in-depth knowledge of HP-UX or Ignite-UX. It is helpful to have knowledge of Transmission Control Protocol/Internet Protocol (TCP/IP) networking concepts and network configuration.

## Typographic Conventions

This document uses the following typographical conventions:

#	A number sign represents the superuser prompt.
<i>audit(5)</i>	A manpage. The manpage name is <i>audit</i> , and it is located in Section 5.
Command	A command name or qualified command phrase.
Computer output	Text displayed by the computer.
<b>Key</b>	The name of a keyboard key. <b>Return</b> and <b>Enter</b> both refer to the same key.
<b>Term</b>	An important word or phrase defined in the glossary.
<b>User input</b>	Commands and other text that you type.
<i>Variable</i>	The name of a placeholder in a command, function, or other syntax display that you replace with an actual value.
CAUTION	A caution calls attention to important information that if not understood or followed will result in data loss, data corruption, or damage to hardware or software.

## Related Information

The most current edition of this and the following documents are found at the HP Technical Documentation website at:

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

## Related Documents

- *Ignite-UX Administration Guide*
- *Ignite-UX Reference*
- *Ignite-UX Custom Configuration Files*
- *Successful System Cloning using Ignite-UX White Paper*
- *Successful System Recovery using Ignite-UX White Paper*
- *Installing and Updating Ignite-UX White Paper*
- *Ignite-UX Installation Booting White Paper*
- *Read Before Installing or Updating to HP-UX*
- *HP-UX Installation and Update Guide*
- *HP-UX Release Notes*
- *HP-UX Reference*
- *HP-UX System Administrator's Guide*

- *Managing Systems and Workgroups: A Guide for HP-UX System Administrators*
- *Software Distributor Administration Guide*
- *HP-UX Patch Management*
- *nPartition Administrator's Guide*
- *Getting Started with Software Package Builder*
- *VERITAS File System 4.1 (HP OnlineJFS/JFS) and VERITAS Volume Manager 4.1 Installation Guide*

Some or all of these documents are available on the Instant Information media and in printed form.

## Publishing History

The document printing date and part number indicate the document's current edition. The printing date will change when a new edition is printed. Minor changes might be made at reprint without changing the printing date. The document part number will change when extensive changes are made. Document updates might be issued between editions to correct errors or document product changes. To ensure you receive the updated or new editions, you should subscribe to the appropriate product support service. See your HP sales representative for details. You can find the latest version of this document on line at

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

<b>Manufacturing Part Number</b>	<b>Supported Operating Systems</b>	<b>Edition Number</b>	<b>Publication Date</b>
5992-4815	HP-UX 11i v1, v2, and v3	3	June, 2008
5992-3879	HP-UX 11i v1, v2, and v3	2	March, 2008
5992-0678	HP-UX 11i v1, v2, and v3	1	September, 2007

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Include the document title, manufacturing part number, and any comment, error found, or suggestion for improvement you have concerning this document.

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# 1 Setting up an Ignite-UX Server

This chapter describes setting up an *Ignite-UX server* to *cold install* HP-UX 11i v1, v2, and v3 on *clients* over the network. You must have superuser privileges to set up an Ignite-UX *server*. You can stop anywhere in this procedure and resume where you left off at a later time.

This document assumes the *network boot* clients are on the same *subnet* as the Ignite-UX server. This document also assumes the network DHCP and DNS servers are already set up. These network services are vital to Ignite-UX server operation. If the Ignite-UX server is intended to support these network functions on an isolated subnet, the user should consult documentation that indicates how to set them up. Network services should be set up before the Ignite-UX server is set up. See <http://www.docs.hp.com> for networking documentation.

## Make Sure Your System Meets Ignite-UX Server Requirements

1. Make sure the version of HP-UX running on the Ignite-UX server system matches the HP-UX version on the operating environment (OE) DVD set you are getting the *Ignite-UX* software from. Use the `uname -r` command to query the HP-UX revision on the server system. The `uname` command will report the release identifier, which can be mapped to the HP-UX release as follows: B.11.31 is HP-UX 11i v3, B.11.23 is 11i v2, and B.11.11 is 11i v1.

---

### Procedure

```
# uname -r
B.11.23
```

---

### Common Errors

**sh:** `typo: not found.`

**Diagnosis:** Mistyped “uname”

**Correction:** Retype command.

---

**uname:** `illegal option - R`

**usage:** `uname [-amnrsvil] [-S nodename]`

**Diagnosis:** Used a capital **R** instead of a lowercase **r**.

**Correction:** Reissue the `uname` command with a lowercase **r**.

---

### Explore

See `uname(1)` by issuing the command

```
# man uname
```

If you require a version of Ignite-UX that can be installed onto any supported version of HP-UX, please read the section about downloading Ignite-UX from the HP *Software Depot* website in the *Ignite-UX Administration Guide*, available at <http://www.docs.hp.com/en/TUX/infolib.html>.

---

2. Use the `bdf` command to make sure you have at least 700 MB of free disk space available in `/opt/ignite` to support installation of all three HP-UX releases. If `/opt/ignite` is its own *file system*, then `bdf` will report on `/opt/ignite`, otherwise, `bdf` will report on `/opt`.

---

### Procedure

```
# bdf /opt/ignite
```

---

### Common Errors

---

**Detection:** The number of kbytes free on /opt or /opt/ignite is less than 700000.

**Diagnosis:** Not enough space.

**Correction:** Extend the size of the *logical volume* with the `lvextend` command, and then extend the size of the file system within the logical volume with the `extendfs` command. Detailed instructions for this procedure are found in the HP-UX administration guides listed below, depending on your version of HP-UX.

For HP-UX 11i v3, see the *HP-UX System Administrator's Guide (volume 3): Logical Volume Management*. Within this guide, look for the chapter on administering LVM, and then the section on extending a file system.

For HP-UX 11i v2 and earlier versions, see *Managing Systems and Workgroups*. Within this guide, look for the chapter on managing disks and files, and then the section on extending the size of a file system within a logical volume.

Both administration guides are available at <http://www.docs.hp.com>.

---

## Explore

---

See `bdf(1M)` by issuing the command

```
# man bdf
```

---

See `lvextend(1M)`.

---

See `extendfs(1M)`.

---

See `fsadm(1M)`

---

3. Use the `bdf` command to make sure you have enough disk space in /var to hold the OE *depots*. You will need roughly 4.5 GB per DVD in the OE set.

---

## Procedure

---

```
# bdf /var
```

---

## Common Errors

---

**Detection:** The number of kbytes free on /var is less than 9 GB for a two-DVD OE set.

**Diagnosis:** Not enough space.

**Correction:** Extend the size of the logical volume with the `lvextend` command, and then the size of the file system within the logical volume with the `extendfs` command. Detailed instructions for this procedure are found in the HP-UX administration guides listed below, depending on your version of HP-UX.

For HP-UX 11i v3, see the *HP-UX System Administrator's Guide (volume 3): Logical Volume Management*. Within this guide, look for the chapter on administering LVM, and then the section on extending a file system.

For HP-UX 11i v2 and earlier versions, see *Managing Systems and Workgroups*. Within this guide, look for the chapter on managing disks and files, and then the section on extending the size of a file system within a logical volume.

Both administration guides are available at <http://www.docs.hp.com>

---

## Explore

---

Consider making room in /var/opt/ignite for *recovery archives*, *golden images*, and software depots. See the section on *Ignite-UX* server requirements in the *Ignite-UX Administration Guide* at <http://docs.hp.com/en/IUX/infolib.html>. For information on how to do this, see the HP-UX administration guides listed below, depending on your version of HP-UX.

For HP-UX 11i v3, see the *HP-UX System Administrator's Guide (volume 3): Logical Volume Management*. Within this guide, look for the chapter on administering LVM, and then the section on extending a file system.

For HP-UX 11i v2 and earlier versions, see *Managing Systems and Workgroups*. Within this guide, look for the chapter on managing disks and files, and then the section on extending the size of a file system within a logical volume.

Both administration guides are available at <http://www.docs.hp.com>

---



Consider creating a new file system for `/var/opt/ignite`. This could keep Ignite-UX from impacting other applications using `/var` if it fills `/var/opt/ignite` with depots and *archives*. Detailed instructions for this procedure are found in the HP-UX administration guides listed below, depending on your version of HP-UX. If you do create a file system for `/var/opt/ignite`, then you will see it in the `bdf` listing and will be able to manage your disk space to a greater level of detail.

For HP-UX 11i v3, see the *HP-UX System Administrator's Guide (volume 3): Logical Volume Management*. Within this guide, look for the chapter on administering LVM, and then the section on creating a file system.

For HP-UX 11i v2 and earlier versions, see *Managing Systems and Workgroups*. Within this guide, look for the chapter on managing disks and files, and then the section on creating a file system.

Both administration guides are available at <http://www.docs.hp.com>

---

See `newfs(1M)`.

---

See `lvcreate(1M)`.

---

## Install the Ignite-UX Software and the HP-UX OE Depot on the Server

1. Gain access to the DVD drive on your system. This document assumes the DVD-ROM device is called `/dev/dsk/c1t2d0` – substitute your actual device name throughout this document.

---

### Procedure

- a. Use the `ioscan` command to get the DVD-ROM device name, for example: `/dev/dsk/c1t2d0`. You are looking for DVD in the Description column of the `ioscan` output.

```
# ioscan -fnkC disk | more
```

- b. Create the device directory:

```
# mkdir /dvdrom
```

- c. Put the OE DVD in the drive and mount it onto the new directory as a *file system*. Note that you must unmount the DVD-ROM with the `# umount /dvdrom` command before you can extract it from the drive.

```
# mount /dev/dsk/c1t2d0 /dvdrom
```

---

### Common Errors

---

#### **`/dev/rdisk/cntndn` is an invalid operand**

**Diagnosis:** The `/dev/rdisk` device file was used instead of the `/dev/dsk` device file.

**Correction:** Reissue the `mount` command with the `/dev/dsk` device file.

---

#### **`/dev/dsk/cntndn: unrecognized file system`**

**Diagnosis:** The device file name was mistyped.

**Correction:** Check that the device file was entered correctly.

---

#### **`/dev/dsk/cntndn: I/O error`**

**Diagnosis:** The DVD isn't in the drive.

**Correction:** Insert the OE DVD into the drive.

---

#### **`mount: /dev/dsk/cntndn` was either ignored or not found in `/etc/fstab`**

**Diagnosis:** The `mount` directory, `/dvdrom`, was omitted from the `mount` command.

**Correction:** Reissue the `mount` command with the `mount` directory.

---

The `ioscan` command lists no devices.

**Diagnosis:** If the system is running HP-UX 11i v3, the system might have legacy mode disabled. To find out, issue the following command.

```
# insf -Lv
```

**Correction:** If legacy mode is disabled, issue the following command to get the DVD-ROM device name (add an "N" to the `ioscan` command options). Do not enable legacy mode without talking to the system administrator responsible for the Ignite-UX server.

```
# ioscan -fNnkC disk | more
```

---

### Explore

You can navigate the output of the `more` command, including the `ioscan -C disk -f -n -k | more` command above, with the following shortcuts:

- **space** – Scroll down one page of the listing.
- **j** – Scroll down one line of the listing.
- **k** – Scroll up one line of the listing.
- **q** – Quit.

---

See `ioscan(1M)`.

---

See `mkdir(1)`.

---

See `mount(2)`.

---

See `mount(1M)` by issuing the command

```
# man 1M mount
```

---

## 2. Make sure you are installing a later version of Ignite-UX on the system.

---

### Procedure

- a. Get the version of Ignite-UX currently installed on the server, if it is already installed:

```
# swlist Ignite-UX
```

- b. Get the version of Ignite-UX from the OE DVD:

```
# swlist -s /dvdrom | grep Ignite-UX
```

---

### Common Errors

**ERROR: Software "Ignite-UX" was not found on host "*system\_name*".**

**Diagnosis:** Depending on the command you issued, Ignite-UX is not currently installed on the server or it's not on the DVD currently in the drive.

**Correction:** If Ignite-UX is not installed on the server, continue to the next step. If Ignite-UX is not on the DVD, replace the DVD with another in the media set. Remember to unmount the current DVD in order to extract it from the drive.

---

**ERROR: The expected depot or root does not exist at "/dvdrom".**

**ERROR: There is currently no depot software on host "*hostname*" at location "/dvdrom". Make sure that an absolute pathname is specified for location (beginning with "/").**

**Diagnosis:** The DVD is no longer mounted at `/dvdrom` or you have typed the wrong directory name.

**Correction:** Check for typos. You can use `bdcf` to check the name of the DVD mount point. If the DVD is not mounted, mount it as described in the previous step.

---

### Explore

For an overview on getting and installing Ignite-UX, see the *Ignite-UX Administration Guide* available at <http://www.docs.hp.com/en/IUX/infolib.html>. For detailed information, see the white paper *Installing and Updating Ignite-UX*, available at <http://www.docs.hp.com/en/IUX/infolib.html>.

---

3. Install the Ignite-UX software using `swinstall` if the Ignite-UX version on the DVD is later than any currently installed version of Ignite-UX and the HP-UX version on the OE media matches the HP-UX version on the Ignite-UX server.

---

**Procedure**

---

```
# swinstall -s /dvdrom Ignite-UX
```

---

**Common Errors**

---

**ERROR: Could not apply the software selection "Ignite-UX"; it is not available from depot or root "*server\_name*/dvdrom".**

**Diagnosis:** The DVD in the drive does not have Ignite-UX on it.

**Correction:** Unmount the DVD drive with this command:

```
# umount /dvdrom
```

Put in another OE DVD and mount it as in step 1c. Then use the `swinstall` command again.

---

**ERROR: "*server\_name*/" 19 filesets have a version with a higher revision number already installed.**

**Diagnosis:** A higher version of Ignite-UX is already installed on the server system.

**Correction:** Proceed to the next step.

---

**Explore**

---

You can list all the software *bundles* on the DVD with

```
# swlist -s /dvdrom
```

---

4. Unmount the DVD so you can extract it from the drive.

---

**Procedure**

---

```
# umount /dvdrom
```

---

**Common Errors**

---

**# umount /dvdrom: cannot unmount /dvdrom : Device busy**

**Diagnosis:** A process is still using files on the DVD, or a process has its current working directory on the DVD.

**Correction:**

- a. Run the `fuser` command to see what processes are using the DVD.

```
# fuser /dvdrom
/dvdrom: 8553c
```

- b. To find out what commands are using the DVD device, run the following command for each process id (numbers only, in this case **8553**) shown by the `fuser` command.

```
# ps -e | grep -e 8553
root 8553 8552 1 Jul 10 pts/tb 0:00 -sh
root 11087 8553 0 14:34:07 pts/tb 0:00 grep -e 8553
```

In this case, the shell attempting to run `umount had /dvdrom` as its current working directory, and changing to another directory would allow the DVD to be unmounted.

---

5. Create the HP-UX OE depot, named `core_media`, by running `make_depots` on each of the HP-UX OE DVDs. In this example we are using HP-UX 11i v2, but this process can easily be customized for any HP-UX release by substituting your release information for the HP-UX 11i v2 information. The `make_depots` command takes a long time to complete. When `make_depots` completes without errors, no messages are printed to the screen – all messages are printed to the `/var/opt/ignite/depots/Rel_B.11.23/swagent.log` file

(substitute your release directory if it's different from 11.23). If the `make_depots` command returns quickly with no errors, the depot already exists on the system.

---

### Procedure

---

Run the `make_depots` command below for all DVDs in the OE set. Remember to substitute your device file name and the appropriate release directory (`Rel_B.11.xx`) for your version of HP-UX.

```
# /opt/ignite/bin/make_depots -s /dev/dsk/c1t2d0 \  
-d /var/opt/ignite/depots/Rel_B.11.23/core_media
```

---

### Common Errors

---

#### ERROR: swcopy command failed

**Diagnosis:** Read the file `/var/opt/ignite/depots/Rel_B.11.23/core_media/swagent.log` to get a full report of what went wrong.

---

**make\_depots: error — cannot stat source depot /dev/dsk/cntndn**

**make\_depots: notice — Ending make\_depots due to fatal error**

**Diagnosis:** The wrong device file was used.

**Correction:** Reissue the `make_depots` command with the correct device file.

---

### Explore

---

You can watch the depot creation process by listing the file `/var/opt/ignite/depots/Rel_B.11.23/core_media/swagent.log` with the following command.

```
# tail -f /var/opt/ignite/depots/Rel_B.11.23/core_media/swagent.log
```

---

The depot will be put in the `/var/opt/ignite/depots/Rel_B.11.23` directory and will be named `core_media`.

---

This process is described fully in the section on *installation* configurations using *Software Distributor (SD-UX)* depots in the *Ignite-UX Custom Configuration Files* web-only document, available at <http://docs.hp.com/en/IUX/infolib.html>.

---

The depot we're creating is called `core_media` in order to distinguish it from other depots of the same HP-UX version. (All depots of the same version are kept in the appropriate `Rel_B.xx.xx` directory.) Consider naming depots with names that indicate what release of HP-UX the depot contains. This will make the depots easier to identify. For instance, if you are creating a depot for the December 2007 HP-UX 11i v2 Mission Critical OE release, you could name the depot `core_0712_mc`.

---

## Create the HP-UX OE Configuration Information on the Ignite-UX Server

1. Create the *configuration file*, named `core_media_cfg`, to describe this HP-UX OE depot, named `core_media`. In this example we are using HP-UX 11i v2, but this process can easily be customized for any HP-UX release by substituting your release information for the HP-UX 11i v2 information.

If you want more than one configuration available for a version of HP-UX, such as 11i v2 June, 2008 and 11i v2 December, 2007, then each configuration must have a unique name for the configuration file created with `make_config` in this step and the configuration clause created and modified by `manage_index` in Step 2.

If you wish, you may safely complete the section “Configure the System as an Ignite-UX Server” (page 13) before this one.

---

### Procedure

---

```
# /opt/ignite/bin/make_config -s /var/opt/ignite/depots/Rel_B.11.23/core_media \  
-c /var/opt/ignite/data/Rel_B.11.23/core_media_cfg
```

---

### Common Errors

---

---

**ERROR:** Depot *depot\_name* does not exist.

**Diagnosis:** The depot name was mistyped.

**Correction:** Check the *make\_config* command line for typos.

---

### Explore

List the `/var/opt/ignite/data/Rel_B.11.23` directory to see the `core_media_cfg` file just created with the `make_config` command.

Configuration files are typically named after the depot, with a `_cfg` appended.

This process is described fully in the section on creating the configuration file to describe the depot in the *Ignite-UX Custom Configuration Files* web-only document, available at <http://docs.hp.com/en/IUX/infolib.html>.

---

2. Add the configuration information to the Ignite-UX `/var/opt/ignite/INDEX` file. First, the default B.11.23 *configuration clause* is copied to a new clause called “B.11.23 From OE Media”, and then the `core_media_cfg` file we created in step 1 is added to the “B.11.23 From OE Media” clause.

If you want more than one configuration available for a version of HP-UX, such as 11i v2 June, 2008 and 11i v2 December, 2007, then each configuration must have a unique name for the configuration file created with `make_config` in Step 1 and the configuration clause created and modified by `manage_index` in this step.

---

### Procedure

```
# /opt/ignite/bin/manage_index -n "HP-UX B.11.23 Default" \  
-c "B.11.23 From OE Media"  
# /opt/ignite/bin/manage_index -a \  
-f /var/opt/ignite/data/Rel_B.11.23/core_media_cfg \  
-c "B.11.23 From OE Media"
```

---

### Common Errors

**NOTE:** Cannot access index file `/var/opt/ignite/INDEX`: No such file or directory.

**ERROR:** Couldn't accomplish the requested operation.

**Diagnosis:** The `/var/opt/ignite/INDEX` file is missing or mistyped.

**Correction:** Check for typos. Otherwise, list the `/var/opt/ignite` directory to see if the `INDEX` file is there under another name. Check with a systems administrator responsible for the Ignite-UX server to find the correct `INDEX` file.

---

### Explore

This process is described fully in the section on creating a minimalist *cfg clause* for installation in the *Ignite-UX Custom Configuration Files* web-only document, available at <http://docs.hp.com/en/IUX/infolib.html>.

View the description of the “B.11.23 From OE Media” configuration clause to see that it is the same as the default clause we copied, “HP-UX B.11.23 Default”. Note that when no `INDEX` file is specified, the *manage\_index* command defaults to `/var/opt/ignite/INDEX`.

```
# manage_index -x -c "B.11.23 From OE Media"
```

Change the description to something that makes sense to you.

```
# manage_index -c "B.11.23 From OE Media" -y "B.11.23 0712 OE"
```

---

See *manage\_index*(1M).

---

## Configure the System as an Ignite-UX Server

1. NFS export the directory `/var/opt/ignite/clients` so you can control the installation process from the server and store *configuration files* and *manifest* information on the server.

On successful completion of the `setup_server` command, the message `Program completed successfully.` will be displayed.

If you wish, you may safely complete this section before “Create the HP-UX OE Configuration Information on the Ignite-UX Server” (page 12).

---

**Procedure**

---

```
# /opt/ignite/sbin/setup_server -n
```

---

2. Enable the `bootpd` *daemon*.

---

**Procedure**

---

- a. Edit the `/etc/inetd.conf` file:  

```
# vi /etc/inetd.conf
```
- b. Remove the comment character (`#`) from the `bootpd` line:  

```
bootps dgram udp wait root /usr/sbin/bootpd bootpd
```
- c. Save the `/etc/inetd.conf` file and exit `vi`:  

```
:wq
```
- d. Make the `inetd` daemon reread the `/etc/inetd.conf` file:  

```
# inetd -c
```

---

**Explore**

---

An overview of how *network booting* works is available in the section on making configuration decisions for Ignite-UX servers in the *Ignite-UX Administration Guide*, and in the *Ignite-UX Installation Booting* white paper. Both documents can be found at <http://docs.hp.com/en/IUX/infolib.html>

---

---

## 2 Cold-installing a Client Across the Network

This chapter describes adding a client to an Ignite-UX server, and then installing HP-UX on that client from the Ignite-UX server over the network. You must have superuser privileges to cold-install a client. You can stop anywhere in this procedure and resume where you left off at later time.

This document assumes the network boot clients are on the same subnet as the Ignite-UX server.

Glossary terms are *italicized* when used for the first time in this manual.

### Add a Network Entry for the Client to the IP Address File on the Server.

This process is machine-dependent; follow the procedure for Intel® Itanium®-based or PA-RISC-based, depending on your client system type.

---

#### Procedure for Itanium®-based machines

---

1. Collect client information. To allow a client to boot from the Ignite-UX server, you must add information about the client to the appropriate file on the Ignite-UX server. The following information is required:

- Hardware address (ha) – the client's *MAC address*.
- IP address (ip) – the client's assigned internet address.

For more information on adding client information to the `/etc/bootptab` file, see the documentation within the `/etc/bootptab` file and the *HP-UX IP Address and Client Management Administrator's Guide: HP-UX 11i v2, HP-UX 11i v3*, specifically the section on adding client or relay information. HP-UX technical documentation can be found at <http://docs.hp.com>.

2. Edit the `/etc/bootptab` file (don't worry that it appears to be [Read-only]):

```
# vi /etc/bootptab
```

3. Add an entry for your client. A typical `bootptab` file has a generic, default client specification defined, identified by `tc=`. In this example, `ignite-defaults` is that entry. If your `bootptab` has a different default specification, substitute it for `ignite-defaults`. The MAC address should be in hexadecimal, but without the leading "0x".

The following is an example `bootptab` entry:

```
ignite-defaults:\
  ht=ethernet:\
  hn:\
  dn=domain_name.com:\
  gw=10.1.1.1:\
  sm=255.0.0.0:\
  ds=10.1.1.2 10.1.1.3:\
  vm=rfc1048:\
  bf=/opt/ignite/boot/nbp.efi:
```

```
iuxclient1:\
  tc=ignite-defaults:\
  ha=0018FE2F01B3:\
  ip=10.1.2.87:
```

4. Save the `/etc/bootptab` file and exit `vi`:

```
:wq!
```

---

#### Procedure for PA-RISC-based machines

---

1. Edit the `/etc/opt/ignite/inst1_boottab` file (don't worry that it appears to be [Read-only]):

```
# vi /etc/opt/ignite/inst1_boottab
```

2. Add an entry for your client. If a network entry already exists for your client, you may edit it so it looks like the entry below. The client's MAC address should be in hexadecimal, with a leading "0x".

```
client_IP_address:client_MAC_address::reserve
```

3. Save the `/etc/opt/ignite/inst1_boottab` file and exit `vi`:

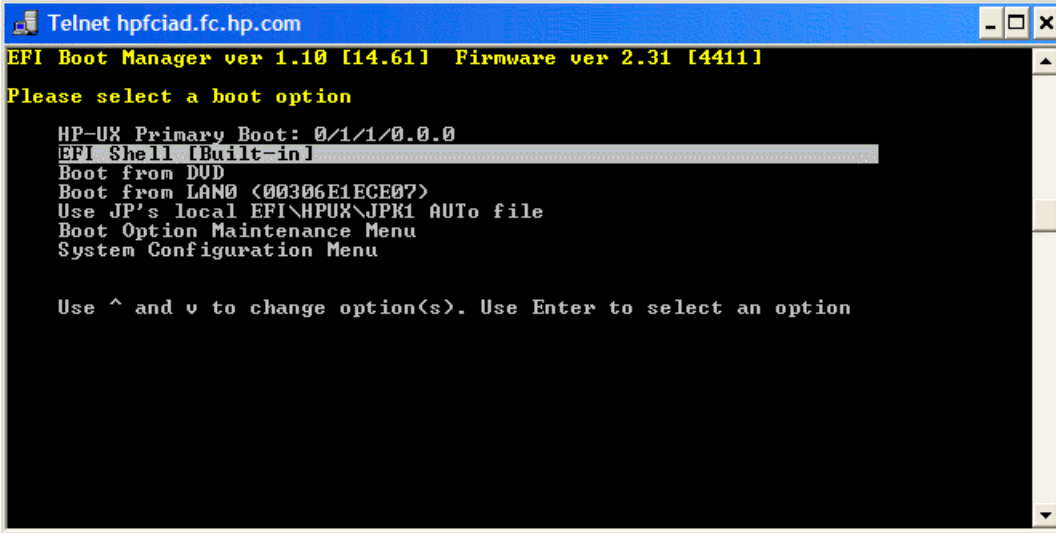
```
:wq!
```

---

## Explore

---

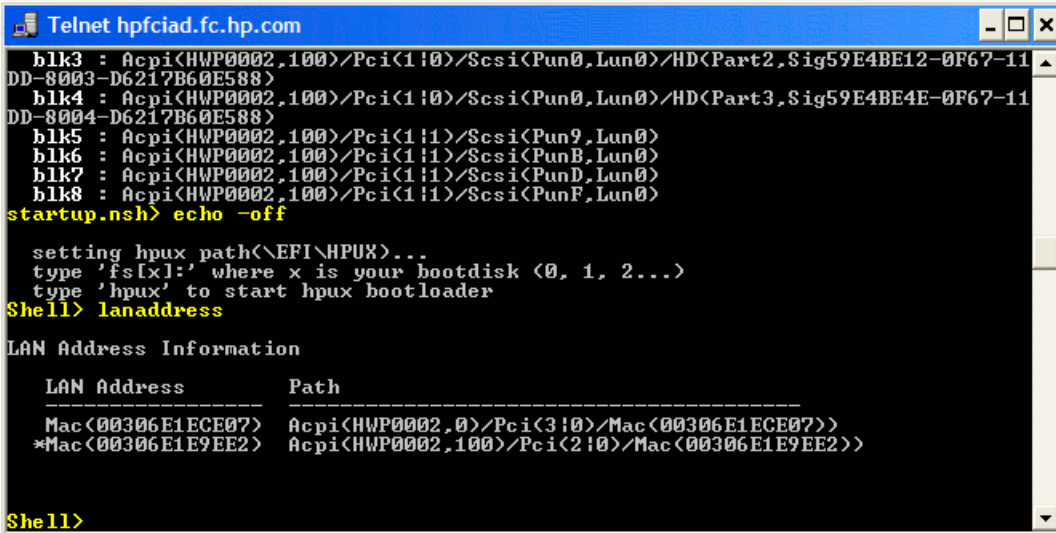
To get the *MAC address* for an Itanium-based system, select **EFI Shell** from the boot menu



```
Telnet hpfciaad.fc.hp.com
EFI Boot Manager ver 1.10 [14.61] Firmware ver 2.31 [4411]
Please select a boot option
  HP-UX Primary Boot: 0/1/1/0.0.0
  EFI Shell [Built-in]
  Boot from DVD
  Boot from LAN0 (00306E1ECE07)
  Use JP's local EFI\HPUX\JPK1 AUTO file
  Boot Option Maintenance Menu
  System Configuration Menu

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

and then use the `lanaddress` command.



```
Telnet hpfciaad.fc.hp.com
blk3 : Acpi(HWP0002,100)/Pci(1!0)/Scsi(Pun0,Lun0)/HD(Part2,Sig59E4BE12-0F67-11
DD-8003-D6217B60E588)
blk4 : Acpi(HWP0002,100)/Pci(1!0)/Scsi(Pun0,Lun0)/HD(Part3,Sig59E4BE4E-0F67-11
DD-8004-D6217B60E588)
blk5 : Acpi(HWP0002,100)/Pci(1!1)/Scsi(Pun9,Lun0)
blk6 : Acpi(HWP0002,100)/Pci(1!1)/Scsi(PunB,Lun0)
blk7 : Acpi(HWP0002,100)/Pci(1!1)/Scsi(PunD,Lun0)
blk8 : Acpi(HWP0002,100)/Pci(1!1)/Scsi(PunF,Lun0)
startup.nsh> echo -off
setting hpx path(\EFI\HPUX)...
type 'fs[x]:' where x is your bootdisk (0, 1, 2...)
type 'hpux' to start hpux bootloader
Shell> lanaddress
LAN Address Information
-----
LAN Address          Path
-----
Mac(00306E1ECE07)    Acpi(HWP0002,0)/Pci(3!0)/Mac(00306E1ECE07)
*Mac(00306E1E9EE2)   Acpi(HWP0002,100)/Pci(2!0)/Mac(00306E1E9EE2)
Shell>
```

Use the `exit` command to return to the boot menu.

---



To get the MAC address for a PA-RISC system, interrupt the boot process at the To discontinue, press any key within 10 seconds prompt.

```
Telnet hpfcia4.fc.hp.com
Processor is starting autoboot process.
To discontinue, press any key within 10 seconds.
Boot terminated.

----- Main Menu -----
Command                Description
-----
B0ot [PRI:ALT!<path>]  Boot from specified path
P0ath [PRI:ALT] [<path>] Display or modify a path
SEARch [Display:PL] [<path>] Search for boot devices

C0nfiguration menu     Displays or sets boot values
INformation menu       Displays hardware information
SERvice menu           Displays service commands

Display                Redisplay the current menu
HElp [<menu>!<command>] Display help for menu or command
RESEt                  Restart the system

-----
Main Menu: Enter command or menu >
```

Enter the Information menu by typing `in`. Then enter `LanAddress`.

```
Telnet hpfcia4.fc.hp.com
----- Information Menu -----
Command                Description
-----
ALL                    Display all system information
BootINfo               Display boot-related information
CAche                  Display cache information
ChipRevisions          Display revisions of major ULSI
C0processor             Display coprocessor information
FRU                    Display FRU information
FwrVersion              Display firmware version
I/O                    Display I/O interface information
LanAddress              Display Core LAN station address
MEmory                 Display memory information
PRocessor              Display processor information
Warnings               Display selftest warning messages

B0ot [PRI:ALT!<path>]  Boot from specified path
Display                Redisplay the current menu
HElp [<command>]      Display help for specified command
RESEt                  Restart the system
M0in                   Return to Main Menu

-----
Information Menu: Enter command > LanAddress
LAN Station Address: 00306e-065541
Information Menu: Enter command >
```

If your client system is already running HP-UX, you can get the MAC address of the client by using the `lanscan` command. You may use any MAC address that is physically connected to the network. Note that the `lanscan` command reports the MAC address with a leading "0x", which must be removed before entering it in the `/etc/bootptab` file. The leading "0x" is required in the `/etc/opt/ignite/inst1_boottab` file.

MAC addresses sometimes appear on computer system labels, packaging, and documentation shipped with systems.

The `/etc/opt/ignite/inst1_boottab` file includes extensive descriptive comments.

Configuring an Ignite-UX server for booting clients is discussed in the section on making configuration decisions for Ignite-UX servers in the *Ignite-UX Administration Guide* found at <http://www.docs.hp.com/en/IUX/infolib.html>.

# Boot the Client System from the Ignite-UX Server

1. This process is machine-dependent; follow the procedure for Intel® Itanium®-based or PA-RISC-based, depending on your system type.

---

## Procedure for Itanium®-based machines

---

- a. *Reboot* the client system with the `reboot` command or cycle the power on the client system. Interrupt the reboot process by pressing the **down arrow** when prompted.
- b. Select `Boot Option Maintenance Menu`.
- c. Select `Add a Boot Option`
- d. Select the network interface with the MAC address you entered in the `/etc/bootptab` file.
- e. Press **n** to add the new boot option.
- f. Enter a description of this boot option.
- g. Enter **n**, for the `No BootOption` data type.
- h. Enter **y** to the `Save changes to NVRAM` prompt.
- i. Exit the `Add a Boot Option` menu.
- j. Exit the `Main Menu`.
- k. Select your new boot option from the `Please select a boot option` menu.
- l. When prompted, enter the version of HP-UX you would like to install. Choose the operating system that matches the OE you used when you set up the Ignite-UX server –“[Create the HP-UX OE Configuration Information on the Ignite-UX Server](#)” (page 12).

---

## Common Errors

---

### TFTP

**PXE-E16: Valid PXE offer not received.**

**Load of `boot option` failed: Not Found.**

**Diagnosis:** Diagnosing this error can be difficult. The simplest problem causing this error is that the entry for this client in the server's `/etc/bootptab` file is not correct. A more complicated problem is that there are other *DHCP* servers on your network causing interference with your Ignite-UX server.

**Correction:** Check the client's entry in the `/etc/bootptab` file on the server to make sure it is correct. Otherwise, contact the systems administrator responsible for the Ignite-UX server.

---

---

## Procedure for PA-RISC-based machines

---

- a. Reboot the client system with the `reboot` command or by cycling the power, and then interrupt the reboot process when prompted.

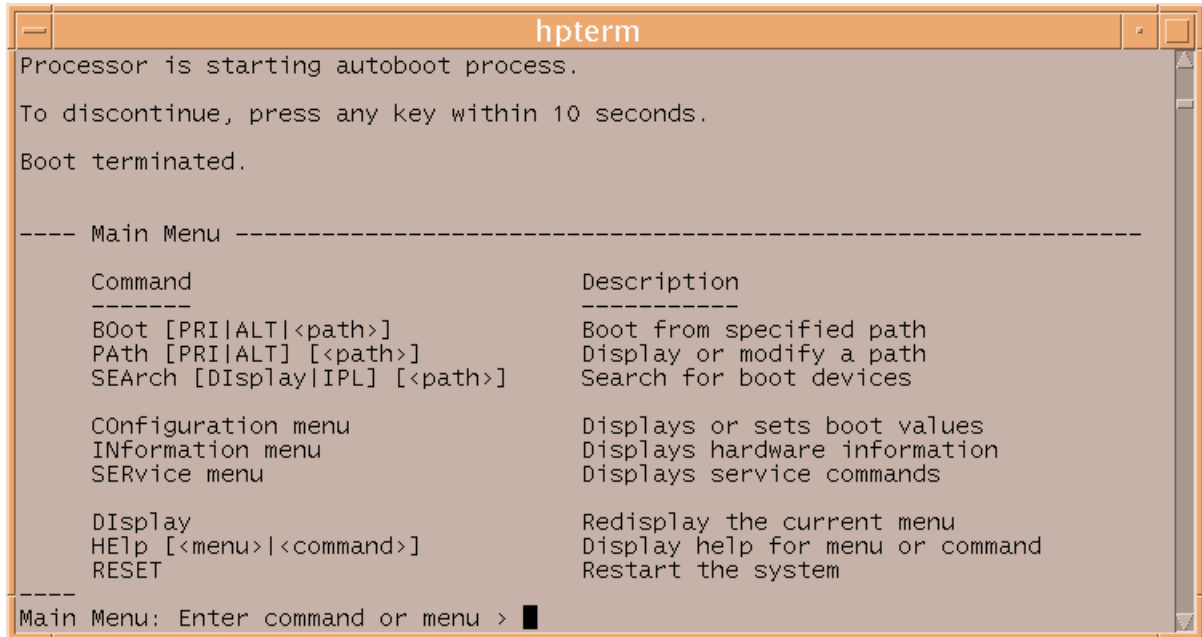
```
# reboot
```

- b. Interrupt the boot process by pressing any key at the prompt

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

- c. From the firmware prompt, boot using the server's IP address:

```
Main Menu: Enter command or menu >boot lan.server_IP_address install
```



```
hpterm  
Processor is starting autoboot process.  
To discontinue, press any key within 10 seconds.  
Boot terminated.  
----- Main Menu -----  
Command                Description  
-----  
Bboot [PRI|ALT|<path>]  Boot from specified path  
Path [PRI|ALT] [<path>]  Display or modify a path  
SEArch [DIsplay|IPL] [<path>] Search for boot devices  
  
COnfiguration menu      Displays or sets boot values  
INformation menu        Displays hardware information  
SERvice menu            Displays service commands  
  
DIsplay                 Redisplay the current menu  
HElp [<menu>|<command>] Display help for menu or command  
RESET                   Restart the system  
-----  
Main Menu: Enter command or menu > █
```

- d. Answer **n** at the prompt `Interact with IPL (Y, N, or Cancel)?>`
- e. Select the operating system to install from the displayed menu. Choose the operating system that matches the OE you used when you set up the Ignite-UX server – “[Create the HP-UX OE Configuration Information on the Ignite-UX Server](#)” (page 12). Be aware that the selection of the operating system times out – the client can not be kept waiting at this prompt.

---

### Common Errors

---

```
Booting...  
Failed to initialize.  
ENTRY_INIT  
Status = -7
```

**Diagnosis:** Used the wrong IP address.

**Correction:** Reissue boot command, making sure you use the server IP address.

---

### Console Login:

**Diagnosis:** The opportunity to interrupt the boot process was missed.

**Correction:** Login as root and reboot again. Look closely for the prompt to stop the boot process.

---

### Explore

---

The **backspace** key repositions the cursor but does not erase characters at the PA-RISC prompt “Main Menu: Enter command or menu>”. You have to type over unwanted characters. Pressing **return** ignores all characters to the right of the cursor.

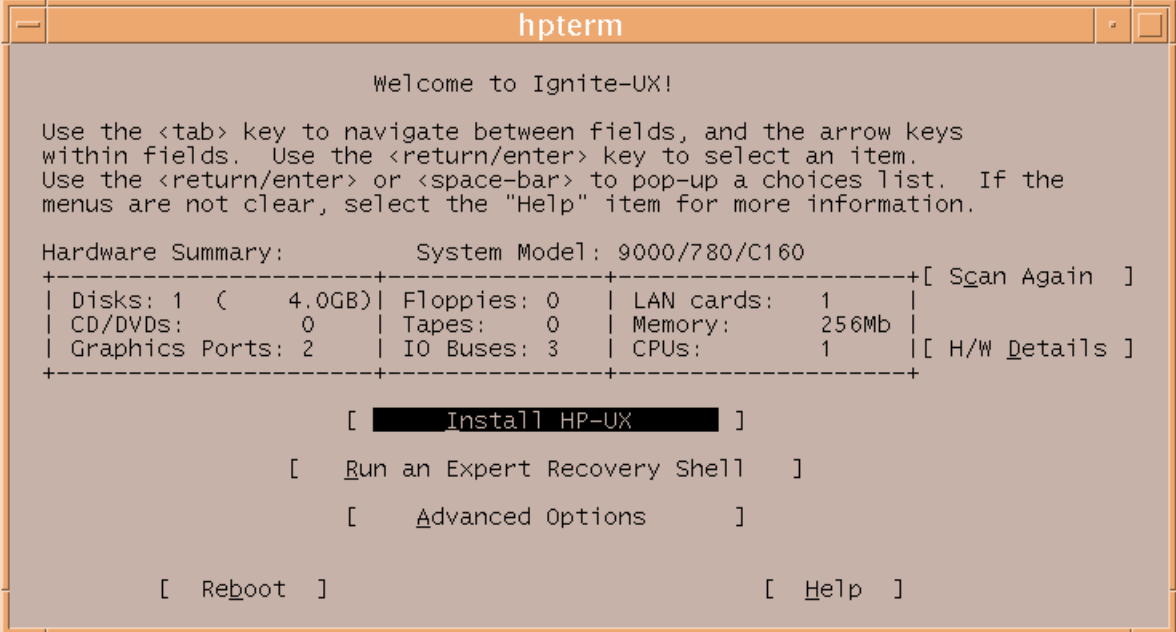
---

# Install HP-UX from the Server Using the Client Console

You will use the Ignite-UX *terminal user interface (TUI)* to install HP-UX. It will be displayed on the client console after the client successfully reboots.

Move between menu buttons with the **tab** key and select by pressing **enter**. Help is available from the majority of these screens.

1. Select **Install HP-UX** from the welcome screen by pressing **enter**.



```
hpterm
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: 9000/780/C160
+-----+-----+-----+-----+
| Disks: 1 ( 4.0GB) | Floppies: 0 | LAN cards: 1 | [ Scan Again ]
| CD/DVDs: 0 | Tapes: 0 | Memory: 256Mb |
| Graphics Ports: 2 | IO Buses: 3 | CPUs: 1 | [ H/W Details ]
+-----+-----+-----+-----+

[ Install HP-UX ]
[ Run an Expert Recovery Shell ]
[ Advanced Options ]

[ Reboot ] [ Help ]
```

---

## Common Errors

**NOTE:** The console firmware terminal type is currently set to "hp". If you are using any other type of terminal you will see "garbage" on the screen following this message.

If this is the case, you will need to either change the terminal type set in the firmware via GSP (if your GSP firmware version supports this feature), or change your terminal emulation to match the firmware. In either case you will need to restart if your terminal and firmware terminal type do not match.

Press the 'b' key if you want to reboot now.

**Diagnosis:** Your console is not set to the correct terminal type.

**Correction:** One solution is to run the client console from an `hpterm`. Launch it with this command:

```
# hpterm -sb -s1 10000&
```

You must reboot the client by pressing **b** after the NOTE above, or if you missed this opportunity, reboot by cycling the power. Continue from "Boot the Client System from the Ignite-UX Server" (page 18)

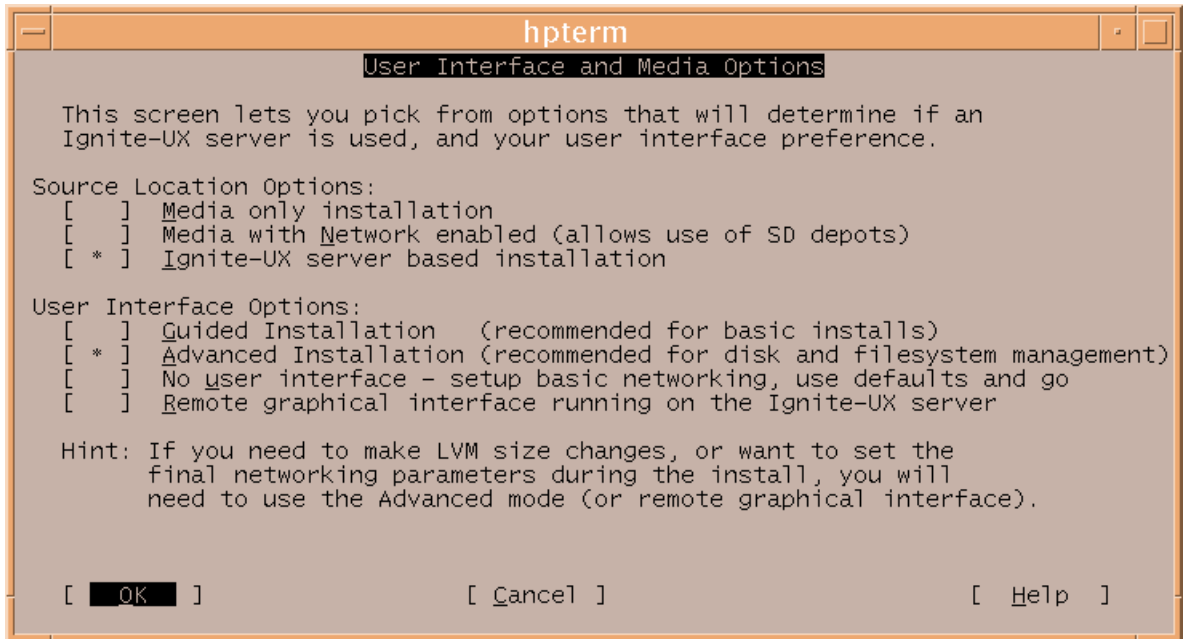
---

## Explore

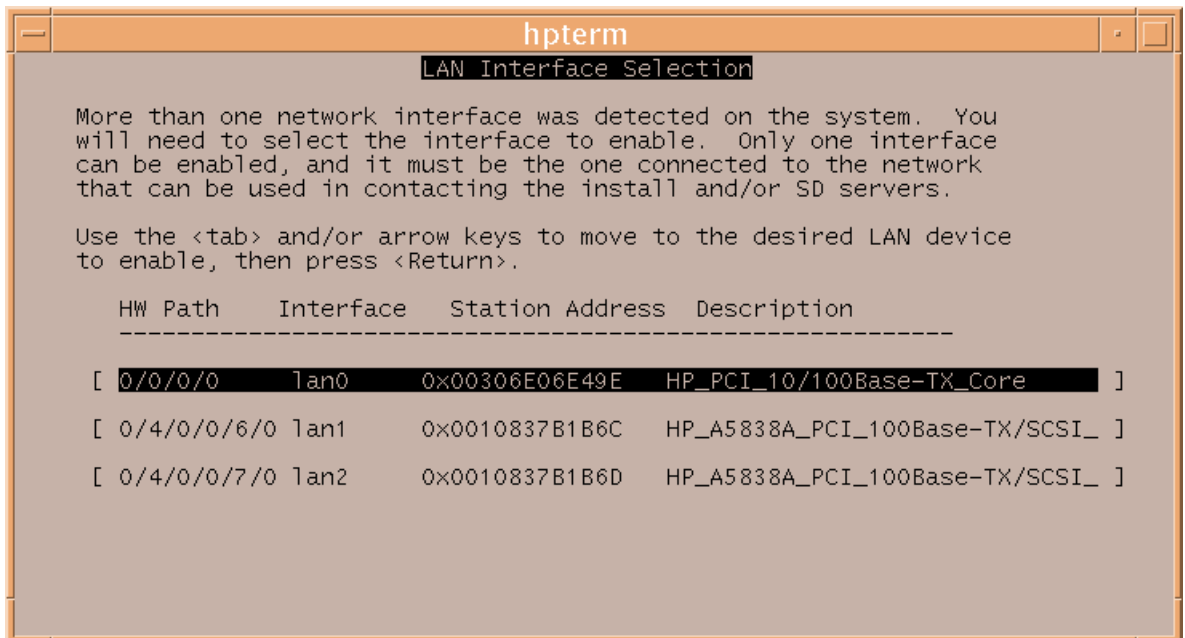
See `hpterm(1X)` by issuing the command

```
# man hpterm
```

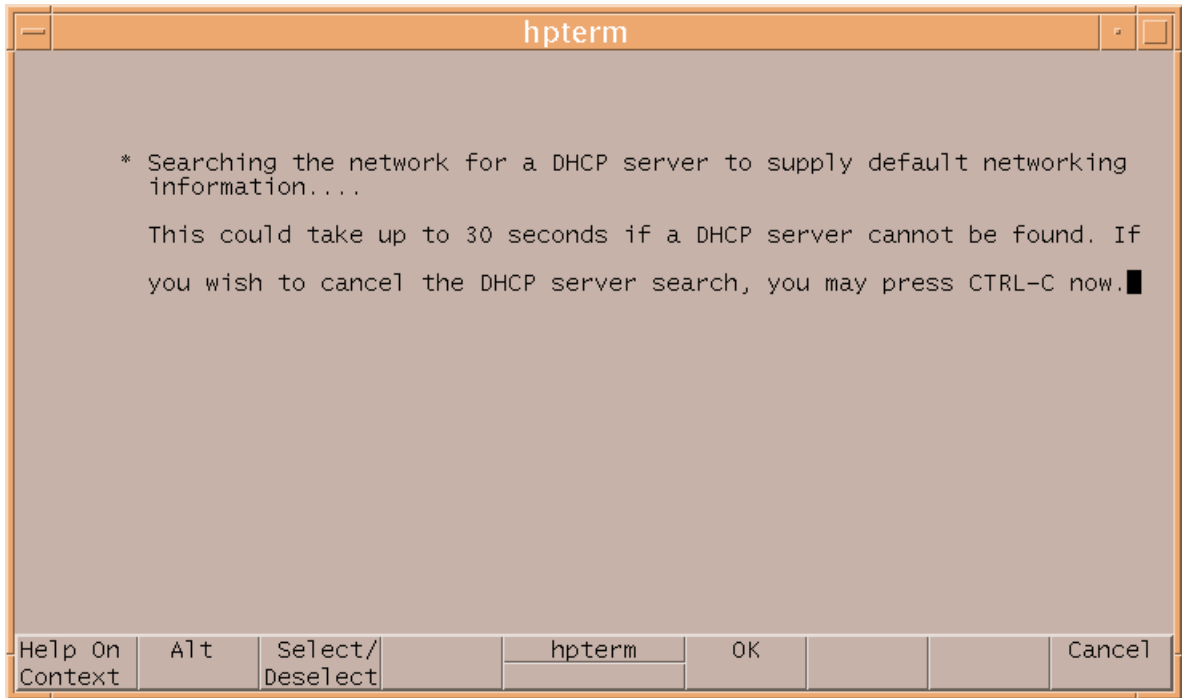
2. If the Source Location Options menu is displayed, leave it at the default selection: **Ignite-UX server based installation**. For the User Interface Options, select **Advanced Installation** by navigating to that line with **tab** and pressing **enter**, or by pressing **a**, then select **OK**.



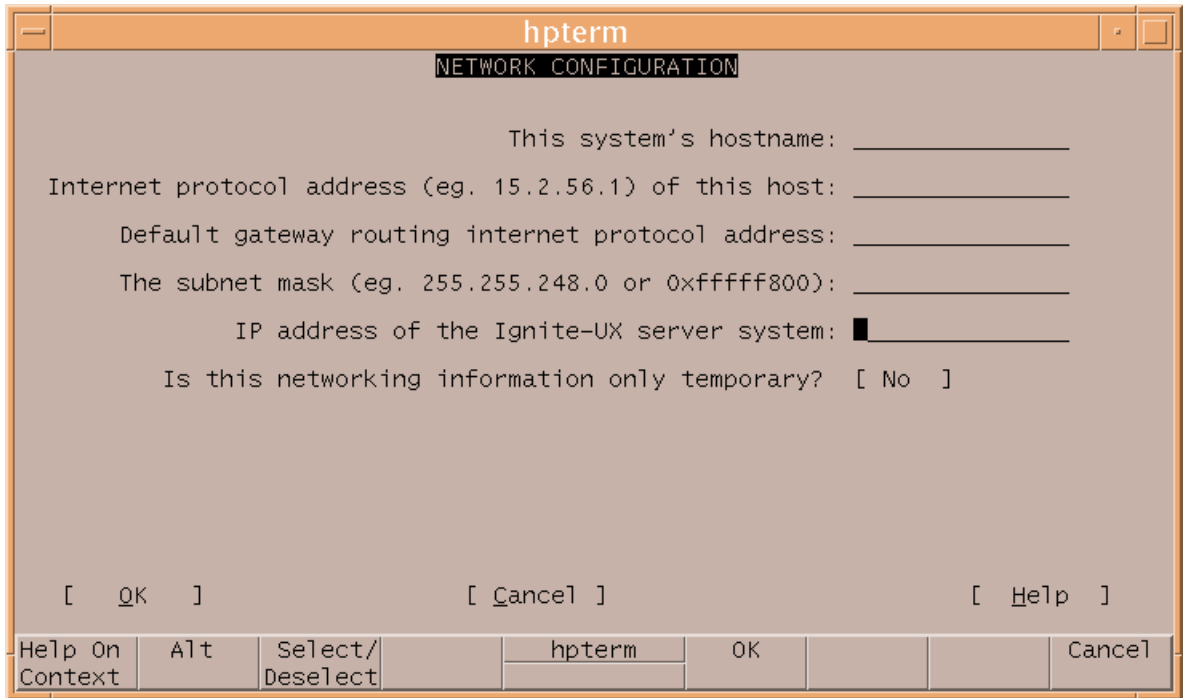
3. If there is more than one network interface on the client system, you will be prompted to select the correct one for connecting to the server system. Select the LAN interface you entered in the server's /etc/bootptab or /etc/opt/ignite/instl\_boottab file.



4. Ignite-UX then looks for networking information.



5. If a DHCP server is found, the NETWORK CONFIGURATION screen will contain the client's hostname and IP address. If there is networking configuration available for the server, it will be filled-in as well. Make sure the NETWORK CONFIGURATION parameters are set so the client system can contact the server. Then select **OK**.




---

### Common Errors

**Failed to read "INDEX" file from the install server. Check that the install server's IP address is correct and the server has the "Ignite-UX" product loaded and is available via the tftp(1) service.**

**Press any key to return to the network configuration menu:**

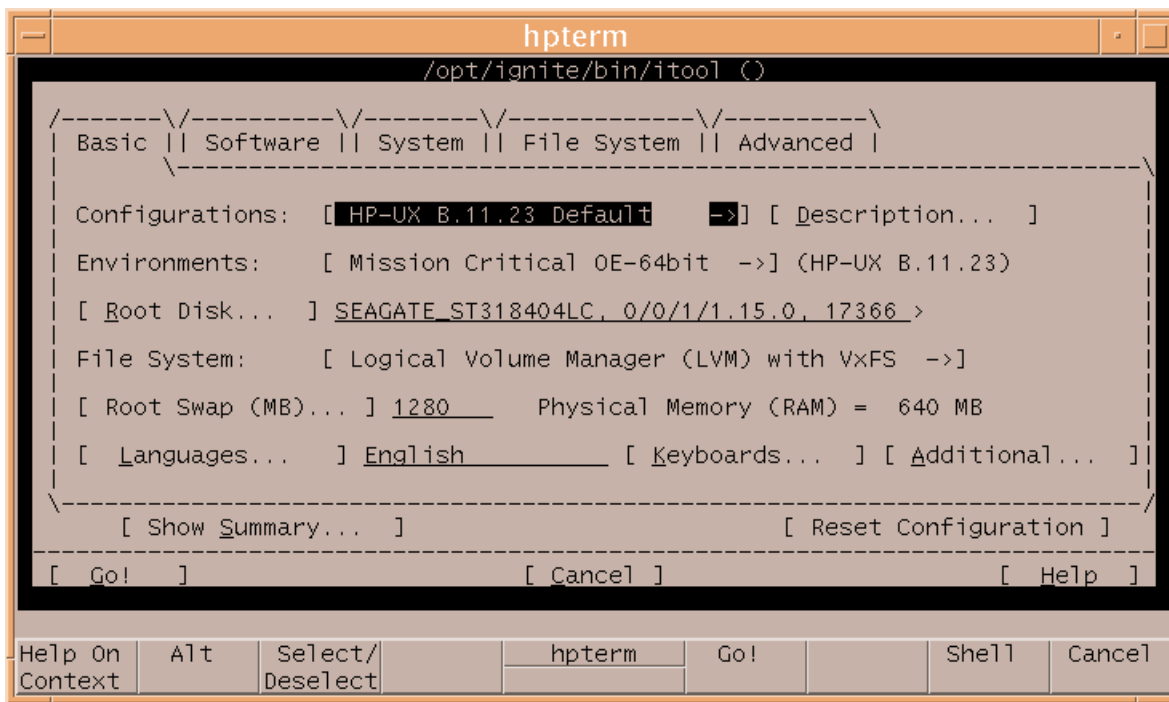
**Diagnosis:** The client can't find the Ignite-UX server.

**Correction:** One possibility is that the wrong LAN was selected from the "LAN Interface Selection" menu above. Press any key to return to the LAN Interface Selection menu and make sure the correct LAN is selected.

---

- The Ignite-UX server will then be contacted for installation configuration information for the client. (A dialog box will be displayed on the server with information that this client has been found.) The client configuration information is then displayed in the TUI version of the client installation configuration interface, also referred to as *itool*.

From the Configurations: data field, select the correct cfg clause. This is the cfg clause you created in step 2 of "Create the HP-UX OE Configuration Information on the Ignite-UX Server" (page 12), and was named "B.11.23 From OE Media" in the example.



## Common Errors

### Note:

The currently selected configuration does not contain any environments. You may want to select another configuration.

**Diagnosis:** The default configuration does not have an OE depot in it.

**Correction:** This does not affect the configuration you created. Select the cfg clause you created as described above.

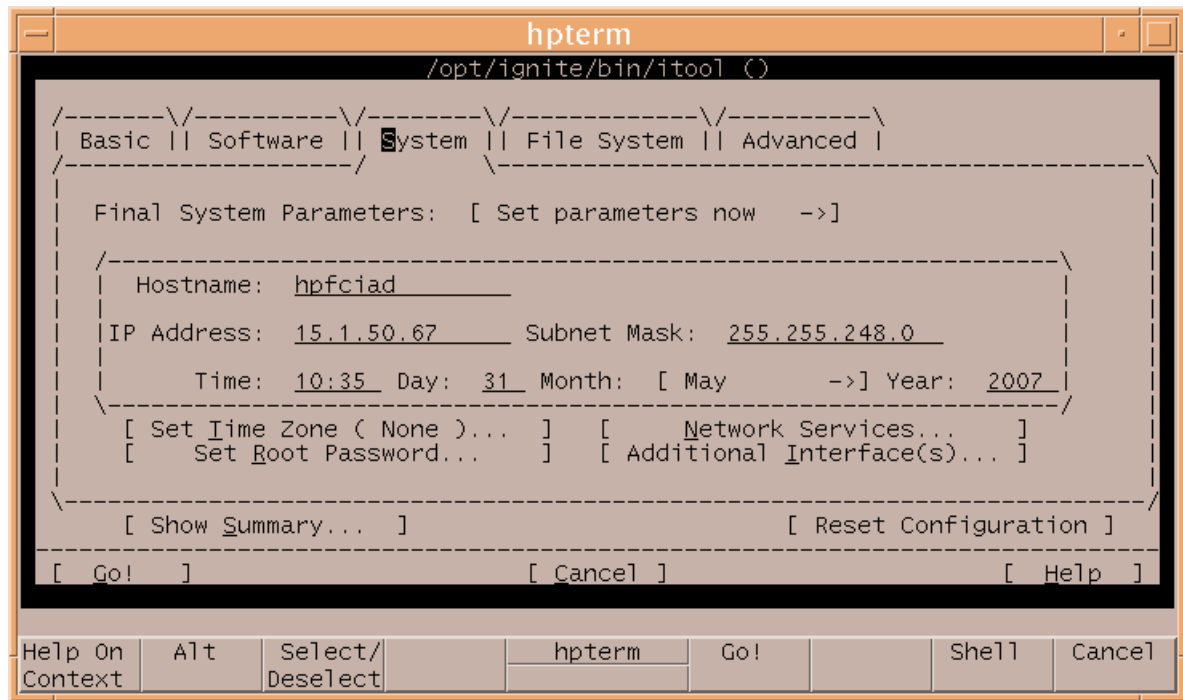
7. Configure your client's installation using the Ignite-UX itool TUI. Modify the fields of the configuration interface at your discretion. Navigate the TUI using the **tab** to move around and by pressing **enter** to make selections. You can use shortcut keys (indicated with an underline) to make a selection, but they do not work when the cursor is positioned at an input field. Using shortcuts can significantly reduce the time required to navigate the TUI itool.

Not all fields in the configuration interface require attention. In fact, a quick installation can be launched by accepting the default configuration for your version of HP-UX and then clicking **Go!**.

At a minimum, you might want to define the root password, set the time zone, and set the *DNS* configuration information.

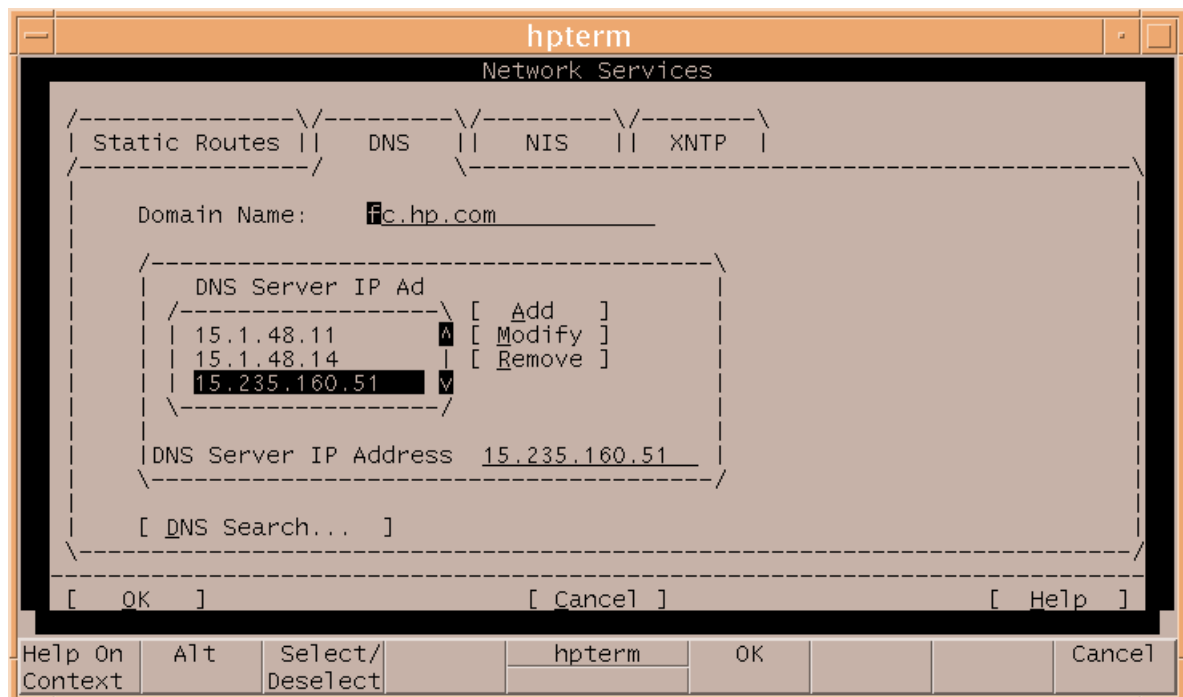
- a. Navigate to the System tab.





- b. Define the root password by selecting the **Set Root Password...** button.
- c. Set the time zone by selecting the **Set Time Zone** button.
- d. Set the DNS configuration information by selecting the **Network Services...** button on the System screen.

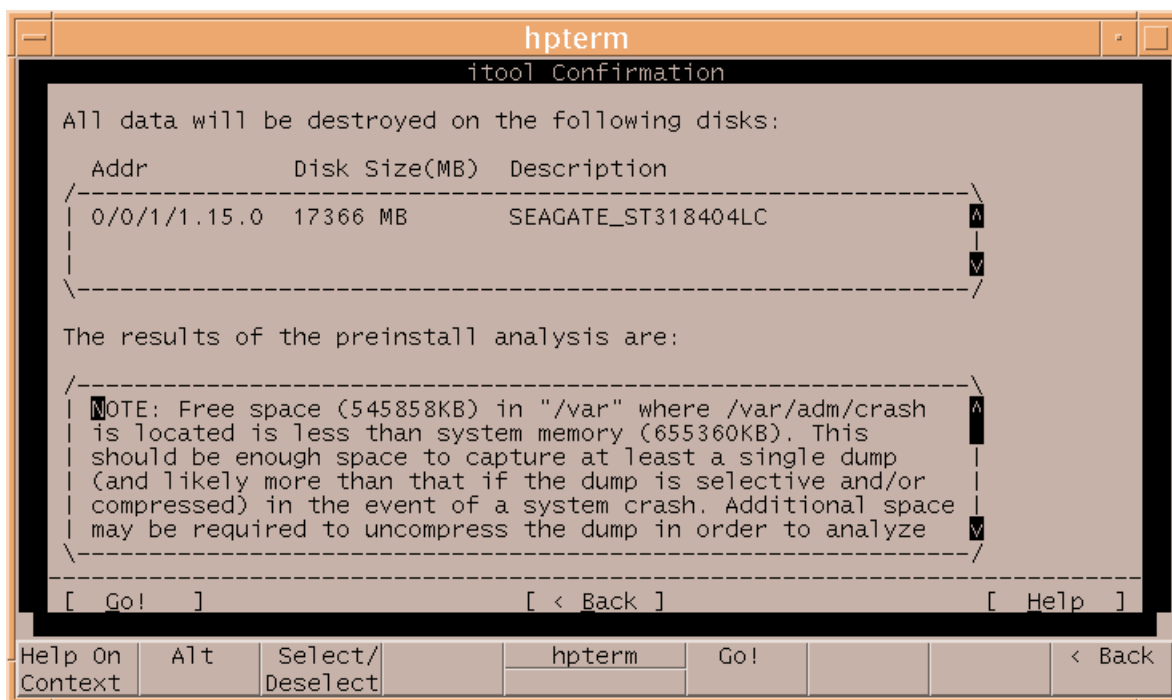
Then select the DNS tab from the Network Services screen.



- e. Once you select **OK** on the DNS tab, you will be returned to the itool. From there, select **Go!** to begin the cold install of the client.

**CAUTION:** A cold-install overwrites all data on the client disks selected for inclusion into any LVM *volume group* or VxVM *disk group*.

8. Make sure you read all the preinstall analysis information on the itool Confirmation screen. If you feel the cold install may proceed, select **Go!**.



9. After selecting **Go!**, the cold install will proceed. Status information is displayed on the client console as the installation progresses.

The cold install of the client system is now complete.

---

# Glossary

Glossary terms are *italicized* when used for the first time in this manual and when used anywhere in the glossary. This is a standard glossary for Ignite-UX documentation – not all terms defined here appear in this guide.

## A

- add\_new\_client** An *Ignite-UX* command that constructs a *client* directory on an *Ignite-UX* server without requiring the *client* to be booted from the *Ignite-UX* server first. See *add\_new\_client*(1M).
- agile addressing** The ability to address a *LUN* with the same *DSF* regardless of the physical location of the *LUN* or the number of paths leading to it. Agile addressing is introduced in HP-UX 11i v3.
- agile view** The representation of *LUNs* using *lunpath hardware paths*, *LUN hardware paths*, and *persistent DSFs*, introduced in HP-UX 11i v3.
- always-installed** For HP-UX 11i v1 and 11i v2, the software and driver *bundles* required for HP-UX. They must be loaded as part of the operating system.
- anonymous client** A *client* system that requests an IP address for booting when its *MAC address* is not associated with a specific IP address on the *server*. An anonymous client has its IP address allocated from a pool of IP addresses set aside for anonymous clients. See *registered client*.
- ANSI tape label** See *standard label tape*.
- archive** 1. A file made with *make\_sys\_image* that contains files for *installation* or *recovery* for a system. The file format may be *tar*, *cpio*, or with HP-UX 11i v3, *pax*, and can be compressed. An archive does not include *file system* or *disk layout* information. Archives can be either *recovery archives* or *golden archives*. *Recovery archives* retain host-specific customizations from the system; *golden archives* have customizable files reset to the *newconfig* state. An archive may include the core HP-UX operating system, and may include application software, patches, and global customizations. 2. A file containing the contents of other files, created and maintained by programs such as *pax*, *tar* and *cpio*.
- archive\_impact** An *Ignite-UX* command that calculates the disk space required for an *archive* on a per top level directory basis by default. The results are written in *Ignite-UX configuration file* syntax to standard output. See *archive\_impact*(1M).
- AUTO** A file that defines default boot behavior. For PA-RISC systems, the AUTO file is in the *LIF volume*. For Itanium®-based systems, the AUTO file is located in the */opt/ignite/boot* directory. See *hpux*(1M) and *hpux.efi*(1M).
- auto\_adm** An *Ignite-UX* command that allows you to manipulate AUTO file contents. See *auto\_adm*(1M).
- automated installation** Any installation done automatically, without manual interaction. This can be done at the command line with a *bootsys* command, or it can be scheduled to run at a particular time using the *cron* daemon.

## B

- Bastille** A security hardening/lockdown tool that can enhance the security of the HP-UX operating system. It provides customized lockdown on a system-by-system basis.
- boot** To load the *kernel* and start the operating system that is referenced by the *kernel* that was loaded. See *boot*(1M).
- boot console handler (BCH)** The firmware interface on a PA-RISC system. The Itanium-based equivalent is the *extensible firmware interface*.
- boot content** *[W|V|I]INSTALL*, *[W|V|I]INSTALLFS*, *INSTCMDs* or *INSTCMDsIA*, *config files*, and other files to support *boot* and *Ignite-UX* functionality needed to switch to another *install* source.
- boot helper media** *Installation media* with no *archive*. Meant for booting only. *Installation* is completed using an *Ignite-UX* server.
- boot helper system** A system with minimal *Ignite-UX* core functionality on a local *subnet* that provides an *Ignite* *install kernel* to a *client* to assist it with booting from an *Ignite-UX* server on another *subnet*.

<b>boot image</b>	Boot content, including [W V I]INSTALL, [W V I]INSTALLFS, INSTCMD or INSTCMDIA, and other content needed to support boot, formatted for a specific media type such as CD, DVD, or tape.
<b>bootsys</b>	An <i>Ignite-UX</i> command that allows you to <i>reboot</i> and <i>install clients</i> that are currently running HP-UX. See <i>bootsys(1M)</i> .
<b>bundle</b>	A package of software available from <i>Software Distributor</i> . Bundles are distributed within <i>depots</i> and contain <i>products</i> and <i>filesets</i> . <i>Ignite-UX</i> typically references software at the bundle level, as opposed to <i>product</i> or <i>product.fileset</i> .

## C

<b>CD boot image</b>	A <i>boot image</i> formatted for a CD.
<b>cfg clause</b>	See <i>configuration clause</i> .
<b>check_net_recovery</b>	An <i>Ignite-UX</i> command that compares the files on a currently running system with a network <i>recovery archive</i> created by <i>make_net_recovery</i> . A report is generated showing those files that have been added, deleted, or changed since the <i>recovery archive</i> was created. See <i>check_net_recovery(1M)</i> .
<b>check_tape_recovery</b>	An <i>Ignite-UX</i> command that compares the files on a currently running system with a tape <i>recovery archive</i> created by <i>make_tape_recovery</i> . A report is generated showing those files that have been added, deleted, or changed since the <i>recovery archive</i> was created. See <i>check_tape_recovery(1M)</i> .
<b>CINDEX</b>	An <i>INDEX</i> file for individual clients, kept in the <i>/var/opt/ignite/client</i> directory on the <i>Ignite-UX server</i> . Used to <i>install recovery images</i> made with <i>make_net_recovery</i> .
<b>client</b>	A computer that uses an <i>Ignite-UX server</i> for <i>installation</i> , <i>recovery services</i> , or both.
<b>cloning systems</b>	To replicate one computer's software and configuration onto another. This can be accomplished to varying degrees using <i>make_sys_image</i> and <i>make_[tape net]_recovery</i> .
<b>cold install</b>	Booting, loading HP-UX onto, and then starting a system. This process loads a new copy of HP-UX onto a system.
<b>command line interface (CLI)</b>	Text formatted commands and options entered at an HP-UX command line prompt or executed by a script.
<b>common configuration</b>	System software you want replicated onto other systems, such as: an operating system, patches, and application software.
<b>compressed file</b>	A file made smaller with compression software such as <i>gzip</i> or <i>compress</i> without losing any information. See <i>gzip(1)</i> and <i>compress(1)</i> .
<b>CONFIG</b>	A file in the <i>LIF volume</i> that typically contains all the software configuration information and the default file system layout information. It includes default configuration information for the operating system release, user-defined configuration information, and information regarding <i>archives</i> and <i>depots</i> .
<b>config file</b>	See <i>configuration file</i> .
<b>configuration clause</b>	Defines a collection of related <i>configuration files</i> used to <i>install</i> or <i>recover</i> a system. You will find configuration clauses in the <i>/var/opt/ignite/INDEX</i> file for <i>installations</i> , and in the <i>/var/opt/ignite/clients/MAC_address/CINDEX</i> file for <i>recoveries</i> , on an <i>Ignite-UX server</i> .
<b>configuration file</b>	A file that contains information describing installation behavior, <i>archive</i> contents, or the contents of a <i>depot</i> . Configuration files are referenced by the <i>INDEX</i> and <i>CINDEX</i> files. See <i>instl_adm(4)</i> .
<b>copy_boot_tape</b>	An <i>Ignite-UX</i> command that replicates a PA-RISC <i>recovery tape</i> made with <i>make_tape_recovery</i> . See <i>copy_boot_tape(1M)</i> .
<b>crippled config</b>	See <i>custom limited config</i> .
<b>custom installation</b>	An <i>installation</i> tailored to your specific requirements, including: <i>kernel</i> parameters, the running of user-supplied scripts, host information, and networking information.
<b>custom limited config</b>	A <i>configuration file</i> that informs <i>Ignite</i> there is no corresponding <i>archive</i> . Used with <i>boot helper media</i> . Also called a <i>crippled config</i> .

## D

<b>daemon</b>	A process that runs in the background and is usually immune to termination instructions.
<b>default-installed</b>	For HP-UX 11i v1 and 11i v2, software <i>bundles</i> that are installed as default with HP-UX. These <i>bundles</i> can be deselected before <i>installation</i> .
<b>depot</b>	A repository of software products, organized so <i>Software Distributor</i> (SD-UX) commands can use it as a software source.
<b>device identifier</b>	A user friendly, readable string, such as "LAB2CAB23LUN15", that is stored on a device. It remains viewable even if the device is moved physically. See <i>scsimgr</i> (1M).
<b>DHCP</b>	Stands for Dynamic Host Configuration Protocol, and is a way of dynamically allocating IP addresses and other network topology information to <i>clients</i> for a specified lease time.
<b>directed boot</b>	A <i>boot</i> request that is directed to a particular <i>Ignite-UX server</i> or <i>boot helper system</i> . A directed boot allows <i>boot</i> and <i>installation</i> from an <i>Ignite-UX server</i> on a different <i>subnet</i> without requiring a boot helper.
<b>disk group</b>	The VxVM equivalent of an LVM <i>volume group</i> .
<b>disk layout</b>	The way hard disks are formatted and information stored on them. There are two general methods of disk layout: physical-storage layout and logical-storage layout. VxVM and LVM use logical-storage layout, and use various layout techniques such as mirroring and striping.
<b>disk layout version</b>	The version of the VxFS private data that is used for its <i>file system</i> layout. This term can be abbreviated to DLV $x$ , where $x$ is the disk layout version number. See <i>mkfs_vxfs</i> (1M).
<b>DNS</b>	Stands for Domain Name Service, and provides mapping between hostnames and IP addresses.
<b>DSF</b>	Stands for Device Special File. A file associated with an I/O device. DSFs are read and written to as ordinary files are, resulting in activation of the associated device.
<b>DUMP</b>	A use designation typically for an LVM <i>logical volume</i> or a VxVM volume for system crash dump storage. See <i>crashconf</i> (1M).
<b>DVD boot image</b>	A <i>boot image</i> formatted for a DVD.

## E

<b>EFI</b>	See <i>Extensible Firmware Interface</i> .
<b>El Torito</b>	An extension to ISO9660 for creating bootable optical media.
<b>essential</b>	The list of files and directories in <code>/opt/ignite/recovery/mnr_essentials</code> describing the default minimum contents of a <i>recovery archive</i> .
<b>expert recovery</b>	An <i>Ignite-UX</i> mode of operation allowing expert users to repair a system with software damage without reinstalling HP-UX.
<b>extensible firmware interface (EFI)</b>	The Intel® developed firmware environment on Itanium-based systems that acts as an interface between operating systems and platform firmware. The interface consists of platform related information, as well as <i>boot</i> and runtime service calls. The PA-RISC equivalent is the <i>boot console handler</i> .

## F

<b>file system</b>	A collection of files and supporting data structures residing directly on a mass storage device or on a virtual or logical disk. There are various file system implementations, such as HFS and VxFS.
<b>fileset</b>	For <i>SD-UX</i> , a collection of files within a <i>product</i> . The <i>product</i> may be part of a <i>bundle</i> . See <i>sd</i> (5).

## G

<b>gateway</b>	The IP address of a system that routes forwarded traffic to a non-local network. A gateway IP address is usually associated with a router.
<b>golden archive</b>	An <i>archive</i> with files set to the <i>newconfig</i> state. See <i>archive</i> .
<b>golden image</b>	A combination of a <i>golden archive</i> , and a <i>configuration file</i> describing a system's <i>disk layout</i> and <i>file system</i> . Use as a <i>common configuration</i> to <i>install</i> systems.

<b>graphical user interface (GUI)</b>	A method of interacting with computers that employs metaphors such as windows and desktops and uses mouse-driven menus.
<b>gzip</b>	A command available with HP-UX that compresses and decompresses files in “.gz” format. See <i>gzip(1)</i> .
H	
<b>HBA</b>	Stands for Host Bus Adaptor. A physical I/O interface that provides I/O processing and connectivity between a server and a storage device.
<b>hierarchical file system (HFS)</b>	A particular implementation of a <i>file system</i> . See <i>mkfs_hfs(1M)</i> .
<b>HPUX</b>	The HP-UX bootstrap loader. Loads the <i>kernel</i> and starts HP-UX. For <i>Ignite-UX</i> , the HP-UX bootstrap loader loads the <i>install kernel</i> (e.g. <i>IINSTALL</i> ) and <i>install file system</i> (e.g. <i>IINSTALLFS</i> ). The bootstrap loader may also load other <i>LIF</i> content it needs to operate. See <i>hpux(1M)</i> .
I - J	
<b>Ignite</b>	See <i>Ignite-UX</i> .
<b>ignite</b>	The <i>ignite</i> command name. See <i>ignite(5)</i> .
<b>Ignite-UX</b>	An HP-UX administration toolset that allows simultaneous installation of HP-UX on multiple PA-RISC and Itanium-based clients, the creation and use of custom <i>installations</i> , the remote <i>recovery</i> of <i>clients</i> , and the creation of <i>recovery</i> media.
<b>Ignite-UX server</b>	A <i>server</i> from which <i>Ignite-UX</i> is used to <i>install</i> HP-UX on <i>client</i> systems.
<b>IINSTALL</b>	The <i>installation kernel</i> for Itanium-based systems.
<b>IINSTALLFS</b>	The associated <i>file system</i> for the <i>IINSTALL</i> <i>kernel</i> .
<b>image</b>	The current state of your computer, or portion of your computer. Often thought of as a “snapshot” of the state of the machine at any given moment.
<b>INDEX</b>	A file on the <i>Ignite-UX</i> <i>server</i> and in <i>LIF</i> <i>volumes</i> that groups references to <i>configuration files</i> in <i>configuration clauses</i> in order to define <i>installation</i> behavior.
<b>initial system loader (ISL)</b>	Implements the operating system independent portion of the bootstrap process on PA-RISC systems. It is loaded and executed after self-test and initialization have completed successfully. See <i>isl(1M)</i> .
<b>INSTALL</b>	The <i>installation kernel</i> for 32-bit enabled PA-RISC systems.
<b>install</b>	Perform an <i>installation</i> .
<b>install content</b>	<i>Boot content</i> and other files needed to support <i>Ignite-UX</i> functionality during <i>install</i> and <i>recovery</i> .
<b>install file system</b>	See <i>IINSTALLFS</i> , <i>INSTALLFS</i> , <i>VINSTALLFS</i> , and <i>WINSTALLFS</i> .
<b>install kernel</b>	See <i>IINSTALL</i> , <i>INSTALL</i> , <i>VINSTALL</i> , and <i>WINSTALL</i> .
<b>installation</b>	Loading the operating system, other software, and configuration information onto a system.
<b>installation media</b>	Removable media such as tape, CD, and DVD for <i>stand alone installation</i> of a <i>client</i> system.
<b>INSTALLFS</b>	The associated <i>file system</i> for the <i>INSTALL</i> <i>kernel</i> .
<b>INSTCMDS</b>	A compressed <i>tar archive</i> of commands in the <i>LIF</i> <i>volume</i> , or on an <i>Ignite-UX</i> <i>server</i> , required for specifying the system configuration to install on a PA-RISC system.
<b>INSTCMDSIA</b>	A compressed <i>tar archive</i> of commands in the <i>LIF</i> <i>volume</i> , or on an <i>Ignite-UX</i> <i>server</i> , required for <i>disk layout</i> on an Itanium-based system.
<b>instl_adm</b>	An <i>Ignite-UX</i> command that checks syntax on <i>Ignite-UX</i> <i>configuration files</i> and manages the <i>configuration file</i> in an <i>installation file system</i> on an <i>Ignite-UX</i> <i>server</i> . See <i>instl_adm(1M)</i> .
<b>instl_bootd</b>	A boot protocol <i>daemon</i> for <i>Ignite-UX</i> <i>clients</i> that responds to PA-RISC systems requesting <i>boot</i> services from the <i>Ignite-UX</i> <i>server</i> . See <i>instl_bootd(1M)</i> .
<b>instl_combine</b>	An <i>Ignite-UX</i> command that combines a <i>CD boot image</i> or <i>DVD boot image</i> with <i>install content</i> . See <i>instl_combine(1M)</i> .

<b>instl_dbg</b>	An <i>Ignite-UX</i> command that will parse and debug an <i>Ignite-UX client's configuration files</i> . See <i>instl_dbg(1M)</i> .
<b>ISL</b>	See <i>initial system loader</i> .
<b>ISO image</b>	An ISO9660 formatted file that is to be written to a CD or DVD. Used for a bit-for-bit burn of a CD or DVD.
<b>itool</b>	The name of an internal IUX program that presents the <i>Ignite-UX client installation</i> configuration user interface. This interface has five tabs: <b>Basic</b> , <b>Software</b> , <b>System</b> , <b>File System</b> , and <b>Advanced</b> . It is used to customize all or part of the operating system <i>installation</i> on the <i>client</i> before an <i>installation</i> or <i>recovery</i> . This command is not invoked from the command line.
<b>IUX</b>	See <i>Ignite-UX</i> .
<b>K</b>	
<b>kernel</b>	The HP-UX kernel is the executable code responsible for managing the computer's resources, such as: allocating memory, creating processes, and scheduling programs for execution. The kernel resides in RAM (random access memory) whenever HP-UX is running.
<b>L</b>	
<b>LANIC</b>	See <i>MAC address</i> .
<b>largefiles</b>	An option available on certain <i>file systems</i> that allows file sizes greater than 2 gigabytes.
<b>legacy DSF</b>	A <i>DSF</i> with the hardware path information such as SCSI bus, target, and <i>LUN</i> embedded in the file's minor number and file name, such as <code>/dev/dsk/c#t#d#</code> . These are the only <i>DSFs</i> available in releases prior to HP-UX 11i v3.
<b>legacy hardware path</b>	The representation of a hardware path as it exists in releases prior to HP-UX 11i v3. It is composed of a series of bus-nexus addresses separated by slashes (/) leading to the <i>HBA</i> . After the <i>HBA</i> , additional address elements, such as domain, area, port, target, and <i>LUN</i> , are separated by periods (.). The string <code>/0/2/1/0.1.4.0.0.2.7</code> is an example of a legacy hardware path.
<b>legacy view</b>	The representation of <i>legacy hardware paths</i> and <i>legacy DSFs</i> as in releases prior to HP-UX 11i v3.
<b>LIF</b>	See <i>Logical Interchange Format</i> .
<b>LIF volume</b>	Portions of content needed for <i>boot</i> and <i>install</i> combined into a LIF file. The LIF file is included in <i>boot content</i> and in <i>install content</i> .
<b>link level address (LLA)</b>	See <i>MAC address</i> .
<b>logical interchange format</b>	A simple file system implemented on HP computers able to run HP-UX to aid in media transportability. See <i>lif(4)</i> .
<b>logical volume</b>	A virtual subdivision of a <i>volume group</i> . See <i>logical volume manager</i> .
<b>logical volume manager (LVM)</b>	A specific <i>volume manager</i> type created and managed by the HP LVM product. See <i>lvm(7)</i> .
<b>LUN</b>	An identifier of a SCSI device. This refers to an end storage device such as a disk, tape, floppy, or CD. This is the unit itself and does not represent the path to the unit.
<b>LUN hardware path</b>	A hardware path for a SCSI <i>LUN</i> that virtualizes all paths to the <i>LUN</i> . The first path element is 64000, followed by a virtual bus instance and a logical unit number. Multipathed <i>LUNs</i> have a single LUN hardware path. The string <code>64000/0xfa00.0x22</code> is an example of a LUN hardware path. LUN hardware paths are part of the <i>agile view</i> introduced in HP-UX 11i v3.
<b>lunpath hardware path</b>	The representation of a hardware path for a mass storage device. It is identical in format to a <i>legacy hardware path</i> up to the <i>HBA</i> . After the <i>HBA</i> , additional addressing is represented in hexadecimal format. The string <code>0/2/1/0.0x50001fe1500170ac.0x4017000000000000</code> is an example of a lunpath hardware path. Lunpath hardware paths are part of the <i>agile view</i> introduced in HP-UX 11i v3.

## M

<b>MAC address</b>	Stands for Media Access Control. A network card's unique hardware number. Used to uniquely identify a network interface connected to a local area network.
<b>make_[tape net]_recovery</b>	Collectively refers to the <i>make_tape_recovery</i> and <i>make_net_recovery</i> Ignite-UX commands.
<b>make_boot_tape</b>	An Ignite-UX command that creates a bootable tape that contains just enough information for a system to <i>boot</i> and connect to an Ignite-UX server. See <i>make_boot_tape(1M)</i> .
<b>make_bundles</b>	An Ignite-UX command that creates a <i>bundle</i> container for products in a <i>depot</i> . See <i>make_bundles(1M)</i> .
<b>make_config</b>	An Ignite-UX command that constructs Ignite-UX configuration files for Software Distributor depots. See <i>make_config(1M)</i> .
<b>make_depots</b>	An Ignite-UX command that builds a Software Distributor depot for use by other Ignite-UX tools by copying bundles from a Software Distributor source. See <i>make_depots(1M)</i> .
<b>make_ipf_tape</b>	An Ignite-UX command that creates a bootable tape for an Itanium-based system. The tape will contain <i>boot</i> and <i>installation</i> components, but not a <i>recovery archive</i> . See <i>make_ipf_tape(1M)</i> .
<b>make_medialif</b>	An Ignite-UX command that creates a file containing a LIF volume that is used to boot PA-RISC systems. This file may then be copied to tape, CD, or DVD to create <i>installation media</i> . See <i>make_medialif(1M)</i> .
<b>make_net_recovery</b>	An Ignite-UX command that creates a <i>recovery archive</i> and system <i>config file</i> , and stores the resultant <i>recovery image</i> on a system on the network. See <i>make_net_recovery(1M)</i> .
<b>make_sys_image</b>	An Ignite-UX command that creates an <i>archive</i> of a system. See <i>make_sys_image(1M)</i> .
<b>make_tape_recovery</b>	An Ignite-UX command that creates a <i>recovery archive</i> and system <i>config file</i> , and stores the resultant <i>recovery image</i> on a local tape. See <i>make_tape_recovery(1M)</i> .
<b>manage_index</b>	An Ignite-UX command that is used to manipulate an Ignite-UX INDEX or CINDEX file. See <i>manage_index(1M)</i> .
<b>manifest</b>	Details of a <i>client's installation</i> . It is available in a file on the <i>client</i> and the Ignite-UX server after successful <i>installation</i> , and it may be displayed or regenerated with the <i>print_manifest</i> command. See <i>print_manifest(1M)</i> .
<b>media image</b>	The combined software source, <i>config files</i> , and <i>boot</i> information to be written to CD or DVD, used when preparing <i>installation media</i> . It is a single large file in the HP-UX operating system that is written to the medium and used for <i>installation</i> or <i>recovery</i> .
<b>multipathing</b>	The detection, correlation, and coordinated usage of multiple hardware paths leading to the same LUN.

## N

<b>network boot</b>	When a system boots the HP-UX install kernel over the network from an Ignite-UX server.
<b>newconfig</b>	The state of a file as it is stored in <code>/usr/newconfig</code> before it is moved into place and modified to be system specific. Files in a newconfig state contain no information about the personality of the system.
<b>NFS</b>	Stands for Network File System. Allows a <i>client</i> to perform transparent file access over the network.
<b>NIC address</b>	See <i>MAC address</i> .
<b>NIS</b>	Stands for Network Information Service. It allows access from any system to any system with a single user identification and password.
<b>NIS domain</b>	The group of systems sharing NIS configuration information.

## O

<b>offline diagnostic environment (ODE)</b>	Diagnostic utilities stored in the <i>boot</i> area or service partition able to run without the operating system.
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<b>optional</b>	With 11i v3, software <i>bundles</i> that are not installed with HP-UX by default. You must select these <i>bundles</i> before <i>installation</i> . <i>Ignite-UX</i> is an example of an optional software <i>bundle</i> .
P	
<b>partition</b>	A portion of a disk device that appears to <i>volume managers</i> , <i>file systems</i> , and other OS software as a disk device. Partitions allow different portions of a disk to hold content needed for <i>boot</i> , OS file systems, diagnostic tools, and other information.
<b>pax</b>	An HP-UX file archiving command that extracts, lists, and writes member files to an <i>archive</i> . <i>Ignite-UX</i> uses <i>pax</i> to produce <i>tar</i> , <i>cpio</i> , and <i>pax</i> formatted <i>archives</i> . See <i>pax(1)</i> , <i>tar(1)</i> , and <i>cpio(1)</i> .
<b>PDC</b>	See <i>Processor Dependent Code</i> .
<b>persistent DSF</b>	A DSF conforming to the naming model introduced in HP-UX 11i v3 to support agile addressing. The device file name contains an instance number, such as <code>/dev/disk/disk#</code> , and the minor number has no hardware path information.
<b>physical location</b>	Device identifier that uses information such as cabinet, bay, and LUN ID to indicate where the device is actually located. Used to indicate a specific device independent of I/O path changes.
<b>pkg_rec_depot</b>	An <i>Ignite-UX</i> command that repackages the <i>Ignite-UX</i> product into a <i>depot</i> on an <i>Ignite-UX</i> server in order to distribute <i>Ignite-UX</i> software to <i>client</i> systems that use the <i>Ignite-UX</i> server for network <i>recovery</i> . See <i>pkg_rec_depot(1M)</i> .
<b>print_manifest</b>	An <i>Ignite-UX</i> command that displays a <i>manifest</i> of the system it is run on. It can either display the original <i>manifest</i> , or gather information about the current system when it runs. See <i>print_manifest(1M)</i> .
<b>processor dependent code</b>	The firmware that implements all processor-dependent functionality including initialization and self-test of the processor. Upon completion, it loads and transfers control to the <i>initial system loader</i> . Firmware behavior varies depending on the hardware series. See <i>pdcc(1M)</i> .
<b>product</b>	In SD-UX, a collection of <i>filesets</i> , individual <i>filesets</i> , or both.
<b>PXE</b>	Stands for preboot execution environment. A protocol built on top of <i>DHCP</i> on HP-UX Itanium-based systems used to request <i>boot</i> services from a <i>server</i> in order to load the operating system.
R	
<b>reboot</b>	To stop all running code including the <i>kernel</i> , restart a computer, and <i>boot</i> the system. See <i>shutdown(1M)</i> and <i>reboot(1M)</i> .
<b>RECCMDS</b>	A compressed <i>tar archive</i> of commands required for <i>expert recovery</i> on PA-RISC systems.
<b>RECCMDSIA</b>	A compressed <i>tar archive</i> of commands required for <i>expert recovery</i> on Itanium-based systems.
<b>recommended</b>	With 11i v3, software <i>bundles</i> that are recommended and should be installed with HP-UX because they fulfill required software dependencies, if any exist. You can deselect the <i>bundles</i> before <i>installation</i> .
<b>recovery</b>	See <i>system recovery</i> .
<b>recovery archive</b>	An <i>archive</i> that retains host specific customizations from the system. See <i>archive</i> .
<b>recovery image</b>	A system-specific snapshot of a system that contains hostname, IP address, networking information, all files and directories essential to bringing up a functional system, as well as optionally including specified data on a disk, <i>volume group</i> , file, or directory basis. It is created with <code>make_[tape net]_recovery</code> .
<b>recovery shell</b>	See <i>expert recovery</i> .
<b>registered client</b>	A <i>client</i> system that has its <i>MAC address</i> registered with the <i>server</i> in order to always <i>boot</i> to the same assigned IP address. For PA-RISC systems, the <i>client's MAC address</i> is assigned to an IP address in the <code>/etc/opt/ignite/instl_boottab</code> or <code>/etc/bootptab</code> file. For Itanium-based systems, the default is to use the <code>/etc/bootptab</code> file.
<b>required</b>	With 11i v3, software and network driver <i>bundles</i> that are required and always installed with HP-UX. Software in this category cannot be deselected.

## S

<b>save_config</b>	An <i>Ignite-UX</i> command that creates a hardware <i>configuration file</i> . It extracts disk and <i>file system</i> information along with certain system and networking parameters for the current system, and writes it to a <i>configuration file</i> . See <i>save_config(1M)</i> .
<b>script hook</b>	Predefined mechanisms allowing user-defined scripts to run at specific points during the execution of the <i>installation</i> . Within the <i>Ignite-UX installation</i> procedure there are various script hooks: pre-config, pre-load, post-load, post-config, and final. See <i>instl_adm(4)</i> under “Command and Script Execution Hooks.”
<b>SCRIPTS</b>	A <i>configuration clause</i> of commands in the <i>LIF volume</i> containing scripts that can be selected in the <i>itool</i> under the <b>Advanced</b> tab.
<b>SD-UX</b>	See <i>Software Distributor</i> .
<b>selectable</b>	For 11i v1 and 11i v2, software <i>bundles</i> that are not installed by default with HP-UX. You must select these <i>bundles</i> to install them. <i>Ignite-UX</i> is an example of a selectable software <i>bundle</i> .
<b>server</b>	A computer that provides software and services to <i>clients</i> .
<b>setup_server</b>	An <i>Ignite-UX</i> command that performs administration tasks for an <i>Ignite-UX server</i> from a <i>command line interface</i> . The same functionality is available with the <i>Ignite-UX GUI</i> . See <i>setup_server(1M)</i> .
<b>Software Depot</b>	See <i>depot</i> .
<b>Software Distributor (SD-UX)</b>	An HP-UX product that provides a set of tools for centralized HP-UX software management. SD-UX commands are included with the <i>installation</i> of the HP-UX operating system. SD-UX commands typically use the prefix “sw”, such as in <i>swinstall</i> and <i>swverify</i> .
<b>stand alone</b>	In terms of <i>Ignite-UX</i> (as opposed to any other usage) a <i>client</i> system that is not network booted, but may still use an <i>Ignite-UX server</i> for <i>installation</i> or <i>recovery</i> .
<b>standard label tape</b>	A tape containing ANSI standard labeling. <i>Ignite-UX</i> uses <i>ansitape(1)</i> to create a standard label tape.
<b>subnet</b>	A separate part of larger a network connected via network gateways.
<b>SWAP</b>	A use designation typically for an <i>LVM logical volume</i> or a <i>VxVM volume</i> for paging. See <i>swapon(1M)</i> .
<b>SWAP+DUMP</b>	A use designation typically for an <i>LVM logical volume</i> or a <i>VxVM volume</i> that can be used for <i>DUMP</i> or <i>SWAP</i> .
<b>SYSCMDS</b>	A compressed <i>tar archive</i> of commands in the <i>LIF volume</i> or on an <i>Ignite-UX server</i> , required for <i>installation</i> of PA-RISC systems.
<b>SYSCMDSIA</b>	A compressed <i>tar archive</i> of commands in the <i>LIF volume</i> or on an <i>Ignite-UX server</i> , required for <i>installation</i> of Itanium-based systems.
<b>system image</b>	See <i>image</i> .
<b>system recovery</b>	The use of a <i>recovery image</i> to reestablish a system.

## Symbols and numbers

**0xLLA** See *Link Level Address*

## T

<b>terminal user interface (TUI)</b>	A method of interacting with computers that employs a character-based display that works on non-graphical terminals. The TUI uses a keyboard for navigation, not a mouse.
<b>two-step media recovery</b>	A method of using the <i>Ignite-UX tape recovery</i> tool when a system or I/O interface does not support firmware tape boot. The method involves step 1: booting from installation media such as DVD or CD, and then step 2: recovering from tape.

## U

**Unique LUN ID** A general term for a *LUN* identifier, which might specifically be a physical disk's WWID, a WWID assigned to a SAN virtual LUN, the `uniq_name` assigned to a LUN for which a WWID could not be obtained, or some other type of identifier unique to a LUN.

## V

**Veritas** A set of products from Symantec that include *VxVM* and *VxFS*.

**VINSTALL** The *installation kernel* for V-class PA-RISC systems.

**VINSTALLFS** The associated *file system* for the *VINSTALL kernel*.

**vmunix** The default *kernel* filename, used during normal system operation. `vmunix` is built by the `mk_kernel` command, which *Ignite* calls during system installation. The *AUTO* file typically contains the entry "`boot vmunix`", which references `/stand/vmunix` on the selected boot device.

**volume** 1. A pool of data storage made up of one or more physical disks. These volumes are created and managed using tools from one of the volume managers, *VxVM* or *LVM*. See *volume manager*.  
2. A tape, especially when ANSI labeled.

**volume group** An arbitrary grouping of disks for use by *LVM*. See *volume manager*.

**volume manager** A subsystem for managing disk space that allows one or more disks to be combined. It can provide increased size, improved reliability via data and path redundancy, greater configuration flexibility, and other features for managing *file system* space.

**VxFS** A Veritas product from Symantec that is a *file system* implementation.

**VxVM** A specific *volume manager* type that is a Veritas product from Symantec. See *volume manager*.

## W - Z

**[W|V|I]INSTALL** Refers to the *WINSTALL*, *VINSTALL*, *IINSTALL*, or *INSTALL* *installation kernel* depending on your system.

**[W|V|I]INSTALLFS** Refers to the *WINSTALLFS*, *VINSTALLFS*, *IINSTALLFS*, or *INSTALLFS* *file system* depending on your system.

**whole disk** A volume management selection that treats the entire disk as one volume. This selection does not use a volume manager product. For bootable disks, it is a practical selection only for Itanium-based systems.

**WINSTALL** The *installation kernel* for 64-bit PA-RISC systems.

**WINSTALLFS** The associated *file system* for the *WINSTALL kernel*.

**XNTP** Stands in part for network time protocol. The `xntpd` *daemon* maintains system time in agreement with Internet standard time servers. This can be configured from the *itool* **System** tab under Network Services->XNTP.