Installing and Updating HP-UX 10.x

HP 9000 Computers

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Installing and Updating: Why Do It?

One of the first questions needing to be answered when system hardware has to be changed is: should the system undergo an update of just the software concerned, or is it more effective and less error-prone to just re-install the entire disk. Where the change involves a new file system layout, as in the transition between HP-UX 9.*x* and 10.*x*, there is also the question of whether to *upgrade* or re-install.

Background

Ignite-UX is HP's new installation tool which has replaced the old "cold install" toolset for installations, both for single systems and for large replicated sites consisting of many networked systems.

At large sites, where speed of installation is crucial, Ignite-UX can install one system whose configuration can then act as a model (with small changes) for all later installations.

Ignite-UX can be set up so that new systems, when cold booted from the IUX server, install a predefined default configuration without further user intervention.

For a system being installed with Ignite-UX, the System Administrator can execute a command from the Ignite-UX server to begin the install process. No local intervention is required.

The System Administrator can also set up, ahead of time, config files for existing systems. Ignite-UX will use these during install instead of the default configuration. This can ensure that specific existing systems get unique configurations.

Getting Information

This manual presents a number of scenarios in its 5 basic chapters which will help you to follow one of the following procedures:

- Updating your current 10.*x* OS and applications. This involves using the SD-UX tools to install SD-packaged products and bundles onto your existing system. It can serve to either update the OS or other software, while leaving data files untouched.
- Installing a system from media. This is usually done with single or few standalone systems, using a CD-ROM source.
- Installing a system from a network ("pull" from a client). This is done with a small networked site (fewer than 50 clients and few servers), and may or may not use a standard system image.

- Installing a number of systems from a network ("push" from a server). This is done where there are many client systems and they all generally generally require a similar installation. This may use a standard system image, or "golden disk".
- Re-installing a number of systems from a network server. This is done where the client systems are to be "updated" and their data is kept on separate servers, so that only the OS and minimal system information need to be re-installed. This may also use a standard system image, or "golden disk".

Other "mixed scenarios" are also possible.

See the following Roadmap to help you find information on the basic installation tasks you are likely to encounter.

Task-Information Roadmap.

This manual documents procedures for installing and updating your HP-UX 10.*x* operating system and software. For doing "Cold Installs" which completely overwrite the data on the specified disk(s), the Ignite-UX tool replaces the old Cold Install toolset, at HP-UX 10.30, and it can be used for installing previous 10.*x* versions, as well.

The following tasks are covered, in the indicated locations:

Table 1-1 Installation/Update Task Roadmap

Task	Location of Information
Updating a 10.*x* system (from any SD depot)	Chapter 2, “Updating an Existing Operating System and Software.”.
Updating 10.*x* applications (from any SD depot)	Chapter 2, “Updating an Existing Operating System and Software.”.
Setting up for large/repeated installations	Chapter 4, “Configuring an Ignite-UX Server.”.
(Cold) Installing HP-UX 10.*x* from media	“Preparing for a Media Install”.
(Cold) Installing HP-UX 10.*x* from the network	Chapter 5, “Installing from the Ignite-UX Server.”.
Installing Extension Software or bundled 10.*x* applications from media	Chapter 3, “Installing From Media.”.
Installing Extension Software or bundled 10.*x* applications from the network	Chapter 2, “Updating an Existing Operating System and Software.”.
Configuring a network for installation	Appendix A, “Configuring for a DHCP Server,” or Chapter 5, “Installing from the Ignite-UX Server.”.

Task-Information Roadmap.

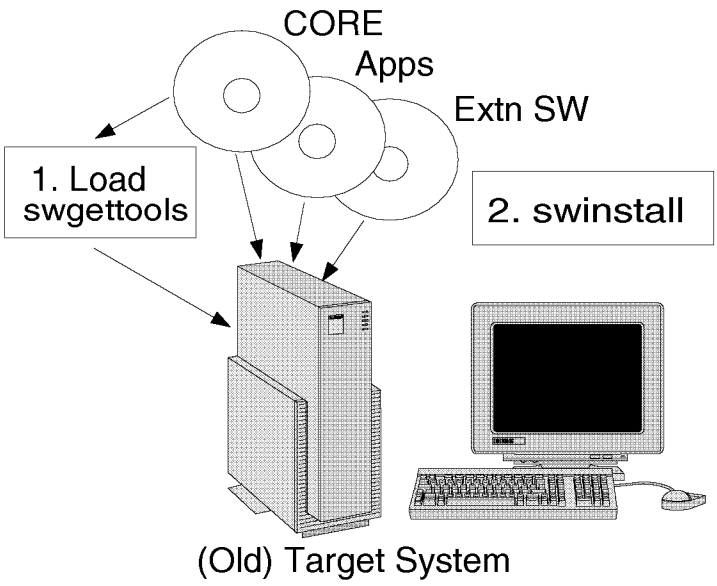
Task	Location of Information
Creating config files for installation	Appendix B, “Using Configuration Files.” .
Booting systems from the network	Chapter 4, “Configuring an Ignite-UX Server.”.
Booting systems from media	Chapter 3, “Installing From Media.”.
Troubleshooting an installation process	Chapter 6, “Troubleshooting.”.

2 Updating an Existing Operating System and Software

Chapter Contents

Updating a System

Figure 2-1



Overview.

Updating your system from the existing HP-UX 10.0*x*, to another version of HP-UX involves using `swinstall` and other SD-UX tools with a standard source, such as a network server, tape, or CD-ROM, to install the appropriate bundles, products, or filesets.

Upgrading means using a suite of tools (version 9.U3 of the Upgrade tools) to update your system from HP-UX 9.0*x* to 10.0*x*. For upgrading your system, refer to the manual *Upgrading from HP-UX 9.x to 10.x*.

- If you plan to update from HP-UX 10.0 to 10.*x*, you will have to update your system first to HP-UX 10.01 or 10.10.
- It is highly recommended that you do a system backup before starting to do an update.
- Before upgrading to HP-UX 10.30, you will need to remove SwitchOver/UX from your system, if it is present. You can use `/usr/sbin/swremove` to remove the entire product, by typing the following:

  ```
  /usr/sbin/swremove 92668A
  ```

  The filesets for SwitchOver are as follows:

  ```
  SWITCHOVER-KRN
              SWITCHOVER-RUN
              SWTC-ENG-A-MAN
              SWTC-JPN-E-MAN
              SWTC-JPN-S-MAN
  ```

- If you are updating from HP-UX 10.20 or earlier, you will have to first update SD-UX (the set of tools that includes `swinstall`), using `swgettools`, before you can run `swinstall`.

CAUTION

Executing `swinstall` to update from 10.0, 10.01, or 10.10 will not succeed unless you first obtain and execute the `swgettools` command found on the new media. This will update the SD-UX commands. Failure to update SD-UX from the old version will result in error messages and failure of the update process.

The instructions for using `swgettools` are in “Updating SD-UX Before Installing/Updating Software”, in this chapter.

- If you already have the new HP-UX on your root disk, via Instant Ignition or an installation, go to “Updating HP-UX Software”, in this chapter.

HP-UX Update Requirements

Update and Upgrade Paths

You can use the SD-UX tools to update your OS to a later version of HP-UX, from 10.01, 10.10, or 10.20. For upgrades to 10.*x* from 9.0*x*, see the manual *Upgrading from HP-UX 9.x to 10.01*. You can also use SD-UX to install or update applications.

Memory and Disk Space Requirements

- HP-UX (after 10.20), including NFS, LAN/9000, and CDE, requires 32 MB of RAM.
- Before you begin the update, you should be sure your target disk has the space needed to accommodate the new OS as well as your data files and all needed backups on disk. HP-UX (after 10.20) requires 271 MB, including NFS, LAN/9000, CDE, and the X Window System. This means you should plan on a minimum of one GB for a general workstation. Disk usage numbers will vary by a factor of 20%, depending on the SD-UX installation.

  In general, the Disk Space Analysis phase of `swinstall` will warn you if disk space is insufficient. However, Disk Space Analysis does not currently check `/var/adm/sw`, where the database is kept, for temporary space usage.

  If you are running your system as LVM and `/var` comprises a single volume, be sure you have configured adequate space in the `/var` volume to accommodate the update files. Update requires a minimum amount of free disk space of at least 20 MB to allow for the generation of the installed software database, among other things. Note that other LVM volume sizes may also need to be increased to allow updating. You may need to observe the result of the disk space analysis step and adjust the volume sizes as needed.

  1. Determine your free disk space in `/var` by running `bdf /var` and `bdf /var/tmp`. The default temporary directory is `/var/tmp`.
  2. Delete any files in this volume that you don't need.
  3. If necessary, set the environment variable `TMPDIR` to point to a directory that has sufficient space. For example (for a directory *dir*):

     `TMPDIR=/`*dir*

After setting this variable, export it, and kill and restart the `swagentd` process.

```
/usr/sbin/swagentd -r
```

4. *Ensure that your system has at least 30 MB of swap enabled before starting the update process.* You can use `swapinfo -mt` and check the total free MB of swap space. Or you can use SAM to see how much swap you currently have. If you do not have enough swap, you can enable file system swap for the duration of the update (until system reboot) by using the following command:

   ```
   /usr/sbin/swapon /var/tmp
   ```

   The directory `/var/tmp` can be used if there is sufficient free space. If `/var/tmp` is full, then specify a different volume that has enough free space to satisfy the swap space requirement.

   Alternatively, you can shut down unneeded programs to make more memory and swap space available. This also improves performance.

- Before updating, you may wish to use `/usr/sbin/swremove` to remove unneeded filesets from your system. You can use the `freedisk` tool on a system which has been active for a time to detect unused filesets.

For More Information on Space Requirements

Refer to the current *System Administration Tasks* manual and the *Release Notes for HP-UX 10.x* for additional information on peripherals and disk space.

Tapes or CD-ROMs Used

- Tape: `HP-UX Runtime` (the "CORE" tape).
- Tape: `HP9000 Series` *x*`00 Customized Software` (the "CORE" and applications for update customers only)
- Tape: `HP` *application_name*.
- Tape: `HP-UX Support` (Includes diagnostics).
- Tape: `HP-UX Extension Software`.
- CD-ROM: `CORE`
- CD-ROM: `Applications`.
- CD-ROM: `Support`.
- CD-ROM: `HP-UX Extension Software` (Includes essential patches).

NOTE *If you are updating any networking products, such as FDDI or Token-Ring, which are not on the HP-UX Runtime tape or the CORE CD*, please see "Networking Products on Additional Media", in this chapter.

Mounting the Source Media

1. Note that your multi-user license is typically supplied on separate media.
2. Ensure that you have made a backup tape of your present system.
3. Ensure that your system is booted and running HP-UX 10.*x*. You should have a term window opened.
4. Turn *on* the DDS or CD-ROM drive, if it is external to your HP-UX 10.*x* system.
5. Insert the tape or CD-ROM into its drive.
6. Wait for the busy lights to stop blinking.
7. If necessary, identify the drive device, using the `/etc/ioscan -fn` command.
8. If you are using a tape source, you do not need to mount the drive. Go on to the procedure in "Updating SD-UX Before Installing/Updating Software".
9. If you are using a CD-ROM, note that you will first have to mount the disc, using SAM or the *mount*(1M) command. If you do not use SAM, you can do the following to mount the disc:
   a. Put the CD into the CD-ROM drive. CD-ROM "busy light" should blink.
   b. Open a term window and, at the shell prompt, type the following:

      ```
      mkdir /SD_CDROM Enter

      mount /dev/dsk/c1t2d0 /SD_CDROM Enter
      ```

      The device name "*c1t2d0*" should be replaced with whatever device name you found using `ioscan` in item 7 above.

Updating SD-UX Before Installing/Updating Software

Before you can update to, for example, 10.20, you *must* extract the new version of SD-UX from the 10.20 tape, CD or software depot from which you plan to update your system.

CAUTION

Do *not* attempt to use your present version of `swinstall` to update the system to a newer version. The update will fail.

Procedure

To update SD-UX, you must first load the `swgettools` utility onto your system, and then use `swgettools` to get the new version of SD-UX.

The `swgettools` command needs a temporary directory with at least 2 MB of free space. By default, `swgettools` will use the `/var/tmp` directory. If there is not enough space in the temporary directory `swgettools` will fail.

You can tell `swgettools` to use a different temporary directory by means of the `-t` *dir_path* command-line option. You must do this if you do not have 2 MB free in `/var/tmp`. Use `bdf /var/tmp` to determine this.

Loading swgettools

The `swgettools` utility is shipped in the `catalog/SW-GETTOOLS/pfiles` directory. Depending on whether the 10.*x* software is on CD, tape or a remote system in a software depot, use `cp`, `tar`, or `rcp`, respectively, to load `swgettools` onto your system. Skip to the section “SW-DIST Installation” below for more examples and other options.

For example, to load `swgettools` from a local CD-ROM mounted at `/SD_CDROM` into `/var/tmp`, enter the following:

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

Getting the New SD-UX Tools

Now use `swgettools` to update SD-UX. For example:

```
/var/tmp/swgettools -s /SD_CDROM
```

The expression `-s /SD_CDROM` indicates a CD-ROM drive mounted at `/SD_CDROM`.

Further examples are in the next section. After you have updated SD-UX, you can use `swinstall` to update your system to the new version of HP-UX.

SW-DIST Installation

From CD-ROM

To install the new `SW-DIST` product from the CD-ROM at `/SD_CDROM`, enter the following:

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

/var/tmp/swgettools -s /SD_CDROM
```

From Tape

To install the new `SW-DIST` product from tape at `/dev/rmt/0m`, enter the following:

```
cd /var/tmp

tar -xvf /dev/rmt/0m catalog/SW-GETTOOLS/pfiles/swgettools

cp /var/tmp/catalog/SW-GETTOOLS/pfiles/swgettools /var/tmp/swgett
ools

rm -rf /var/tmp/catalog

/var/tmp/swgettools -s /dev/rmt/0m
```

From Remote Depot

To install the new `SW-DIST` from a remote depot on system `swperf` at `/var/spool/sw`, enter the following:

```
rcp swperf:/var/spool/sw/catalog/SW-GETTOOLS/pfiles/swgettools  /
var/tmp

/var/tmp/swgettools -s swperf:/var/spool/sw
```

Updating SD-UX Without Root Access to the Remote Depot

Option 1:

If you are a system administrator, you can instruct your users to use this procedure or Option 2 (below) for more restricted access, if you do not want to grant the users `rcp` (`.rhosts`) access as root to the server.

1. Copy the `swgettools` script file and the `swagent.Z` file (both in the `catalog/SW-GETTOOLS/pfiles` directory) from the tape or CD to a location that your users have FTP access to.
2. Tell the user to do the following:

a. FTP the two files into the `/var/tmp` directory on the system to be updated.

b. Use `chmod +x` to make the `/var/tmp/swgettools` script executable.

c. Run `swgettools` and specify the remote depot location with the `-s` option (and, if necessary, `-t` to specify a temporary directory other than `/var/tmp`).

Option 2:

This option assumes your users will be running `swgettools` specifying a source depot on a remote server, and you do not want to grant them `rcp` (`.rhosts`) access as root to the server.

Users can use the SD-UX `swcopy` command to copy the `SW-GETTOOLS` product from a registered remote source depot to a local depot prior to extracting the files. The remote source depot can be either a CD-ROM or a disk depot.

To copy the `SW-GETTOOLS` product from the remote CD-ROM depot located at `swperf:/var/spool/sw` to a local depot in `/tmp/depot`:

```
swcopy -s swperf:/SD_CDROM SW-GETTOOLS @ /tmp/depot
```

Then copy the `swgettools` script and the `swagent.Z` file to the `/var/tmp` directory:

```
cp /tmp/depot/catalog/SW-GETTOOLS/pfiles/sw* /var/tmp
```

Execute the `swgettools` script specifying the remote depot to update the `SW-GETTOOLS` product from the following:

```
/var/tmp/swgettools -s swperf:/SD_CDROM
```

NOTE

If you will be using a temporary directory other then `/var/tmp`, then `cp` the `swgettools` script and the `swagent.Z` file to the temporary directory you will be using, and specify its location on the `swgettools` command line using the `-t` option.

Example:

```
cp /tmp/depot/catalog/SW-GETTOOLS/pfiles/sw* /usr/tmp

/usr/tmp/swgettools -s swperf:/SD_CDROM -t /usr/tmp
```

For More Information

Consult the *swgettools*(1M) man page (on the new system) or the manual *Managing HP-UX Software with SD-UX* for assistance with the following:

- If you encounter an error during the execution of the `swgettools` script. *OR*
- If you want to see examples of using `swgettools` with other types of media.

Updating HP-UX Software

If you are updating software on an existing HP-UX system you should begin the update procedure at this point.

Otherwise, you should have installed the new `SW-DIST` product first, as given in the previous sections in this chapter. Then do the following to start `swinstall`:

On Series 700, you will see a Graphical User Interface (GUI), by default. On Series 800, you will see a character display Terminal User Interface (TUI) on a console. You will have a GUI if you are working from an Xterminal.

Updating a Stand-Alone System

1. For a Series 800 serving Series 700 clients, or for a non-clustered system, enter the Software Management area of SAM and select Install Software to Local Host. Or enter the following:

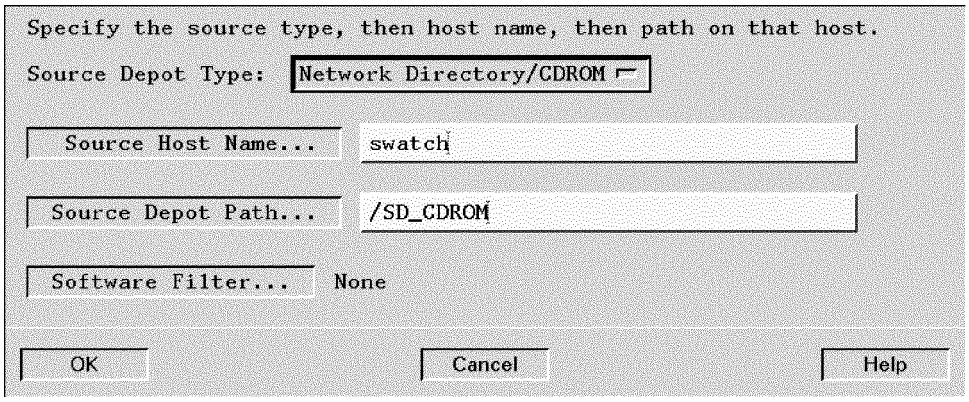
   ```
   /usr/sbin/swinstall
   ```

2. You will see the `swinstall` Specify Source screen. Skip to the section "Specify Source Screen".

NOTE Updating a cluster server to HP-UX 10.30 is not supported. NFS Diskless functionality is not supported in HP-UX Release 10.30. Do not update your server to HP-UX Release 10.30 if you intend for that server to operate as a NFS Diskless server.

Specify Source Screen

Figure 2-2



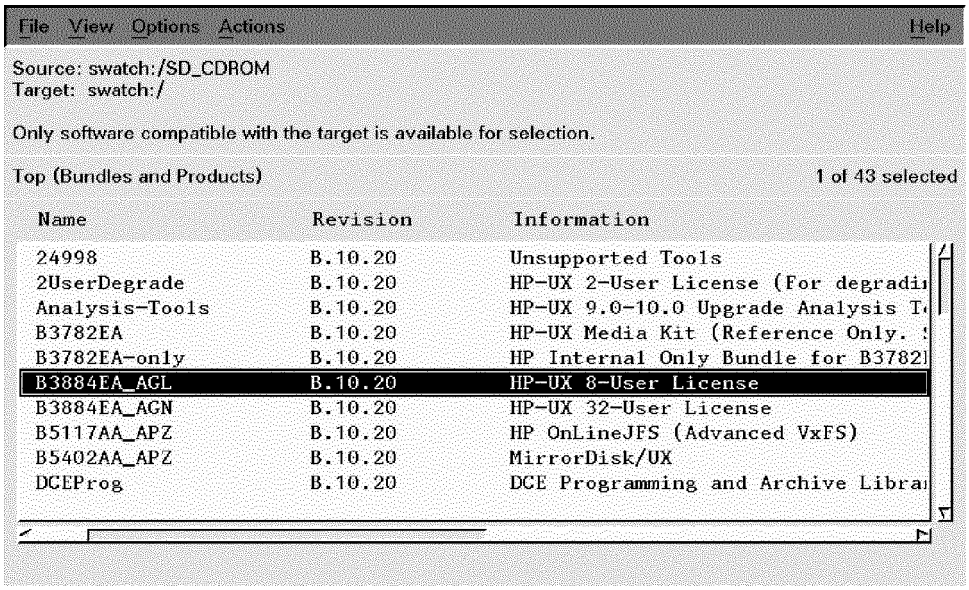
1. Clicking on the field beside Source Depot Type displays a choice of Local CDROM, Local Directory, Local Tape, or Network Directory/CDROM. The latter category will get a remote source for the update.
2. If the source depot/host name filled in is not the one you want, enter the correct one. You may also use the IP address for a host.
3. If you click on Source Depot Path, you will get a listing of available depots on the source you have just specified. If the source is a tape device, you may need to type the device file name. The mount point for a CD-ROM should already exist as `/SD_CDROM`, if the system was cold-installed. For more detail, see the man page *swreg*(1m).
4. If you wish to limit the listing, click on Software Filter to see the list of filters protocols available. At the same time, you can select one or none.
5. Click on OK.

   You will next see the Software Selection screen.

For More Information For information on the options for `swinstall`, and to change the degree of detail for its logging functions, see the manual *Managing HP-UX Software with SD-UX*.

Software Selection Screen

Figure 2-3



- On the Software Selection screen, highlight an item and click on the Actions menu item Open Item to see a listing of the contents of that bundle or product. You can also successively double-click on the selected item to show the contents at the next level of detail. To see a general description of the selected software, click on Show Description of Software from the Actions menu. Click on the OK button when you have finished with the description screen.

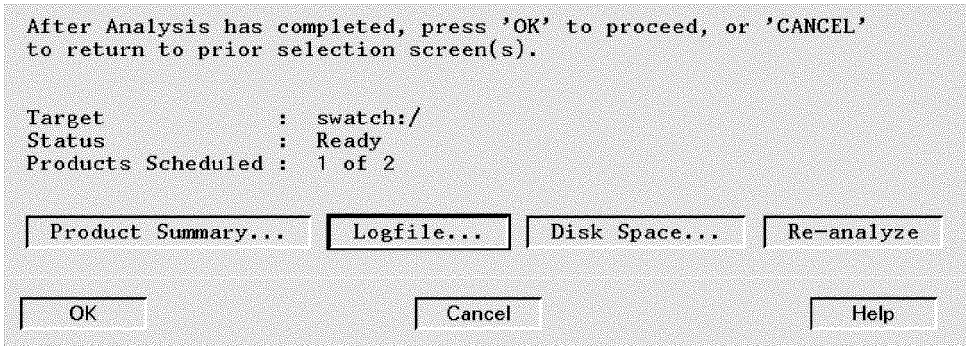
  If you want to match the general filesets and functionality you already have on your old system, choose Match What Target Has ... from the action menu, *AND/OR*

- To choose specific bundles/products to add to the Match What Target Has ... selection, highlight the additional item, and then choose Mark for Install from the Actions menu. (You can also use the right mouse button to mark for install).

- To start the install process, choose Install (analysis) ... from the Actions menu. You will see the following screen (superimposed):

Install Analysis Screen

Figure 2-4

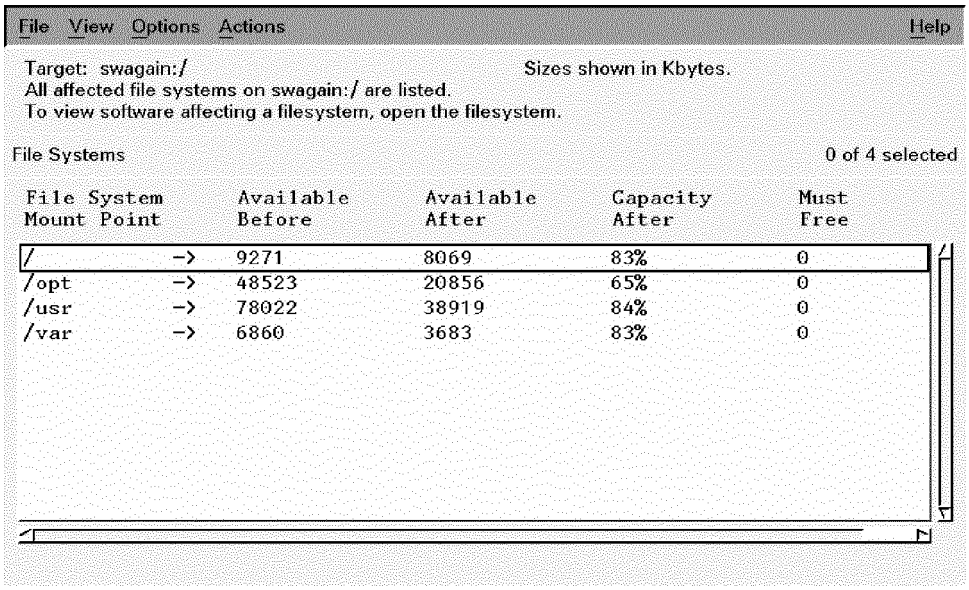


- By clicking on the Logfile button, you can open the logfile to monitor the progress of the analysis. You will also see a listing of files already on the target system which will be reinstalled in new versions. The Disk space ... button will become accessible after the analysis process is complete and you can view the results.
- Click on OK to proceed.

Time Note The analysis phase requires 5 to 10 minutes.

Disk Space Analysis Screen

Figure 2-5



1. The Disk Space Analysis gives you an estimate of available disk space vs. requirements for the new system.

   If disk space is a concern, you may want to look at graphics and related products especially for possible deletion. For example, in case you are running a Series 800 with a character terminal console, you may not want to update graphics products.

NOTE If you are updating from an HP-VUE bundle to a CDE bundle, the `/usr` file system will undergo significant expansion. This expansion may exceed the default file system size set by Cold Install for `/usr`. See Chapter 6, “Troubleshooting,” for information on resetting file system size.

2. Ensure that the `/var` "Available After" space is at least 20 MB. (The screen shown indicates only about 6 MB, which is insufficient and would require deletion of old `log` and `tmp` files in `/var/adm` and `/var/tmp`.)

3. Close the Disk Space confirmation window to see the analysis window.
4. When the disk analysis is satisfactory, choose OK on the Install Analysis screen to proceed with the update.
5. A confirmation screen will appear, to which you can respond Yes or No as to whether you want to continue with the installation.

NOTE

Note that, up to this time, you can "back out" of any action by clicking on Cancel in order to return to previous screens, for example, in order to adjust the selection of filesets being updated.

6. You will see a second confirmation screen warning you that a new kernel will be loaded (in case you are updating HP-UX or a kernel-related patch bundle), and this will necessitate a reboot. Respond Yes, if you wish to go ahead.
7. You will see an install status screen which monitors the current progress of the installation, including the time remaining.
8. If you want to keep track of the progress of messages and scripts being run during the load, you can keep a logfile window open during the process. Do this by clicking on the Logfile button, on the status screen.

Time Note

- A typical HP-UX update, if done from a network server, will require one to two hours.
- At the end of an HP-UX update, you will see a confirmation message and reboot warning (with about 30 seconds delay until shut down).
- As the system reboots for the first time, configure scripts run for the new filesets so you can expect a first boot time of several minutes. Subsequent reboot processes will not take as long.

After Logging In

1. The login screen appears after the system has rebooted. Log in at this time.
2. Check the following log files for any messages, including warnings, relating to the update:

```
/var/adm/sw/swinstall.log
/var/adm/sw/swagent.log
```

NOTE For an OS update, you will also need to repeat the update steps with the appropriate bundle on the HP-UX Extension Software which came with your HP-UX media. This provides CORE-related patches for the current version of HP-UX. (See “Using HP-UX Extension Software”, in this chapter, and the patch descriptions on the disc or tape.) The system will automatically reboot after updating with this bundle.

Updating Non-Interactively from Media or Network

For a generic, single-tape update where no "customizing" is required, you will be using the `swinstall` tool non-interactively, with a general instruction to "match what the target has" in order to load the updated versions of the same filesets as you have on your current system. *Note that you cannot update non-interactively from a multiple-tape set.*

1. If you are using CD-ROM or tape, ensure that the drive is turned *on* and that the medium is inserted in the drive.
2. At a shell prompt, enter the following:

   `swinstall -x match_target=true -x autoreboot=true -s` *device_file*
   Enter

   Specify the *device_file* for your tape, CD-ROM drive, or network source. For example

   `/dev/rmt/0m`
   for a DDS tape drive

   or

   `/SD_CDROM/`*c1t2d0*
   or similar, for a CD-ROM

   or

   hostname`:` */depot_path*
   for network sources

   You will see warning messages in case filesets are found on the target system that are not on the source.

NOTE You will also need to repeat the above steps with the appropriate bundle on the HP-UX Extension Software. (See “Using HP-UX Extension Software” and the patch descriptions on the disc or tape.) The system will automatically reboot after updating with this bundle.

Using HP-UX Extension Software

In addition to the tapes or CDs holding the operating system, the 10.*x* release includes a tape or CD labelled "HP-UX Extension Software". This tape or CD is included as a means of delivering fixes for any problems that may be discovered after the release has been packaged for shipment.

Procedure

After you have installed or updated your system, read the Extension Software Information Sheet. Alternatively, read the READMEFIRST on the CD-ROM or tape.

In the case of a CD, make sure the drive is mounted:

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

If there is no entry for the CD-ROM drive, mount it. For example:

```
/usr/sbin/mount /dev/dsk/c0t2d0 /your_cdrom_directory
```

Then print the READMEFIRST or use the "more" command to read the READMEFIRST.

Installing Applications Software

If your applications software is already in a depot (SD packaged), it can be loaded with the Ignite-UX installation. If it is in a non-SD format, you can create a bundle by using the Ignite-UX tool `make_bundle` and install or update it on the the target system.

Applications software in SD format can also be loaded later using SD-UX. For the SD procedures for installing additional software from tape, CD-ROM or network depots, see "Updating HP-UX Software" or the manual *Managing HP-UX Software with SD-UX*.

Adding Additional Functionality

In case you need to add more bundles for the functionality of your new HP-UX, such as JFS or NFSD filesets, use the "Match What Target Has" option described in this chapter, and then select additional bundles which you have purchased.

If you need further details, see the manual *Managing HP-UX Software with SD-UX*.

Networking Products on Additional Media

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

Since optional networking products are shipped on separate media from the `CORE` HP-UX, their drivers are removed from the kernel during the update process. This means that if you update using the `CORE` medium or a depot made from it, *the optional networking will not be available after reboot*.

If the networking which was removed provides access to the remote SD depot or cd-rom drive, then, after reboot, any swinstall of applications, including networking will need to be performed from a local CD-ROM drive or tape drive or a local disk depot.

An alternative is to use `swcopy` to create a combined `CORE` and `Applications` depot and use that depot as your `swinstall` source. Since a combined depot or tape contains the new revisions of the networking products, their drivers will be reinstalled before reboot and so the networking they provide will be available after reboot.

If you have a custom update tape provided as part of you HP software support contract, then it is normally already combined and you do not need to create a combined depot, as long as the update tape, or any depot made from it, contains the HP-UX `CORE` software and the optional networking software which you need.

Installing the Optional OnlineJFS Product

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

These tasks include:

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

You can install it with `swinstall` in the following order:

1. Install the JournalFS product, if it is not already installed.
2. Install two HP OnlineJFS bundle filesets. (`AdvJournalFS.VXFS-ADV-KRN` and `AdvJournalFS.VXFS-ADV-RUN`).

During the install, `swinstall` will edit the `/stand/system` file, rebuild the kernel, and reboot the system to bring the new kernel libraries into memory.

For more information about installing and using VxFS and HP OnlineJFS, see the manual *HP-UX System Administration Tasks*, Chapter 4.

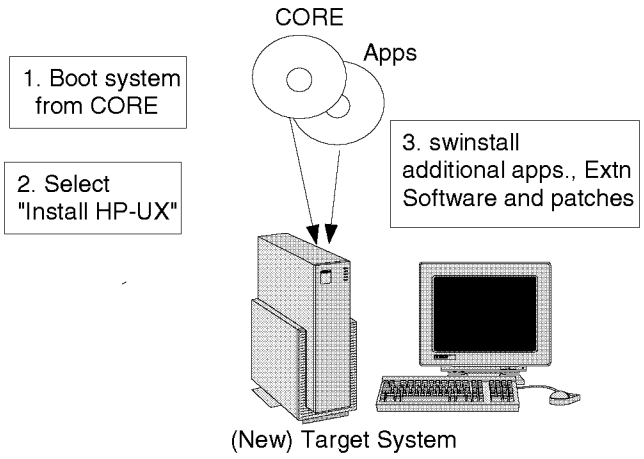
3 Installing From Media

Chapter Contents

- Installing from a Media Source.
- Booting the Target System.
- Guided Installation: Using the Task Wizard.
- Advanced Installation: Using Ignite-UX (TUI).

Installing from a Media Source

Figure 3-1



Preparing for a Media Install

Media Used in Installation:

*Only the "*CORE*" HP-UX media will be required for the OS installation. Other media may need to be installed using the SD-UX tools unless they are available on a depot (see* Chapter 2, "Updating an Existing Operating System and Software."*)*

- Tape: `HP-UX Runtime` (the "CORE" tape).
- Tape: `HP Applications`. (Includes Ignite-UX).

- Tape: `HP-UX Support` (Includes diagnostics).
- Tape: `HP-UX Extension Software`. (Includes essential patches).
  OR
- CD-ROM: `HP-UX 10.`*`x`* `CORE`
- CD-ROM: `Applications`. (Includes Ignite-UX).
- CD-ROM: `Support`. (Includes diagnostics).
- CD-ROM: `HP-UX Extension Software` (Includes essential patches).

Note: Only CD-ROM media will be used after HP-UX 10.20. "Original" customers receive only CD-ROM media; "Update" customers may receive CD-ROM or DDS-format tape.

Booting the Target System

The details in the following section are provided for guidance in case you have a variety of HP systems with different boot-console interfacing.

1. Make sure any external devices connected to the target system are turned *on*.
2. Turn *on* the target computer or cycle power.
3. Insert the CORE media into the appropriate drive.

   - Series 700: At the message that says how to stop autoboot, press and hold **ESC**. *OR*
   - Series 800: At the message that says how to stop autoboot, press and hold any key.

   You will see the boot console menu. As boot procedures vary somewhat, depending on your hardware, the following pages give you detailed guidance on various types of systems.

There is an on-line help facility to guide you, in case you need to interact with the process. If you need help, type `help boot`. The following sections provide details on differing boot protocols.

Series 700 Boot Process

After turning the sytem *on*, if you stop the boot process, the system will display a menu of boot commands. For Series 700s, you will see a help display similar to the following:

Newer Series 700 Boot Help Menu:

Figure 3-2

```
Command                              Description

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

When you see this screen, do the following:

1. Type `search` **Enter**.
2. If the device (tape or CD-ROM) is identified in the list shown by the search command, proceed with the following steps. Otherwise, check the device and cable connections and repeat the search.
3. Type the following:

   `boot scsi.`*x*

   Use the SCSI address of the boot device for *x*.
4. If you see the following prompt, respond with "n".

   `Interact with IPL (y or n)?`

(The bottom selections may not appear unless you hold down **ESC**):

Older Series 700 Boot Menu:

Older Series 700 systems display a menu similar to the following:

Figure 3-3

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

Select from menu:
```

When the actions menu shown above appears, do the following:

- Press `S` **Enter**, to start a search for bootable devices.

Older Series 700 Search Results

Figure 3-4

```
================================================================================
Searching for Devices with Bootable Media.
To terminate search, press and hold the ESCAPE key.

Device Selection      Device Path              Device Type and Utilities


P0                    scsi.6.0                 HP       2213A
                                                   IPL
P1                    scsi.3.0                 HP       HP35480A
                                                   IPL
P2                    scsi.0.0                 TOSHIBA CD-ROM XM-3301TA
                                                   IPL
Enter boot selection, (h)elp, or e(x)it:

================================================================================
```

You will see a list of "P*n*" selections, as above.

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

1. Check the hardware.
2. Press `X` **Enter**.
3. Type `S` **Enter** to initiate another search.
4. At the prompt "`Enter boot selection`", enter the "P*n*" device selection for the device containing your install media.

If you know the SCSI address of the device beforehand, you can skip the search and simply type the following at the "`Select from menu`" prompt:

`b scsi.`*x*

Time Note (Booting from Media)

Loading the Ignite-UX install utility from media on a Series 700 should take 3 to 5 minutes. After this you will be ready to go to "After Selecting Boot Paths (Series 700 and 800)" for the procedure to interact with the rest of the utility to load the remainder of your system.

Series 800 Boot Process

As noted previously, you can halt the Series 800 autoboot process and redirect the boot process to boot from the desired media device. To do so, press any key during the autoboot process to display a Main Menu similar to the following:

Newer Series 800 Boot Menu

Figure 3-5

```
 ----------------------- Main Menu -----------------------------------
        Command                         Description
        --------
        BOot [PRI|ALT|<path>]           Boot from specified path
        PAth [PRI|ALT] [<path>]         Display or modify a path
        SEArch [DIsplay|IPL] [<path>] Search for boot devices
        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 >
```

The capital letters in each command represent the minimum characters (mnemonics) you need to type in order to launch that command.

1. You will need to determine the boot device that contains the CORE tape or CD-ROM. It is common that the Alternate Boot Device is set to a boot device. If this is the case, you can simply use the following command:

   ```
   bo alt
   ```

2. If you want to search for available boot devices, type: `search` (or the appropriate abbreviated command, as shown).

A typical output might look like the following

Newer Series 800
Search Results

Figure 3-6

```
================================================================
Searching for potential boot device.
This may take several minutes.

To discontinue, press any key.

   Path Number           Device Path              Device Type
   -           -              -
   P0                    56/52.0   (dec)          Seq. record access media
   P1                    56/52.3   (dec)          Seq. record access media
   P2                    56/52.4   (dec)          Random access media
   P3                    56/52.6   (dec)          Random access media

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

For example, type "`bo p`*n*" where "`p`*n*" is the path number for the install device shown in the search output. You can also specify the device by the hardware path, such as "`56/52.0`", in place of the path number.

Older Series 800 Boot Process

For Models 8*x*7, 845, 835, 870, and other older Series 800 computers, you will see a boot display like the following:

Figure 3-7

```
================================================================


Console path        = 56.0.0.0.0.0.0   (dec)
                      38.0.0.0.0.0.0   (hex)

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

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


64 MB of memory configured and tested.

Autoboot from primary path enabled.
To override, press any key within 10 seconds.


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

1. Turn on the system.
2. Press any key to stop the autoboot process, at the message to do so.
3. Insert the install media (tape or CD-ROM).
4. Determine the hardware path of the install device from your system administrator. (There is no search capability to determine this information on older Series 800 models).
   - If the primary path shown on your screen is not the same as that for the install device, respond with "n" to the prompt "Boot from primary boot path". In this case, you will then be asked if you want to boot from the alternate path, which is typically set to the tape or CD-ROM device.
   - If the primary path shown on your screen matches that for the install device, respond with "y".

- If neither the primary or alternate device paths correspond to that for the tape or CD-ROM device, then respond with "n" to both prompts. In this case, enter the hardware path of the device (for example, 52.3.0) at the prompt "Enter boot path, command, or ?>".

5. To the question "Interact with IPL (y or n)?", respond with "n".

After Selecting Boot Paths (Series 700 and 800)

1. If you see the following question on your screen, type n:

   ```
   Interact with IPL (Y or N)?> n
   ```

2. You can abort the installation at this point, if you wish, by turning the system *off* and starting over.
3. When you have chosen the boot path and loaded the Ignite-UX utility, the system will display the Ignite-UX keyboard languages screen, if your target system has a PC-style keyboard. From this point on, you can respond to the requests for information on this and the following screens.

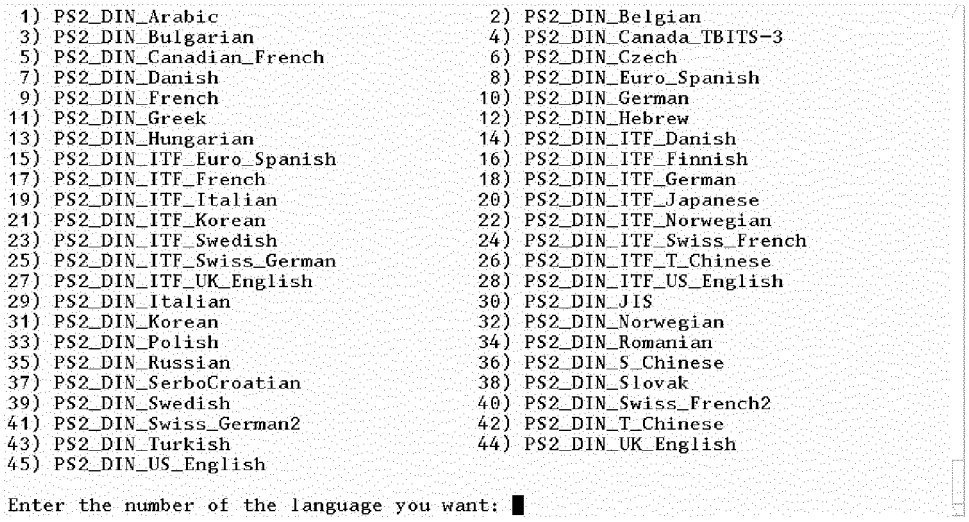
Time Note

Loading the Install Kernel should take 3 to 5 minutes.

Choosing a Language for Interaction

After booting from media, you will first see the following screen on systems that have a PS2 keyboard:

Figure 3-8 Selecting a Keyboard Language



- Enter the number of the keyboard language you are using. Then press **Enter**. This selection determines the key layout of the console keyboard.

Welcome!

Figure 3-9

```
=============================================================================

                        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> 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: 9000/712/80
  +-----------------------------------------------------------+ [ Scan Again  ]
  | Disks: 4  (  5.8GB) |  Floppies: 1   | LAN cards:   2    |
  | CDs:   1            |  Tapes:    0   | Memory:     32Mb  |
  | Graphics Ports: 1   |  IO Buses: 2   |                   | [ H/W Details ]
  +-----------------------------------------------------------+

                       [      Install HP-UX       ]

                       [   Run a Recovery Shell   ]

                       [    Advanced Options      ]


           [  Reboot  ]                              [  Help  ]

=============================================================================
```

This Terminal User Interface (TUI) screen summarizes the information found by an initial scan of your target hardware.

- Tab to "H/W Details" and press **Enter** to get a detailed scan of your hardware. (You can also do the same thing by pressing **D** — see the "Shortcuts" note).
- Tab to "Install HP-UX" and press **Enter** to continue with configuring the installation.
- Tab to "Run a Recovery Shell" to manually run HP-UX commands, for example, in order to recover a system that has crashed. From the interactive shell, the `/sbin/loadfile` command can be used to load commands that you may need to recover the system. This function is for advanced users only.

- Tab to "Advanced Options" to get version information and to make changes in process controls.

NOTE

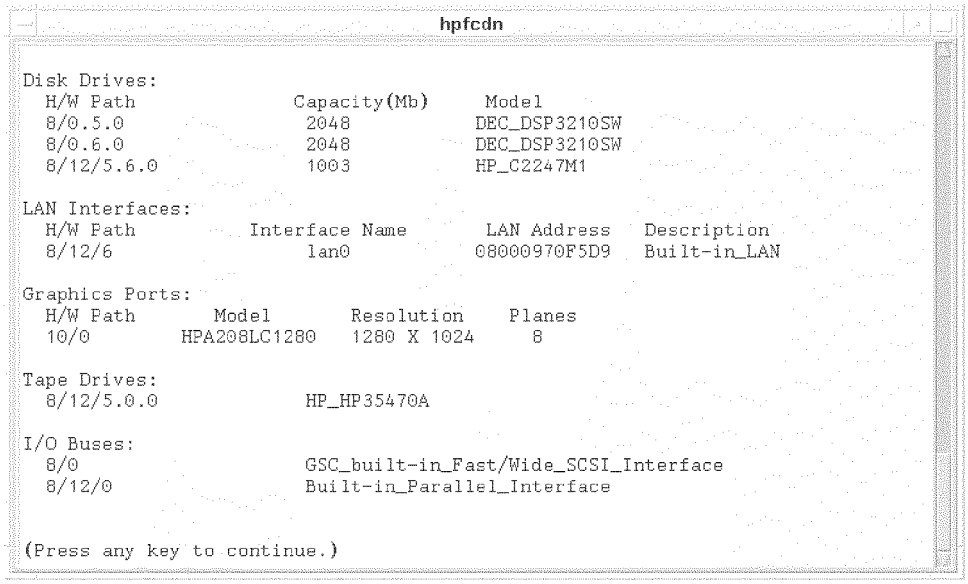
Shortcuts

Tips for using the TUI (character) interface:

- If you prefer to use the keyboard to manipulate the Install interface, you can do so by typing the *underlined* letter of an item (such as "**I**" for **I**nstall HP-UX).
- For general screen help, choose the Help button at the bottom of each screen. For context-sensitive help, press **f1** or **CTRL-f**.
- Use **CTRL-k** to get navigation key help.

If you selected "H/W Details" in the "Welcome" screen, you will see the following detailed scan of your target hardware:

Figure 3-10



Select Media or Network Installation

If you selected "Install HP-UX" in the "Welcome" screen, you will see the following:

Figure 3-11

```
================================================================================
                        User Interface and Media Options

   This screen lets you pick from options that will determine if an
   Ignite-UX server is used, and your user interface preference.

 Source Location Options:
   [ * ]  Media only installation
   [   ]  Media with Network enabled (allows use of SD depots)
   [   ]  Ignite-UX server based installation

 User Interface Options:
   [ * ]  Guided Installation   (recommended for basic installs)
   [   ]  Advanced Installation (recommended for disk and filesystem management)
   [   ]  Remote graphical interface running on the Ignite-UX server

   Hint: If you need to make LVM size changes, or want to set the
         final networking parameters during the install, you will
         need to use the Advanced mode (or remote graphical interface).



   [   OK   ]                 [ Cancel ]                        [  Help  ]

================================================================================
```

- Select the Source-Location of installation, by typing an "*" in the box.
- Select among the User Interface options to designate where you intend to control the installation from. A Remote graphical interface assumes that you have an Ignite-UX server configured and available.

NOTE

If you only wish to access an SD depot over the network, then you should choose Media with Network enabled.... You will then be able to specify the SD depot later during the media install.

The third selection requiring a network server be configured and available.

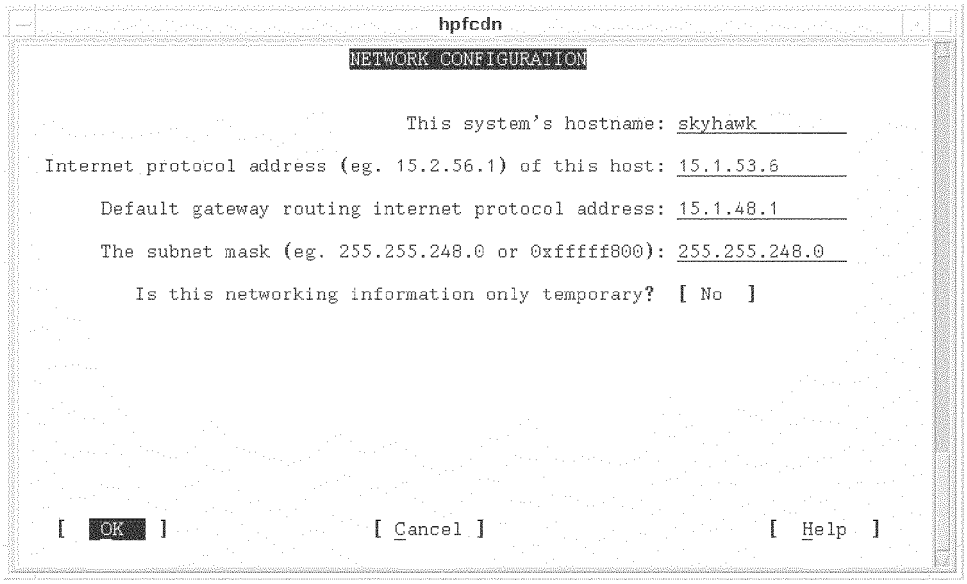
- Select Guided Installation. This has the following characteristics:
  - Instructions for each procedure.
  - "Mainstream" configuration.

- Default disk layout (e.g., no detailed LVM formatting).

- For a full Ignite-UX interface install (TUI mode), select Advanced Installation. You will see the interface shown in Figure 3-16, with the same functionality as is described in “Using the Ignite-UX Interface.”, but with TUI navigation. If you need to make adjustments to LVM parameters, select the Advanced Installation.

Network Information (You will not see this screen if you are doing a media-only installation).

Figure 3-12 netmedia



You can enter networking information on this screen. When you have entered the needed information, tab to OK and press **Enter**.

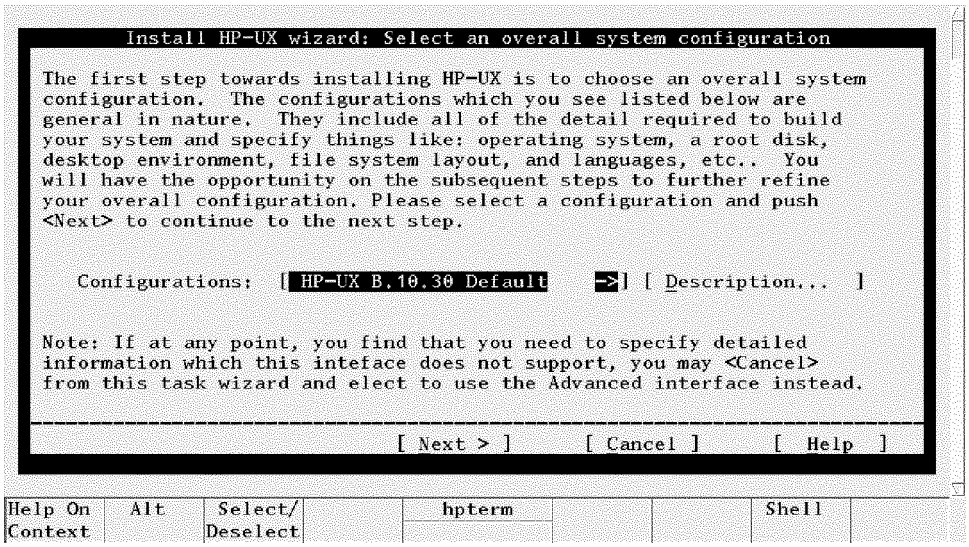
Guided Installation

If you selected the Guided Installation from the User Interface Options menu, you will be using the Task Wizard illustrated here. The Task Wizard is intended to provide help for a first-time user of Ignite-UX by providing on-screen explanation and a limited number of steps to accomplish a basic installation.

Note that the Task Wizard is available only on a client-managed (standalone) installation, and is presented in character-mode (TUI).

The Task Wizard Welcome Screen

Figure 3-13



TUI Navigation and Shortcuts

In TUI mode, you will be able to use the keyboard to navigate. Press **CTRL-K** for detailed keyboard help at any time.

HP-family terminals display function key labels (also called softkey labels) at the bottom of the window. These labels vary depending on the type of window being displayed, but the functions of f1-f4 are consistent:

Key	Meaning
f1	Help on Context
f2	Alt (a modifier key)
f3	Select/Unselect
f4	Menubar on/off

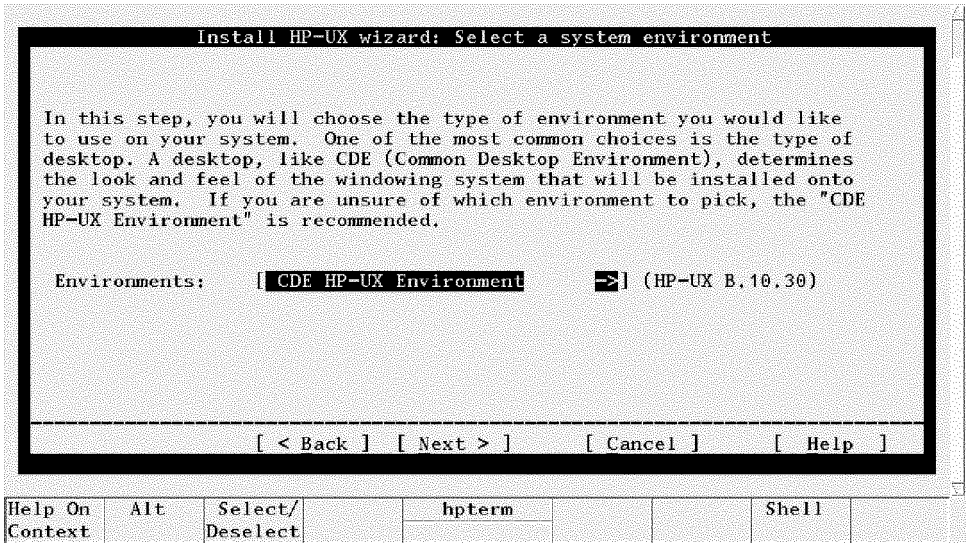
To navigate in a typical TUI screen, you will be doing the following:

1. Highlight the field you want, using **Tab**, if necessary.
2. Press **Enter** to open a list in a selector field.
3. Use the up/down arrow keys to highlight a selection.
4. Press **Enter** again to select the item.
5. Tab to the next field.

    - You may also have to take some action, such as select **OK** or **Modify** in order to activate your selection. You can use the local help for the screen (`f1` or **Help**) to get specific information.
    - As a shortcut to specifying an action, you can type the *underlined* letter of an item (such as "C" for **C**ancel) to activate the item without highlighting it.

The Task Wizard: Selecting a System Configuration

Figure 3-14



Task Wizard Topics

This screen enables you to select a system environment, such as CDE ("Common Desktop Environment") to interact with on the target system. Select Next to continue to a following screen. Select Back to return to a previous screen. On the last screen, you will select Finish to execute the installation.

If you want to cancel out of the process at any time, select Cancel. You will see the choices in Figure 3-15.

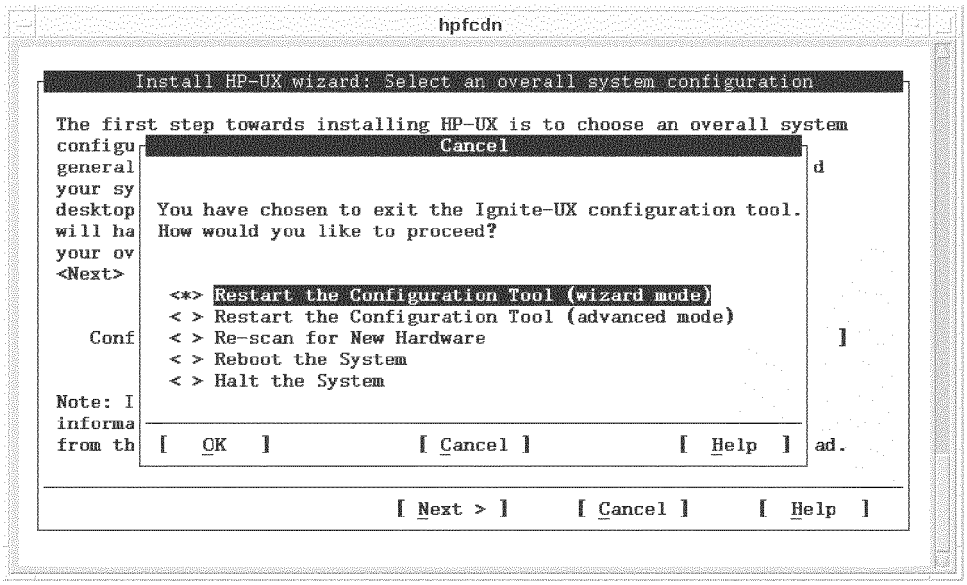
The rest of the wizard screens let you do the following tasks:

- Select a root disk.
- Specify the amount of root swap space.
- Select a file system type.
- Specify root volume group disks.
- Select a language(s).
- Select a user license.

- Select Additional Software.
- Pre-install disk information. (To allow you to exclude disks from the install.)
- Pre-install check information. (To allow you to review errors or warnings.)
- System Summary. (To allow you to see a summary of the install configuration prior to executing it.)

The Task Wizard: Exiting

Figure 3-15



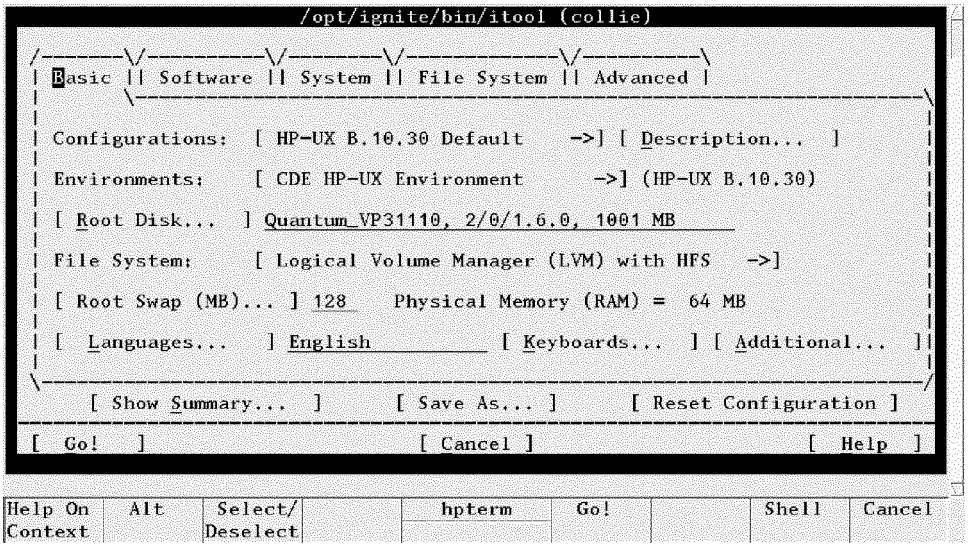
If you want to leave the Task Wizard mode at any time, select the **Cancel** button, or press **C**. You will have the choices illustrated in Figure 3-15.

You may want to leave the Task Wizard in order to do more advanced disk configuration or to add hardware, for example, in which case you can restart Ignite-UX in advanced mode in this screen.

Advanced Media Installation (TUI)

If you choose to run an advanced interface for the media install, you will see the following on the system you are installing:

Figure 3-16



If you had been doing the individual installation from an Ignite-UX server, you would see a similar screen in GUI format, with full mouse functionality. The configuration which you can do on each of the tabs, in TUI and in GUI, is the same. Go to “Installing from the Server” for the step-by-step details of an advanced installation as illustrated in the GUI.

4 Configuring an Ignite-UX Server

Chapter Contents

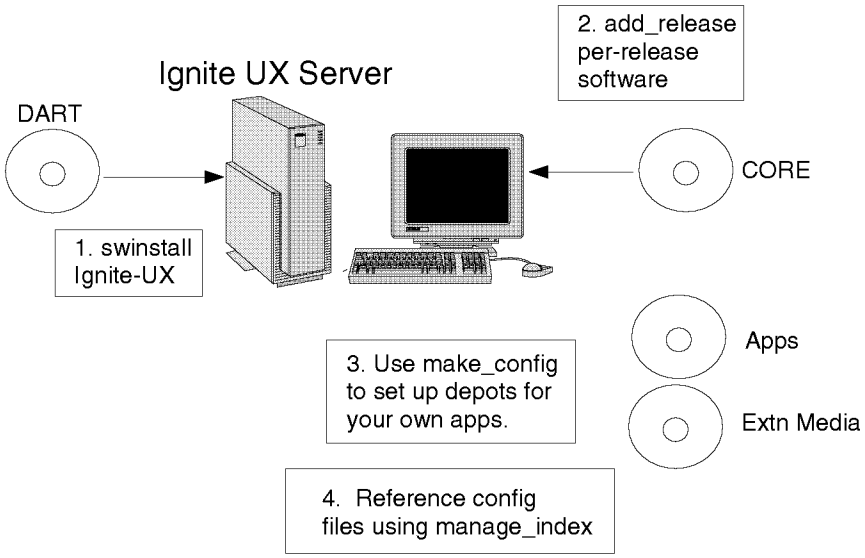
- Overview: the Ignite-UX Server.
- Ignite-UX Distribution Media.
- Hardware Requirements for the Ignite-UX Server.
- Network Requirements.
- Setting Up an Ignite-UX Server.
- Using Configuration Files.

NOTE

For online information about the Ignite-UX server, please see the `/opt/ignite/share/doc/` directory on your system, and the manpage *ignite*(5).

Installing Server Software

Figure 4-1



Overview: the Ignite-UX Server

For multiple installations, you will generally be executing the installation from the server, although you can also choose to install from a client-target system, in TUI mode.

The requirements for a server are outlined in “Hardware Requirements for the Ignite-UX Server and Clients”.

The steps for installing the server are outlined in “Setting Up an Ignite-UX Server”,

Installation of Ignite-UX will take care of most of the server configuration tasks. These include setting up IP addresses and hostnames, interface location, and client response behavior. These can also be done outside Ignite-UX by the `setup_server` tool (see *setup_server*(1M)) as a simple interface, or by using the Ignite-UX GUI.

The overall server setup tasks include the following:

1. Install HP-UX 10.*x* (if you have not already done so).
2. Install Ignite-UX tools and data.
3. Set up core software.
4. Add additional applications (optional).
5. Run `ignite` to complete the configuration (using the Server interface screen) and to start the install process.

Ignite-UX Distribution Media

Hardware Requirements for the Ignite-UX Server and Clients

Note that HP-UX 10.30 is not supported on Class B, C, J, or Series 7xx systems. NFS Diskless functionality is not supported in HP-UX Release 10.30. Do not update your server to HP-UX Release 10.30 if you intend for that server to operate as a NFS Diskless server. You may find references within this documentation to NFS Diskless functionality. These references only apply to systems running HP-UX Release 10.20 or earlier.

To install HP-UX 10.*x* you will need the following:

Computer	An HP 9000 Series computer with PA 1.1 or later processor. To check whether your system belongs to the old Series 800 designation, use the `uname -a` command on a running system.
Memory	For any system installed using Ignite-UX, the required minimum is 32 MB. (Some older Series 800 models (PA1.0 processor), such as 8*x*5 are not supported.) Your HP sales engineer can assist in determining the proper amount of RAM. Information on RAM requirements is also available on the following web site: `http://www.hp.com:80/computing/mvp/memory.html`.
Source Device	Make sure that your system has an appropriate source (CD-ROM, DDS drive, or LAN card). Ensure that tape drive heads are clean.
Disk Drive	A target system needs at least one hard-disk drive with at least the following capacities: (The Ignite-UX program performs an analysis of disk space needed prior to loading the software.)

- 2 GB or more for a generally usable system.
- Swap space allotment depends on the software loaded and can be adjusted in the Ignite-UX interface.
- File system minimums depend on software loaded. Ignite-UX computes standard file system sizes and automatically sets a minimum size for `/var`.

Other Devices — Your system can also have any HP-supported device. If you have an unsupported device connected to your system, HP assumes no responsibility in making that device function properly.

For an Ignite-UX Server:

In addition, an Ignite-UX server requires the following:

- A Series 700/800 system running HP-UX 10.*x*.
- An X11 display server (workstation, X-terminal, PC running an X server, etc). This can be the same system as above.
  - A separate graphics display may be required, if a Series 800 Ignite-UX server is being used. *OR*
  - The display can be redirected to another X-windows system by setting the DISPLAY environment variable.

    For example, in the Korn Shell or Posix Shell, you would type the following, using your *system_name*:

    ```
    export DISPLAY=system_name:0.0
    ```
- Product media to load onto the server your Ignite-UX and any software depots you plan to distribute to target systems.
- Network access to the clients to be installed. Client and Server must be on the same subnet if you plan to do the initial boot of the client over the network. A "helper" system can be used to get between subnets. The `bootsys` command also works between subnets.

Supported Peripherals

With the disk space provision above, all disk drives that are supported on HP 9000 platforms are supported for installation.

Disk arrays can be installed with HP-UX, but the installation tasks do not support configuring an array. See your array documentation for configuration information.

The HP-UX client-side installation tools support VT100 and Wyse 60 terminals, compatible emulations, and all HP terminals.

Supported File System Types and Layouts

The HP-UX 10.x file system layout is quite different from HP-UX 9.0x releases. The 10.*x* file system is modeled after the UNIX™ SVR4 and OSF/1 systems. This layout provides such benefits as the separation of OS software from application software, and it also resembles the UNIX standard layout used by many other computer companies.

File System Types

HP-UX 10.*x* supports the following file system types:

- UFS/HFS or VxFS (Journaled File System) on local disk volumes.
- NFS.

Disk Layouts

The file system installed by Ignite-UX will be supported on the following disk layouts:

- "Whole disk" (single file system, single swap partition disk layouts).
- The Logical Volume Manager (LVM).

The Logical Volume Manager is offered on all HP 9000 platforms. Because it helps to organize file space across multiple physical disks, you are encouraged to adopt this method of disk management, if you are using multiple disks. See the manual *System Administration Tasks*, or the *lvm*(7) man page for details.

Series 700 Software Disk Striping is replaced by LVM disk striping for all HP-UX 10.*x* systems. LVM disk striping is supported by Ignite-UX.

SDS can be converted to LVM via the utility `sdstolvm`. If you *upgrade* to HP-UX 10.*x* from 9.*x*, as opposed to installing it, this conversion will be done for you automatically during the upgrade.

LVM disk striping can be set up on some volumes during the installation. However, striped volumes cannot be mirrored later on. Note that not all types of volumes may striped. This is due to an unbalanced amount of disk space assigned to the root/boot/swap volumes on the root disk that must not be striped.

Network Requirements.

If you are loading your server depots or client software from a remote system, your target system also will need the following:

- A network card. If the target system has multiple LAN cards, select the card that is configured onto the correct network using Ignite-UX → System Tab → Additional Interfaces.

  Only one LAN card is used during the installation, configured on the client console or handled automatically by the `bootsys` utility.

Your server system will need to be configured. In addition you will need the following:

- The server system must be on the same network subnet as the target (client) system that will be installed. Or you will need a "helper" system on each subnet from which to boot clients.
- A functional network connection. If you have more than one LAN connection, be prepared to select the correct one with which to connect to the install server system.

Note: You can only boot over the network from an Ethernet interface. FDDI is also supported, but for non-booting only.

Setting Up an Ignite-UX Server

Ignite-UX functions through a client-server system. Much of the server setup process will be performed for you in the Ignite-UX installation process, but there are also some separate steps you must take after installation. Tools are supplied to help you complete the server setup. The following steps outline setting up or updating the server:

1. Obtain access to a suitable system running HP-UX 10.*x*. For information on upgrading from a 9.*x* system to 10.*x*, please see the manual *Upgrading from HP-UX 9.x to 10.x*.
2. If required, update with Extension Media from CD-ROM (see Chapter 2, "Updating an Existing Operating System and Software.")
3. Install the Ignite-UX tools and data from the HP-UX `Applications` tape or CD-ROM, using the `swinstall` utility.

   If you are updating a new pre-10.30 system, this may require running `swgettools` first to update `swinstall`. (See Chapter 2, "Updating an Existing Operating System and Software.")

   The current bundle names are:

   - `B5724AA_UM3` (for I-UX S700).
   - `B5725AA_UM3` (for I-UX S800).

   Versions that are on the DART Applications media will be labeled B5724AA.APZ *or* B5725AA.APZ.
4. The release-specific bundles within these each contain the filesets needed for installing a particular release to your clients.It is recommended that you load one or more of these release-specific bundles. They are designated as follows:

```
Ignite-UX-10-01
Ignite-UX-10-10
Ignite-UX-10-20
. . .
```

You may load one or more of the `Ignite-UX-10-`*`XX`* bundles onto your server depending on which releases of HP-UX you plan on installing onto clients. That is, you can choose to load a release-specific bundle, such as `Ignite-UX-10-20`, or the entire bundle, such as `B5724AA_UM3`,`which would give you all the release-specific bundles.`.

Installing Ignite-UX Software

Each software bundle contains the Ignite-UX tools plus the data files required for support of the particular HP-UX release indicated by the bundle name.

The Ignite-UX product replaces the capability previously supplied by the NetInstall bundle that came with HP-UX releases 10.01, 10.10 and 10.20. (A system cannot be configured as a server for both NetInstall and Ignite-UX.) Loading any of the Ignite-UX software bundles will give an error until you remove the NetInstall bundle or touch the file `/tmp/okay_to_remove_net_install`.

Once the application CD-ROM containing Ignite-UX has been mounted, you may use the `swinstall` command to load the desired Ignite-UX bundles. For example, the command below would load the support needed for installing HP-UX 10.20 onto clients:

```
# swinstall -s /cdrom Ignite-UX-10-20
```

- After the Ignite-UX bundle(s) has been loaded, unmount and remove the media, and mount the media/drive, if necessary, to load the `CORE` software.

Set Up or Update CORE Software.

Ignite-UX allows many options for installing software on the target system. The most basic option is to install all software from SD depots located on the server. Following is the procedure for setting up the `CORE` software on the server.

Setting up the software for the OS installation can be done with the help of the `add_release` tool. This tool can also be used interactively to add new releases to the server and to remove old ones.

If you plan to use both SD sources and non-SD sources (`tar`,`cpio`, or `pax`), it will be necessary to consider each individually.

1. For SD OS software:

   Run the `add_release` tool to load the software release(s) you wish to install on the target systems. The `add_release` tool will add a new software release to an Ignite-UX server by creating SD depots for that software. See the *add_release*(1M) man page for more details.

   To run `add_release` to test what it would do, without actually modifying anything, you can specify the `-p` option (preview mode), as follows. For example:

   ```
   # /opt/ignite/bin/add_release  -s /dev/dsk/c0t2d0 -p
   ```

To use a depot other than `/dev/dsk/c0t2d0` to read the software, you can specify the depot with the `-s` option.

For example, the following would apply if you already have an OS depot, or you have made modifications to it. Then you can use the `make_config` and `manage_index` commands to generate a configuration file. For example:

```
# make_config -s server:/depot_700 \
            -c /var/opt/ignite/data/Rel_B.10.20/core_700

# manage_index -a -f /var/opt/ignite/data/Rel_B.10.20/core_700
```

See the *ignite*(5) man page for further examples.

2. For non-SD OS software:

   If the source is not an SD depot (i.e., it is an archive image), then the `add_release` *command is not applicable.*

   You will need to create a unique config file that represents the non-SD operating system software. A sample of a config file that does a core archive can be found at the following location:

   ```
   /opt/ignite/data/examples/core.cfg
   ```

   After copying this file and making edits to it as instructed in the comments contained in the file, you can use the `manage_index` tool to insert a reference to this configuration in the following location:

   ```
   /var/opt/ignite/INDEX
   ```

Add additional applications (optional)

If you have other software that you would like to pull during your install and want to have the software made available for selection in the Ignite-UX UI, run the `make_config` and `manage_index` tools on those depots. If the contents are not 700/800 specific, then the `-a[78]00` option should not be used.

For SD application software

1. Run the following commands for each depot you plan to load SD software from during the installation. The `make_config` tool only handles SD software which is packaged in bundle form. (All HP-supplied software is packaged in this form. See the *make_bundles*(1M) manpage for information on making SD bundles in an SD depot.)

   For example, to make compiler depot bundles available type the following:

```
/opt/ignite/bin/make_config -s hpfcxxx.hp.com:/depots/compiler -
c \
/var/opt/ignite/data/Rel_B.10.20/compilers_cfg

/opt/ignite/bin/manage_index -a -f /var/opt/ignite/data/Rel_B.
10.20/compilers_cfg
```

2. The depot server name (in this example hpfc*xxx*.hp.com) should be replaced with the server you have the SD software on. Note that the depot server can be a different system from the Ignite-UX server.

NOTE The `make_config` command will need to be re-run each time new software is added or modified in the depots.

The `make_config` tool constructs Ignite-UX config files which correspond to SD depots. When an SD depot is used as part of the Ignite-UX process, it must have a config file which describes the contents of the depot to Ignite-UX. This command can automatically construct such a config file, when it is given the name of an SD depot to operate on. This command should be run when adding or changing a depot which will be used by Ignite-UX.

The `manage_index` tool is used to manipulate the `/var/opt/ignite/INDEX` file. This utility is primarily called by other Ignite-UX tools but can also be called directly.

For non-SD application software: If the source is not an SD depot, the `make_config` command is not applicable. You will need to create a unique config file that references the non-SD software. A sample of a config file that does a non-core archive can be found at the following location:

```
/opt/ignite/data/examples/noncore.cfg
```

1. Copy this file first to `/var/opt/ignite/data/`*Release*`/`*configx*. Then make the changes to the copy in that directory.
2. After copying and editing this file, you can use `manage_index` to insert a reference the copy of the configuration in the following location:

```
/var/opt/ignite/INDEX
```

Start the Ignite-UX Server

- Run `ignite` to complete the configuration and to start the server process. Type the following:

```
/opt/ignite/bin/ignite
```

This will start the Ignite-UX server.

Complete the Configuration:

After you have Ignite-UX up and running, you will see the Welcome screen and then the Ignite-UX Server GUI. When you have booted the clients you will see client icons on the Server GUI. These can be manipulated as follows:

- Click once on a client icon to select it for further actions.
- Click twice on the client to get a Client Status screen.
- Click the *right* mouse button (Mouse Button Three) on the selected client icon to get an Actions screen similar to the pulldown Actions menu.
- Server Configuration: Server Options.

  This allows the OS product configuration to be selected, along with the default printer configuration, client timeout allowance, and where the client interface will be booted from and displayed .
- Server Configuration: Session Options.

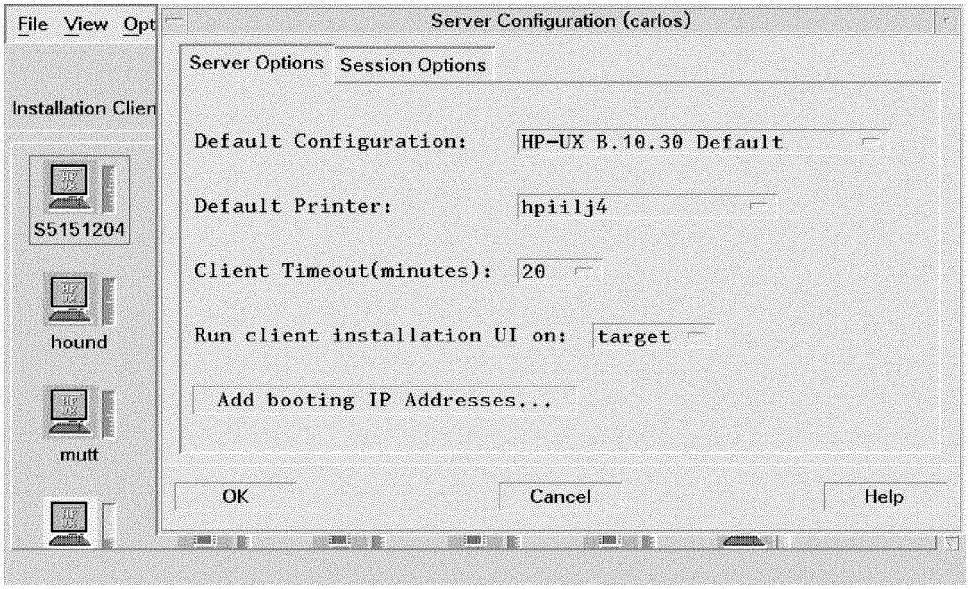
  This configures general interaction behavior for the client sessions.

Details for these screens are on the following pages.

Configuring Server Options

The fields in these tabs ("Server Options" and "Session Options") serve to identify and set up your installation server, and to configure the IP source address range to be used for initially booting the install clients (target systems) and the DHCP address range to be used for directing the client installation process. You will see the following screen after selecting: Options --> Server Configuration.

Figure 4-2



The Server Options Tab

- Select on Default Configurations, highlight the one you want to use from the list. When doing a client installation, this configuration will be installed on targets if no other is specified. (The default setting can be overridden on a per-client basis by Ignite-UX).
- Click on the selection list to display the available (configured) printers. Select the one you want to use.

  If necessary, use the SAM → Printers and Plotters area to configure a new printer onto the system.

  This will be the printer for printing the manifest or installation history. The printer address will be checked by Ignite-UX before a job is sent.
- Select the appropriate Client Timeout time, or "Off", to set the time limit for the client to be connected without responding. (This will set a limit on the time since the client install log has been written in. Fifteen to thirty minutes may be required at some points in the installation.) A warning note will be displayed if this time is exceeded.

  Setting Client Timeout to "off" disables this notification.

- Use the Interface selection list to designate where you want to see the client UI for this installation. If you have a server configured, you can have the choice of running the client installation interface from either the target (as a Terminal User Interface) or the Ignite-UX server (as a Graphical User Interface). If the client installation is to be non-interactive (no interface), select "None".

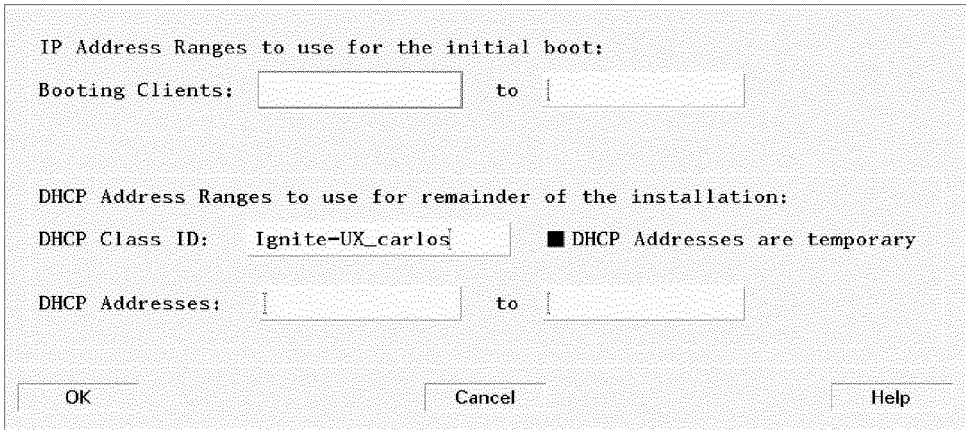
NOTE The default location for the interface display is the Ignite-UX server, if the server is running.

- To use Add Booting IP Addresses..., see the following section.

Adding Booting IP Addresses...

If you clicked on Add Booting IP Addresses..., in Figure 4-2, you would get the following screen.

Figure 4-3



Booting Clients

This screen allows you to enter appropriate values to use for IP addresses for the initial boot of the target systems. The number of such addresses determines the number of simultaneous installations you can do.

First, ensure that these IP addresses are not assigned elsewhere. These IP addresses are used to initially boot the target systems. They are used until the system is assigned one of the DHCP-assigned boot addresses. One address is required for each simultaneous boot. Typically one to three are needed, depending on your usage.

This data can also be configured from a command line by using the tool *setup_server*(1M) for this procedure. Or you can directly edit the `instl_boottab` file; this is necessary in order to modify the listing of existing IP addresses.

See the *instl_bootd*(1M) man page for further details.

DHCP Address Range

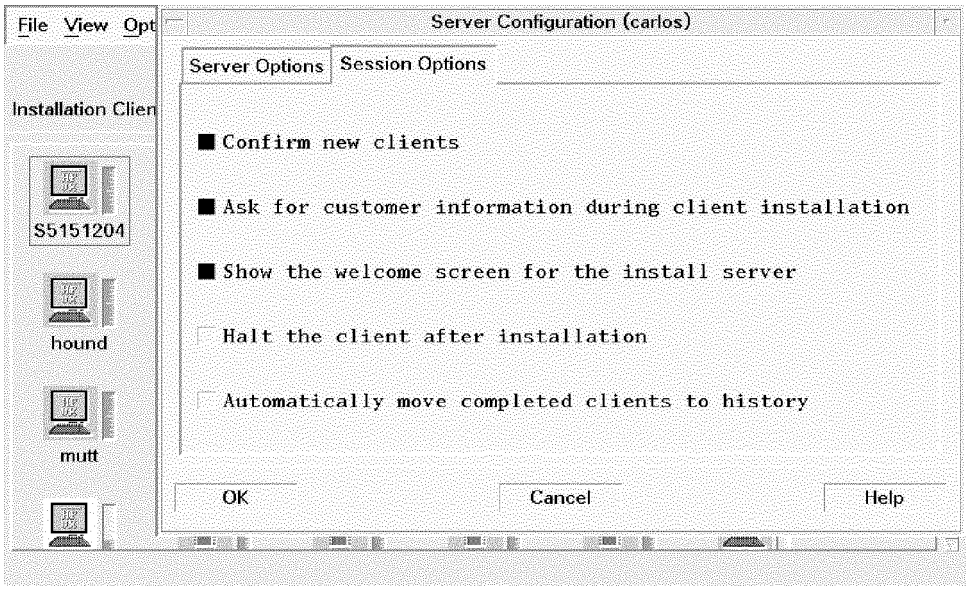
First ensure that these IP addresses are not assigned elsewhere. These IP addresses are used during the OS download and application loading. The addresses are in use for most of the Ignite-UX download to a target machine. One address is required for each simultaneous download. You should set more, if the addresses are assigned permanently. For the details of DHCP and the setup procedure, see Appendix A, “Configuring for a DHCP Server.”

The provision of DHCP capability is for the purpose of installation only and you may want to limit configurations so that they do not interfere with prior DHCP server functions. See “Examples of DHCP Usage”, in Appendix A,for more examples of usage situations.

Also see Appendix A, “Configuring for a DHCP Server,” and the *setup_server*(1M) and *instl_adm*(4) man pages for more information on setting up DHCP functions.

Server Session Options Tab

Figure 4-4



The Session Options tab displays a number of check boxes to configure client response behavior.

- Confirm New Clients:

  This check box, if set, results in the appearance of a dialog screen each time a new client is booted from the Ignite-UX server.

- Ask for customer information during client installation:

  If you do not want to see the form for "Customer Name", "System Serial #", and "Order Number" select the button to disable their display.

- Show Welcome Screen for the Install Server:

  Select the button to enable or disable the automatic display of the welcome screen for the install server.

  This welcome screen is a useful default if many new operators run the Ignite-UX server.

- Halt the client after installation:

Select this button to cause the client system to halt (rather than reboot) after installation.

- Automatically move completed clients to history:

  Select this button to automatically add completed clients to the end of the history log, `/var/opt/ignite/clients/history/history.log`. It will also move their config and manifest files to history for future reference. The client icon will be removed from the Server screen. The client must be `complete` (fully installed) for this to take place.

The server installation is complete at this point. If the client systems are prepared and booted, you can skip to Chapter 5, "Installing from the Ignite-UX Server," *for the procedures for using the server with the client systems.*

Preparing the Clients for Installation

1. Boot the Series 700 or Series 800 client system that supports network boot by entering the appropriate command on the console for that client.

   Note that, if a client with a known IP address is already running HP-UX, you can use the *bootsys*(1m) command from the Ignite-UX server to install it with specific configuration, without further interaction.

   See the exact boot ROM commands for manual booting of your system in "Booting Client Systems from the Network".

If the client cannot find the server, check the following items:

- Client is on the same subnet as the server.
- Any instl_bootd errors in `/var/adm/syslog/syslog.log`.
- Your `/var/adm/inetd.sec` file to make sure that IP address `0.0.0.0` is not being disallowed.
- If `/etc/services` comes from NIS, make sure that the NIS server has `instl_boot*` entries.
- The daemon `rbootd` is running.

The icons for all clients booted from the Ignite-UX server should now appear on the Ignite-UX interface. If the server has not been set up completely, or if the client could not obtain enough networking parameters via DHCP, then the client may require interaction on the client console.

You can now proceed with using the Ignite-UX interface (“Installing from the Server”).

For More Information

See Appendix B, “Using Configuration Files,” for the details of setting up configuration files for Ignite-UX.

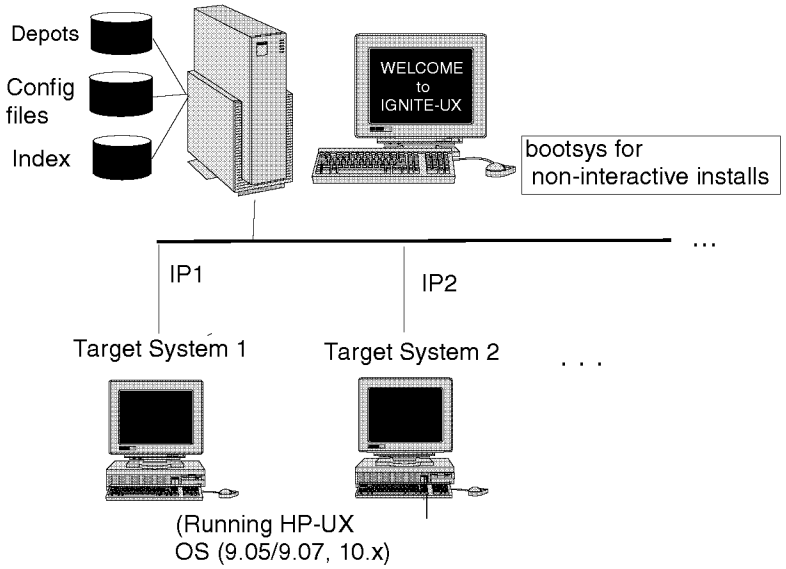
For more details about server configuration and "golden disks", see the "Ignite-UX Startup Guide for System Administrators" and "Ignite-UX Cold Installations", both on your Ignite-UX server system in `/opt/ignite/share/docs/`.

5 Installing from the Ignite-UX Server

Chapter Contents

Network Source Installation

Figure 5-1



Booting Client Systems from the Network

NOTE Note: This applies to Series 700 and Series 800K/D Only.

The details in the following section are provided for guidance in case you have a variety of HP systems with different boot-console interfacing, and in case the client system is not currently running HP-UX.

There is on-line help in the boot interface to guide you, in case you need to interact with the process. If you need help, type `help boot.`

If the client system is already running an OS, you may use this procedure or use the `bootsys` command as described in "Non-Interactive Installation Using bootsys".

Procedure

1. Determine your network server address for the install. If necessary, see your system administrator for this information.
2. Turn *on* your target system.
3. When you see a message about stopping the boot search, quickly press and hold **ESC** to stop the boot selection process.

Older Series 700

On older Series 700 machines, you will eventually see the following. (For newer Series 700 machines, see the section "Newer Series 700 and Series 800 (K/D Class)", in this chapter.)

Figure 5-2

```
b)    Boot from specified device
s)    Search for bootable devices
a)    Enter Boot Administration mode
x)    Exit and continue boot sequence
?)    HelpSelect from menu:
```

Do one of the following:

- If your network has only one install server and your system is not configured as a diskless client, then type:

  `boot lan`

  The boot may fail the first time because of an intentional delayed response by the install server. If it fails, try it again. If it fails more than three times, check for problems on the install server (see Chapter 6, "Troubleshooting.") *OR*

- If your network has multiple install servers, make sure you boot from the network server address specified by your system administrator.

To Search for Servers:

1. Type the following:

   `search lan` **Enter**

2. If your Ignite-UX server does not appear during the search, type "`x`" in order to exit.

   - If necessary, type the search command again:

     `search lan`

     Note that it will typically take two or three searches before the Ignite-UX server will be found, due to a built-in delayed response from the server system.

   - Identify your LAN server from the listing.
   - If three attempts result in no response from the desired server, see Chapter 6, "Troubleshooting."

3. If you know the Ethernet™ address of your server and can specify where to boot without going through the search process, type:

   `boot lan.080009-`*`nnnnnn`*

   where `080009-`*`nnnnnn`* is the Ethernet address of the install server. (Some newer systems may not use the 080009 prefix.) This number can be found by running the *lanscan*(1M) command on the server.

- If your server is listed during the search, then you can boot the system by typing "`p`" and the index number of the server. For example:

  `p1`

  This will cause the boot to begin. *OR*

- Alternatively, you can exit this screen by typing "`x` **Enter**", and typing "`boot p1`" at the previous screen.

Newer Series 700 and Series 800 (K/D Class)

After the power is turned on, you will see a graphical interface screen (Series 700) that displays instructions to press **ESC** to stop the boot process. (On Series 800, the interface will be TUI.)

1. Press **ESC**, and you should see the following menu:

Figure 5-3

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

- If your network only has one Ignite-UX server available, type the following:

  ```
  boot lan install
  ```

- Otherwise, to make sure you boot from the correct server, do one of the following:

  - Make the system search for servers and pick one. *OR*
  - Explicitly tell the system where to boot, as follows:

a. To search for servers type the following (Series 700 only):

   ```
   search lan install
   ```

b. The list of servers will be displayed with IP addresses. You may need to run the command `nslookup` on another running system to determine which address corresponds to your Ignite-UX server, if this information isn't already available.

c. Once you know the IP address of your server (as provided by the search, or by the `nslookup` command), boot the system by typing the following:

   ```
   boot lan.nn.n.nn.n install
   ```

   For *nn.n.nn.n*, supply the IP address of your server.

   The system then begins to load the install kernel from the network server.

Time Note (Booting from LAN)

This should take 3 to 5 minutes.

Installing from the Server

Figure 5-4

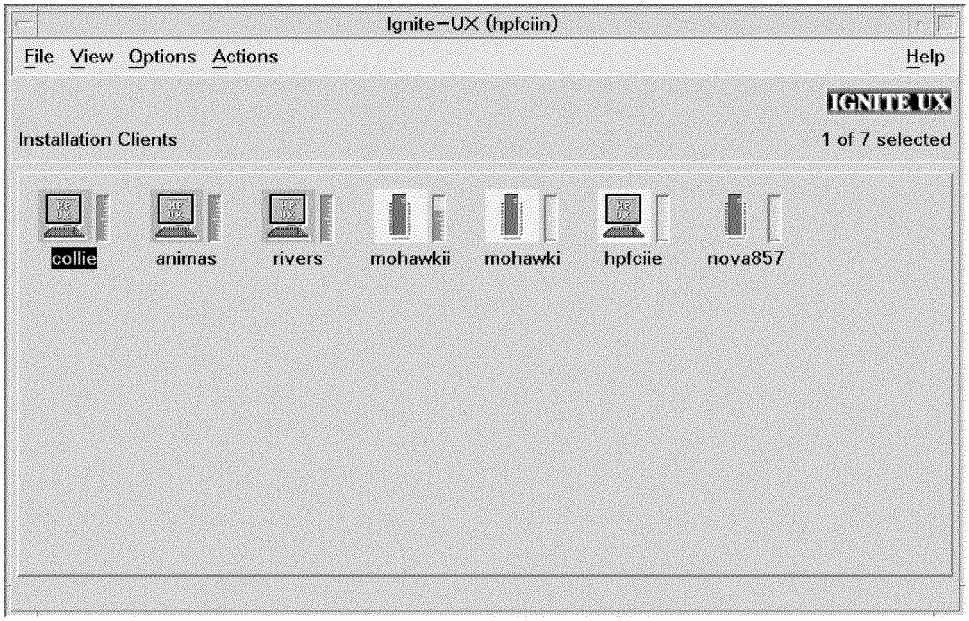
Selecting Server or Client Console Interaction.

If you have not already done so, start Ignite-UX by typing `/opt/ignite/bin/ignite`.

If you are using Ignite-UX from the server, you will see the GUI and graphical navigation, as in the following procedures. If you are using it from a client, you will see a Terminal User Interface (TUI), but with equivalent keyboard navigation.

Displaying the Client Systems

Figure 5-5



The Ignite-UX Server Client Display

Before any new clients are represented as icons on the server display, they must first be booted. See the booting procedure in "Booting Client Systems from the Network", in this chapter, if this has not already been done.

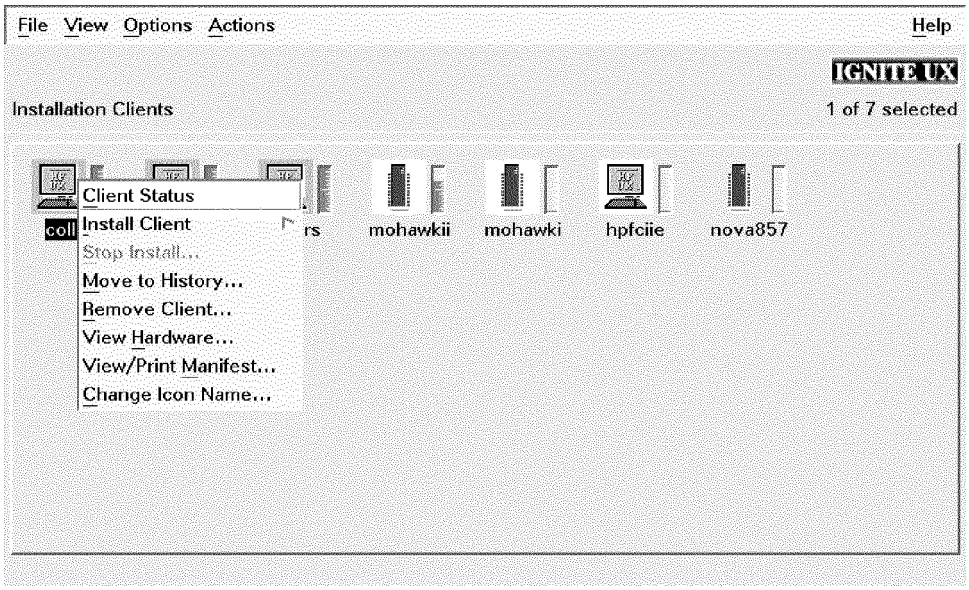
After you see the clients displayed on the main Server screen:

- Click once on the client to select it for further actions.
- Click twice on the client to get a Client Status screen.
- Click the *right* mouse button (Mouse Button Three) on the selected client icon to get an Actions screen similar to the pulldown Actions menu.

Displaying Client Actions

Clicking the right mouse button on a client icon opens a client actions menu:

Figure 5-6



- To install a client, click on Install Client → New Install.
- To repeat the previous install configuration on another client, click on Install client → Repeat Installation. A screen will appear which will display the configurations last installed.
- To stop the installation for the selected client, click on Stop Install. You will see a screen giving you the alternative of rebooting the client, or halting the client. In either case the installation will be stopped.
- Moving the client to history will save critical files for the client, add them to the history file, and remove the client icon. The client must be "complete" (fully installed) for the configuration to be moved to the history file.
- Remove client will simply delete the icon for the selected client. Data for that client is also removed.
- View Hardware allows you to see a display of the hardware associated with the selected client.

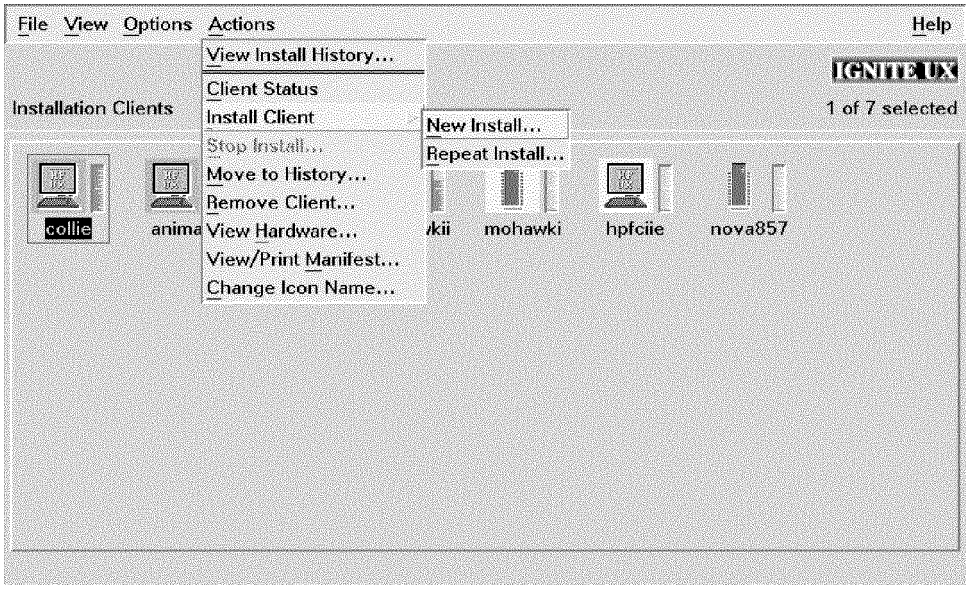
- View/Print Manifest allows you to see or print the manifest and/or Software Certificate. The manifest is also available in saved form on the client and server systems after the installation as the `manifest` files. On the client, the manifest is in `/var/opt/ignite/local/manifest`. On the server, it is in `/var/opt/ignite/clients/0x`*LLA*`/manifest`. See Figure 5-24 for an example.
- Change Icon Name brings up a form for renaming the icon for the selected client. This new name will also be reflected on the client console.

Sorting Client Listing by Properties

Clicking on View → By properties will create a listing of clients which can be sorted to make it easier to scan. This may make it easier to see "Complete" clients, which have finished installing, for example.

Configuring the Installation

Figure 5-7



To begin the installation, first select a client icon. Then, from the Actions menu, choose Install Client → New install, or Install Client → Repeat install.

At the beginning of a new installation: if you have previously installed this client, you will be asked if you want to use the same install configuration data again.

- All configuration parameters from an installation are identified and saved as a config file in the following directory: `/var/opt/ignite/clients/0x`*LLA*`/`.
  - You can recall, repeat or modify that configuration with the Ignite-UX interface.
  - You can use config files in a non-interactive installation (using `bootsys`).

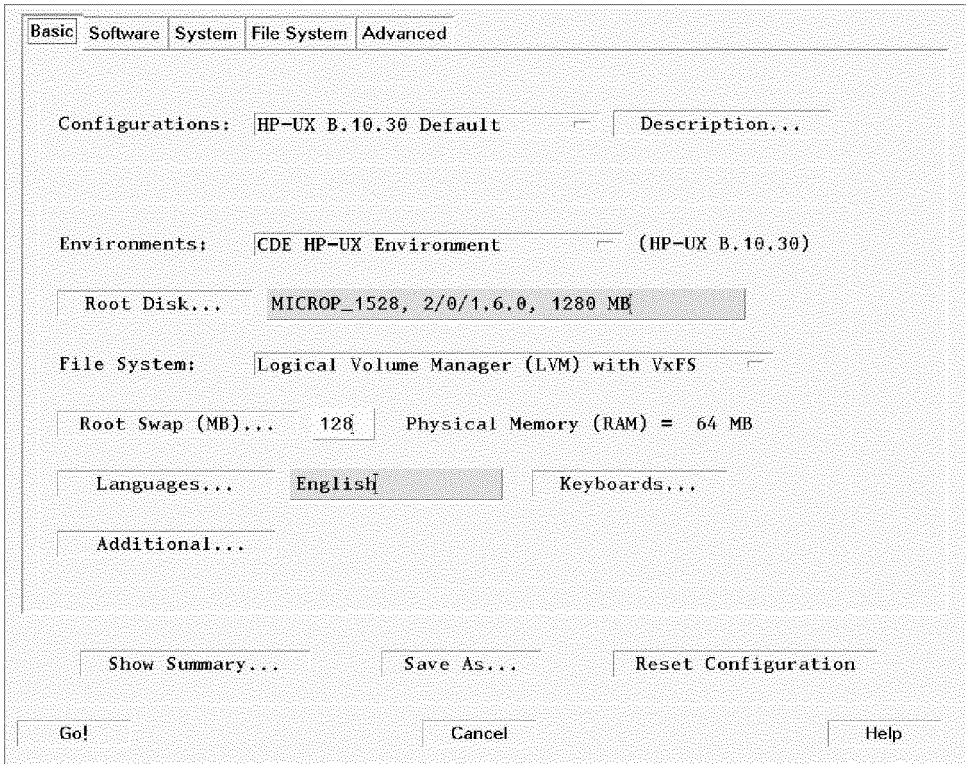
- You can choose a pre-set configuration in the "Repeat Install" selection list to repeat a previously installed configuration and execute it within Ignite-UX, without further intervention.

Using the Ignite-UX Interface.

After you choose to install a system, you will see the following screen.

The Basic Tab

Figure 5-8



NOTE If you see the following message:

```
Settings from a previous installation session were found at
startup.  Do you wish to retain these settings for the
current session?
```

- Respond Yes if you wish to re-use some or all of the configuration that you used in the previous session.
- Respond No if you want to use an entirely new configuration.

This screen shows all the basic information for setting up the file system and for loading the Operating System (OS) environment. It also allows you to configure languages, locale, and keyboard requirements. A”Save As...” button also appears, for saving configurations for later use.

OS Environment

Select the operating system environment from the choices available in the list. The choices and defaults depend on the releases available on the server, and may include, for example, Common Desktop Environment (CDE) as the default.

File System

Select one of the following:

- "Whole Disk (not LVM)" This may be the appropriate choice for single-disk systems.
- "Logical Volume Manager (LVM) with HFS (High-Performance File System)" This selection will format multi-disk systems to combine the disk space into a single, large disk pool, and then allocate volumes as needed. The root volume in this case and the swap must be on the same physical volume, and will be so configured by Ignite-UX. "HFS" is the standard file system format. The File System tab will give you additional opportunities to configure the LVM volumes. In the File System tab, you can edit the sizes of LVM partitions, or use the values that Ignite-UX computes for you.
- "Logical Volume Manager (LVM) with VxFS" (Journaled File System) This will format multi-disk systems to combine the disk space into a single, large disk pool, and then allocate volumes as needed. "VxFS" is the same as the Journaled File System (JFS), and allows file system size to be changed after installation. With the optional HP OnlineJFS you can resize, defragment, or make a "snapshot" of a mounted file system.

See the “File System Tab” section for detailed information on File System configuration.

Root Disk

To change root disks, select this button, select another disk from the list of available disks, and select **OK** in that screen.

For example, a root disk is usually located at SCSI bus location 6.

Root Swap

The amount of root swap space depends on the applications being loaded. You can choose to use the default which Ignite-UX computes, based on available memory on the target system. Or you can select "Root Swap" and select from the choices that appear in the list. You can also edit the field directly and type in the amount of swap space you wish. The swap will be rounded to a multiple of 4 MB.

See the manual *System Administrator Tasks* for how to compute swap space.

Languages

The languages available in your HP-UX system will be shown when you select this field. Select the item(s) you want, if it is other than the default. The dialogue screen allows you to select more than one language. Highlight the additional items by double-clicking on each. You can also drag the pointer down the screen to highlight a range of items; then press the mark/unmark button.

You can make any of the selections the system default language. This will become the system default language after it is installed.

Locale

Each language will have a corresponding locale (language variant).

A locale describes the system management of a language for doing the following:

- Messaging
- Representing numbers
- Displaying monetary values
- Telling time
- Generating characters
- Sorting text

HP-UX can have more than one installed language. The "default language" is the language environment represented on the target system at boot, unless you select another installed language using the HP-VUE or CDE login screen, reset the LANG environment variable, or use geocustoms (HP-UX 10.30) to change it.

Default Language Choices

By clicking on Default Language ... you have displayed the Default Language Choices. They are listed in two columns: Language and Locale. Each language may have more than one way of representing itself on the system. If this is the case, there will be multiple locale entries for the same language.

Languages may be activated is several ways:

- ASK_AT_FIRST_BOOT allows you to leave the language setting open (unset) until the client system is first booted. At that time, the language setting will be performed as part of the initial system configuration. (This applies only to HP-UX 10.30 and later).
- SET_NULL_LOCALE creates a NULL language environment, with the locale variables set to NULL by default. A null locale allows programs to execute without using localized message catalogs. This can increase system performance. All HP-UX messages appear in English if the locale is set to NULL.

Keyboards...

Select the type of keyboard to be used, from the adjacent field. Otherwise, you can use the default selection.

Additional...

This button brings up a screen allowing you to select among certain pre-configured use-models and variables from your current configuration files. The buttons which are available will be determined from the variables in your config file. When using LVM, you will see selections for easily setting up multiple disks, striping, and file system creation. For details on setting this up, see the *instl_adm*(4) man page.

Functions Available on all Tabs

Save As...

In server mode, when you have finished your configuration for all tabs, you can save the configuration as a specific file. The saved configurations will then appear under the Configurations menu for use in future installations. This function is not available if you are running the Ignite-UX interface on the install client.

Show Summary... Select this button to display the current HP-UX, the basic disk layout, hardware inventory, and other software that will be installed.

Reset Configuration Select this button to change the configuration settings for the currently-selected configuration back to the default settings. You can do this from any tab.

Go! Clicking on Go! initiates an installation. Since the Go! button is always available, it may be selected from any of the tabs. If you don't need to do any customization, select Go! now to begin the installation. Then see “Executing the Installation: Go!”, in this chapter.

After clicking on Go!, you will still have the opportunity to cancel out of the install sequence.

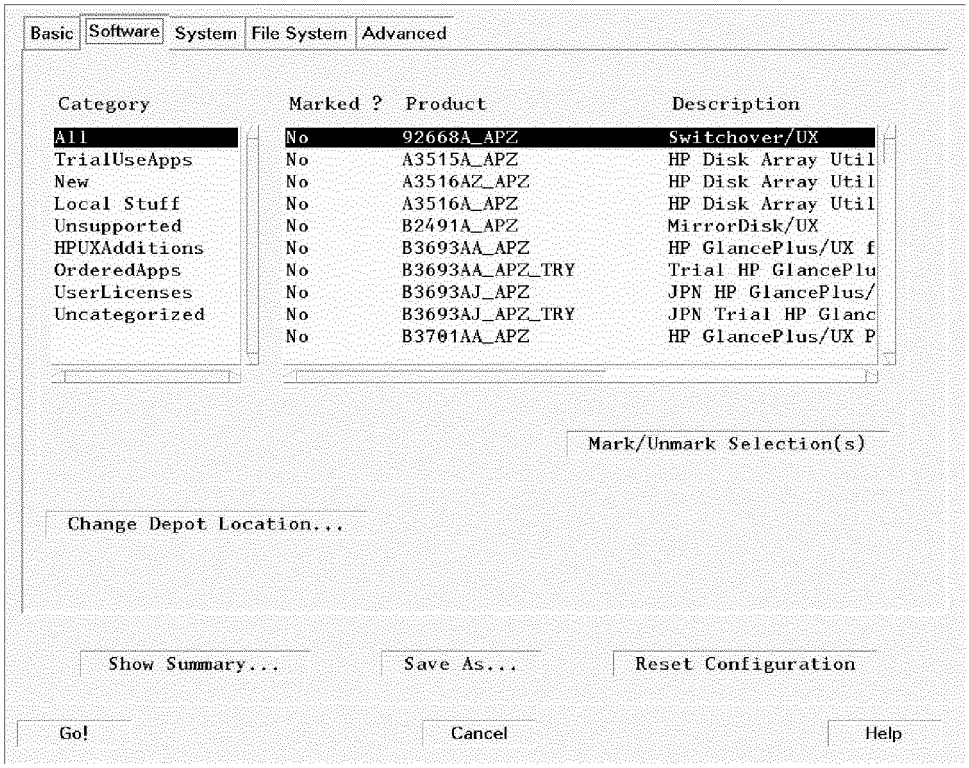
Cancel Select this button to exit Ignite-UX. You will see a screen which will ask whether you want to exit the Ignite-UX application.

Help Help information is available on all screens, and you can get context-sensitive help for specific areas by pressing the **f1** function key.

When you have finished with a tab-screen you can go forward or backward by selecting another tab. Or you can select Go! to start the installation at any time.

The Software Tab

Figure 5-9



This tab allows you to choose licensing level and additional applications that you configured when you set up your server. To access a specific depot, you can also change depot locations.

NOTE

Note that this display does not dynamically update from a newly-selected depot. When choosing a new depot, it must be identical in content to the current one. If it is not, you can use the `make_config` tool on the server to configure the new depot.

- Category: Select on a topical category to display the list of products available for that category.

- Product List: Double-click on a product in the list to select (highlight) it and to toggle its "marked" status ("Yes" or "No"). You can also use the **Mark/Unmark Selection(s)** button to toggle the "marked" status for a selected item.

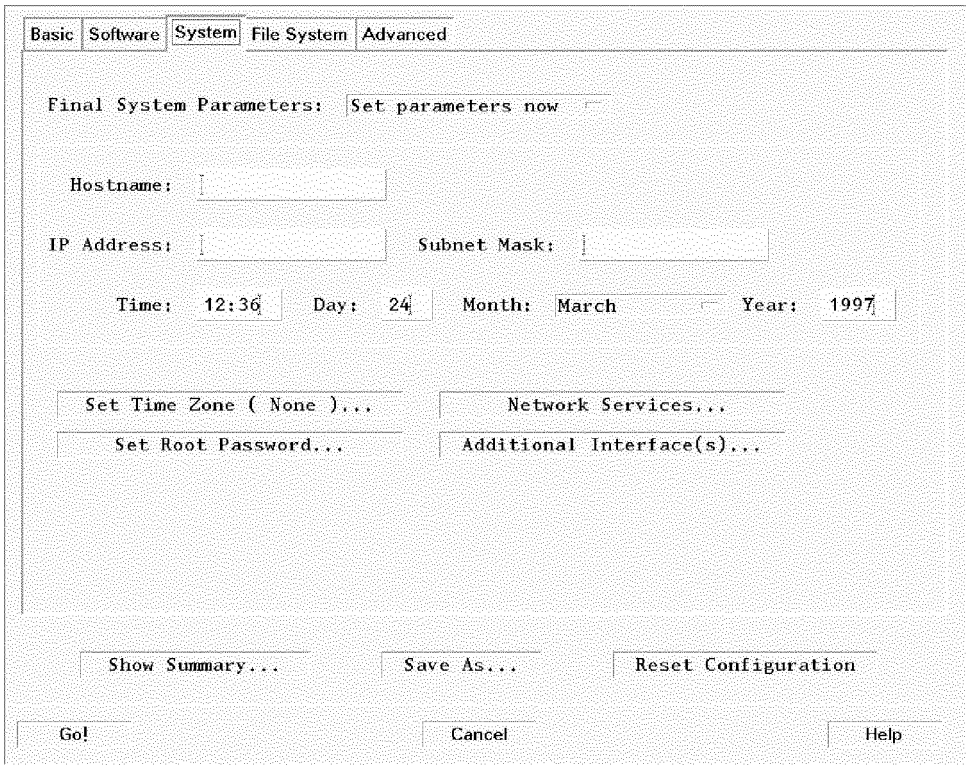
The System Tab

You can choose not to set any system parameters for the system during this installation. During the first boot of the target system, a parameters screen will collect this information.

You will see a choice selection allowing you to set parameters now, or at first boot of the target system. If you choose to set these parameters now, you will see the following:

System Parameter Screen

Figure 5-10



Hostname

Your system must have a unique system name (a "hostname"), which can be a simple name (such as `cleo`).

A system name must fulfill the following conditions:

- It must contain no more than 8 characters
- It must contain only letters, numbers, underscore (_), or hyphen (-).
- It must start with a letter.

- Upper case letters are not recommended.
- The first component of a host name should contain no more than eight characters, for compatibility with the `uname` command.

IP Address

This field will be used to enter the IP address.

IP addresses are of the form *nn.n.nn.nnn*. For example:

```
15.1.48.140
```

You can use the tool `nslookup` *hostname* to determine an existing IP address.

Subnet Mask

This field will be used to set the subnet mask.

The subnet mask will typically be provided by your network administrator, and is of the form *nnn.nnn.nnn.n* or a corresponding hex number. For example:

```
255.255.248.0
```

Time and Date Information

If necessary, type in the information for the **Time**, **Day**, **Month**, and **Year** fields:

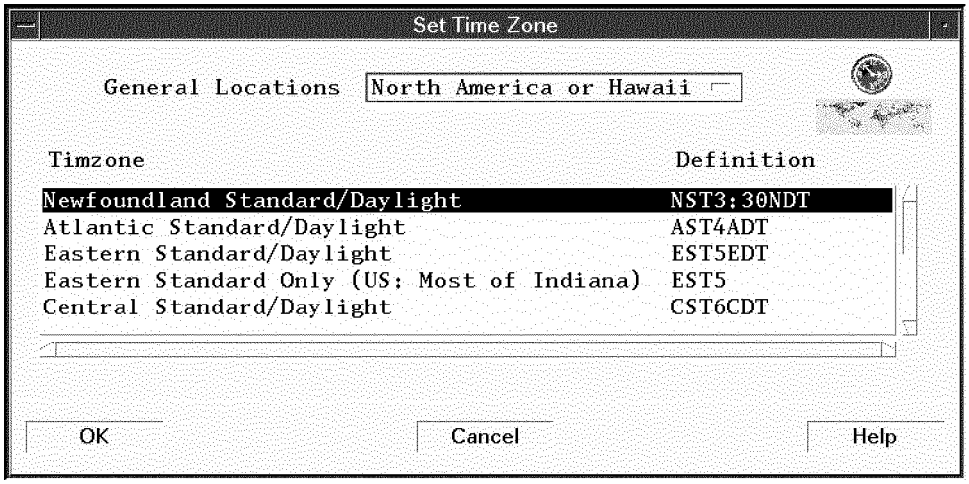
- **Time** (Use the 24-hour format: `hh:mm`).

Set Time, Date, Month and Year by entering the information in the fields, as needed. You can select the correct month by clicking on the button and selecting from the list, as needed.

Select any of the other fields and type in the correct information, as needed. Edit by using the Backspace and Delete-char keys.

Set Time Zone Screen

Figure 5-11

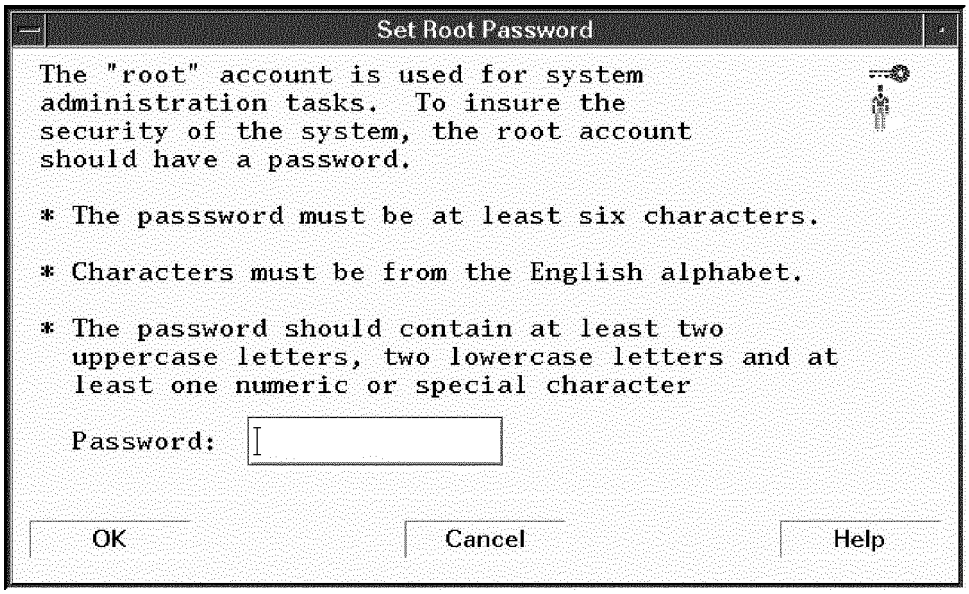


Select this button to bring up a display of time zone selections. You will see two selector lists: the first consists of general locations, and the second has corresponding time zones.

Select an item and select OK to make a choice.

Set Root Password Screen

Figure 5-12



The "root" account is used for system administration tasks. To insure the security of the system, the root account should have a password.

You should observe the following requirements when setting a password:

- The passsword must be at least six characters long.
- Characters must be from the English alphabet.
- The password should contain at least two uppercase letters, two lowercase letters and at least one numeric or special character.

Network Services

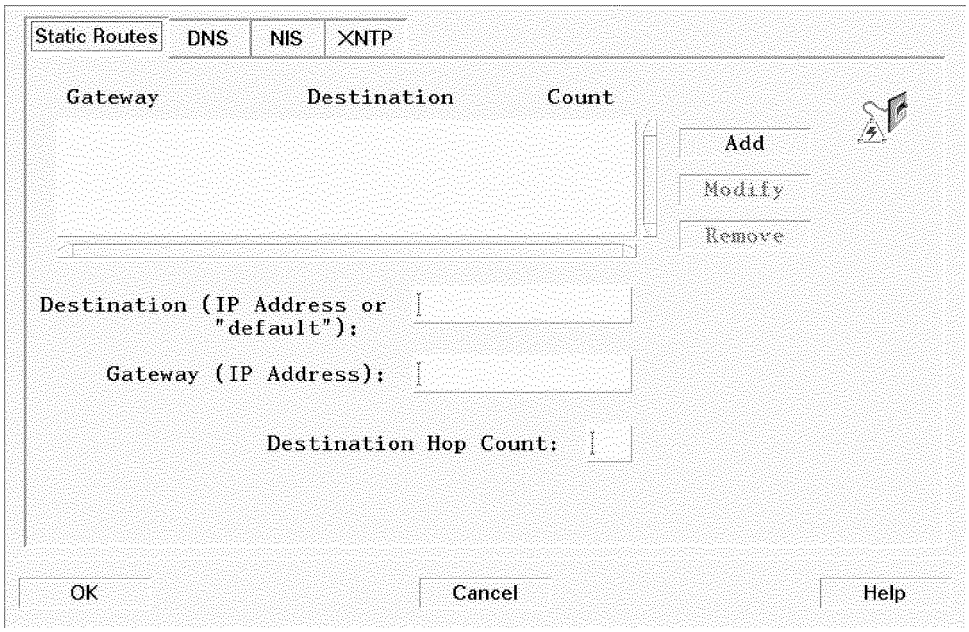
Select this button to bring up a set of tabs which will enable you to enter information on the following:

- Static Routes
- DNS
- NIS

- XNTP

Static Routes Screen

Figure 5-13



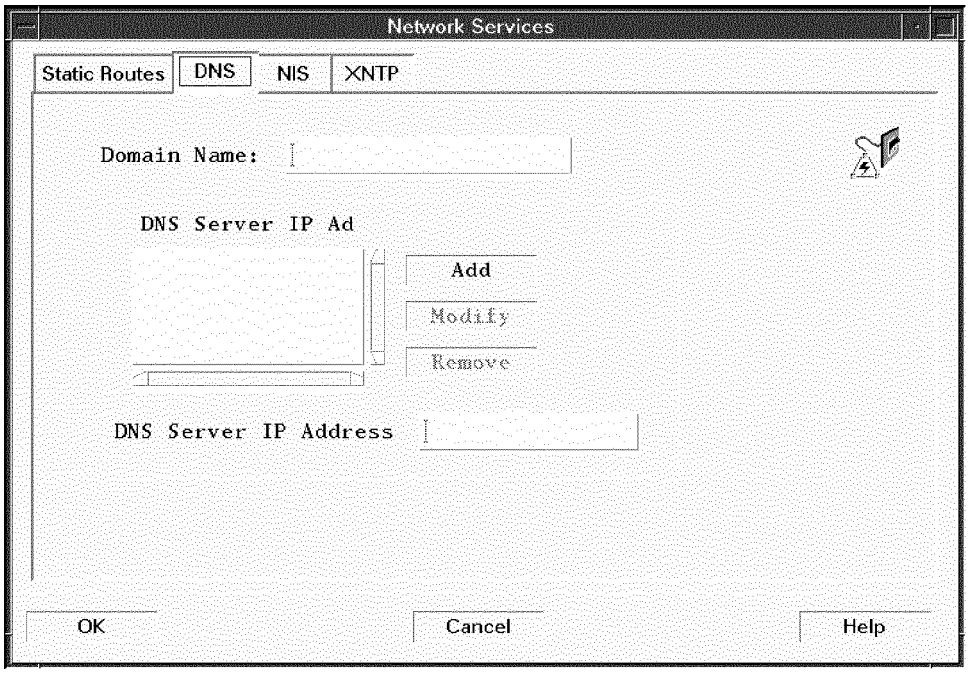
If your network is divided into subnets, you will probably need to specify a gateway system to reach other subnets:

- Destination: The field has the word "default" or the IP address of the destination network.
- Gateway: The IP address of the device connecting your network to the remote network, or your own IP, if wildcard routing is used.
- Hop Count If your gateway IP is not your system's own IP, this is usually set to "`1`". If your gateway IP is the same as your system's, then the Hop Count is "`0`".

For more information, see the *routing*(7) man page.

DNS Screen

Figure 5-14



On this screen, you can configure the Domain Name (an extension to the host name, such as `fc.hp.com`) and the IP address of the Domain Name Server. The listing of current Servers is displayed, if they are predefined in the Ignite-UX server.

The IP address of the Domain Name Server is given in a form such as `15.13.115.168`. Use the command `nslookup` on a running system to find this information.

- Select Add, after you have added a DNS server. Use Modify if you are changing an existing entry.

NIS Screen

Figure 5-15

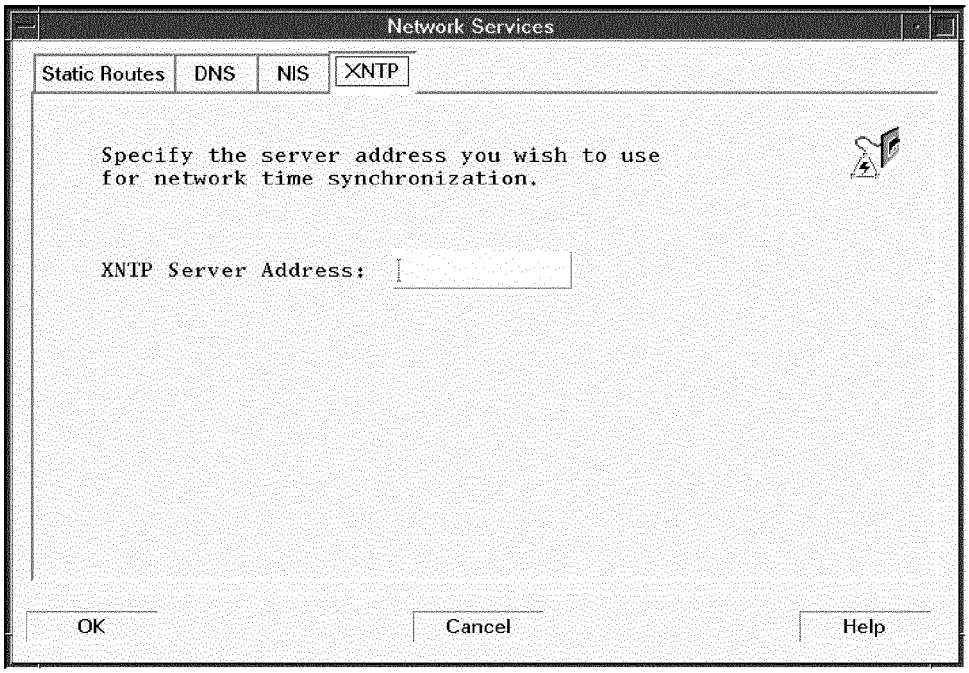
Typically, the (non-server) hosts in a network are NIS clients. Whenever a process on an NIS client requests configuration information, it calls NIS instead of looking in its local configuration files. The set of maps shared by the servers and clients is called the **NIS domain**.

For more information on NIS, see the *domainname*(1M) man page, or the manual *Installing and Administering NIS Services*.

Wait for NIS Server on Bootup Click on yes or no, depending on your configuration for NIS.

XNTP Screen

Figure 5-16



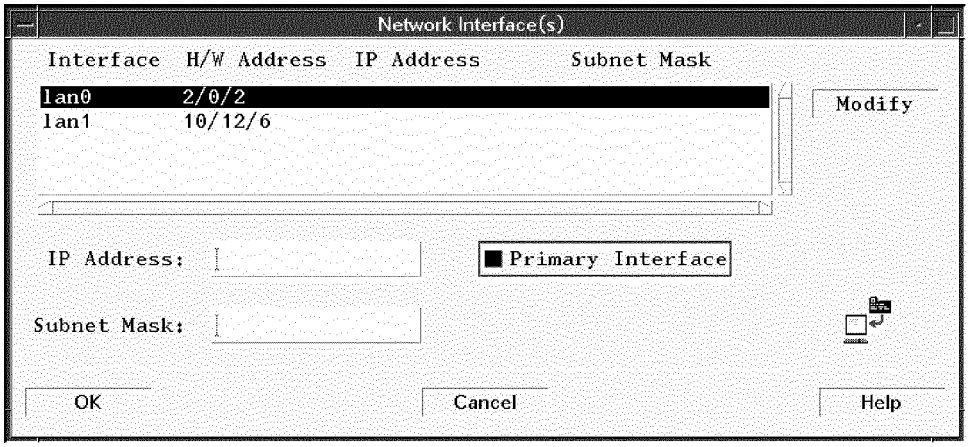
The `xntpd` daemon maintains system time, in agreement with Internet standard time servers. It does all computations in fixed point arithmetic and clock adjustment code is carried out with high precision.

For more information on `xntp`, see the *xntpd*(1M) man page.

Additional (Network) Interfaces

Use this button to bring up the following screen for entering information identifying additional LAN interface cards in the target system.

Figure 5-17



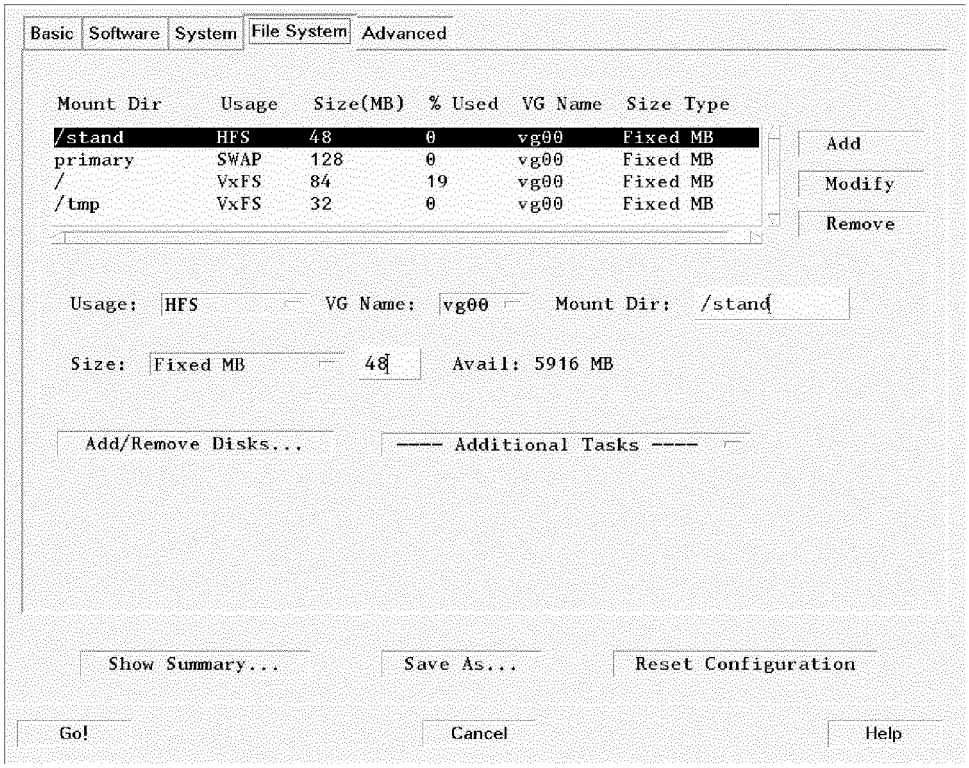
This screen enables you to configure different network interface card(s). You can enter or change IP and Subnet information, as needed, and designate the Primary Interface.

NOTE If the target system has more than one interface, the LAN card designated as Primary will be the one that is associated with the host name of the system in `/etc/hosts`.

- Select an interface card from the selection list.
- Enter or modify the IP Address, as needed.
- Enter or modify the Subnet Mask, as needed.
- Activate Primary Interface, depending on the status you want for this interface.
- Select Modify when you have finished with changes for each interface.

File System Tab

Figure 5-18



This tab enables you to do a variety of file-system and disk-configuration tasks and will differ in appearance, depending on whether you previously selected LVM or whole disk, on the Basic tab. This illustration is what you would see if you had picked LVM on the Basic tab.

Adding and Changing File System Configuration

To add or change any configurations on the display of file systems,

1. Enter the information in an appropriate field below the display
2. Select one of the buttons to the right
3. To see more information on the file system display, use the horizontal scroll bar or resize the screen.
4. The "Available" indication shows how much space is unallocated in the volume group of the highlighted volume.

For LVM:

- One of the logical volumes must be root (/).
- A swap volume is required.
- Directory names must have valid HP-UX names (e.g., /usr, /database, etc.).

The buttons which activate changes are:

- Add
- Modify
- Remove

Generally, changes are not put into effect until you select one of these. If you make a change and then leave the tab without using one of these buttons, your changes may not be applied.

Usage

Select this field to display a selection list of file system usage types. If you want to change file system type or usage for the selected item, select an item in this list. The usages are as follows:

- None: If you want to protect the data on a disk or file system and "reserve" it from being overwritten during the installation process, select this list, and select "unused" by clicking on this item. Then select the **Modify** button.
- HFS: Select this item to create a High-Performance File System.
- SWAP: Select this item to create swap.
- SWAP-Dump: Select this item to create an area for both swap and system dump.
- VxFS: Select this item to create a Journaled File System. This is an extent-based, journaled file system featuring high-reliability, fast recovery time and on-line administration.
- Unused: This means the logical volume will be created, but not used.

VG Name (Volume Group Name)

Click on the field to open a selection list. You can choose a volume group name from the list.

NOTE Renaming or changing the FS structure of a disk causes the old file system on that disk to be lost (a warning message will remind you of this).

- If you want to add a new/unused disk and give it a different volume group name or create a new volume group, select the Add/Remove field and follow the procedure.
- If you want to reconfigure the volume group in general, including renaming it, select Additional Tasks → Volume Group Parameters, where you can fill in a custom VG Name, and change other disk parameters.
- Select OK when you are finished with the sub-screens for any of these tasks. You will be returned to the File System tab.

Mount Dir For the root disk, you should use the standard HP-UX (10.0*x*) mount directory designations (`"/", "/usr", "/stand", "/var", "/opt"`, etc.) You can also specify your own mount points such as "`/special`" or "`/apps`".

Size For setting up each selected file system (as shown in the Mount Dir display), the following choices are available:

1. First select an item in the directory display for the file system you want to change. The current selection will show in the Mount Dir field.
2. The sizing method (such as "Fixed Size") currently used for that particular file system will appear in the Size field. To change the Sizing Method:
   a. Make sure the file system you want to change is selected in the directory display list.
   b. Select the sizing method field to open the list of sizing methods.
   c. Select one of the items (such as "Size Fixed MB"). It will then remain displayed in that field.
   d. Select the Modify button to execute the change on the selected file system.

The types of sizing are as follows:

Fixed size:	The selected (highlighted) file system is set to this size.
All Remaining:	The selected file system automatically takes over all remaining file system space on the disk or volume group.
Free Size:	Use this selection when you know how much free space you wish the volume to have after the system is installed. The size of the volume will be the specified amount plus the amount the selected software requires.
Free Percent:	This category is similar to free size, but expressed in percent. It is used if you know how full you wish the volume to be, in percentage of the volume size. If you indicate "20%", then the volume would be 80% full after the installation of the selected software.
Size Range:	Select this category in the list to set a maximum size for the file system (the minimum is determined by the software impact on the volume).

Add/Remove Disks

This opens a display which allows you to do the following:

- Add a new disk and configure its file system type and volume group designation, if any.
- Remove a disk from current usage on the target system by designating it as "Unused".
- Determine your current disk usage.

To change a disk usage status:

- Select a disk in the display list.
- Select the "Usage" selection list to set a new usage. If you select "LVM", a Vol Grp:... button appears.
- Select the "Vol Grp:" button to see the Volume Group Choices or type in a new volume group name in the entry field.
- Select the Modify button, to execute any changes.

Additional Tasks

This button enables you to configure advanced information in the following categories, as needed: Click on the field to see the following menu items:

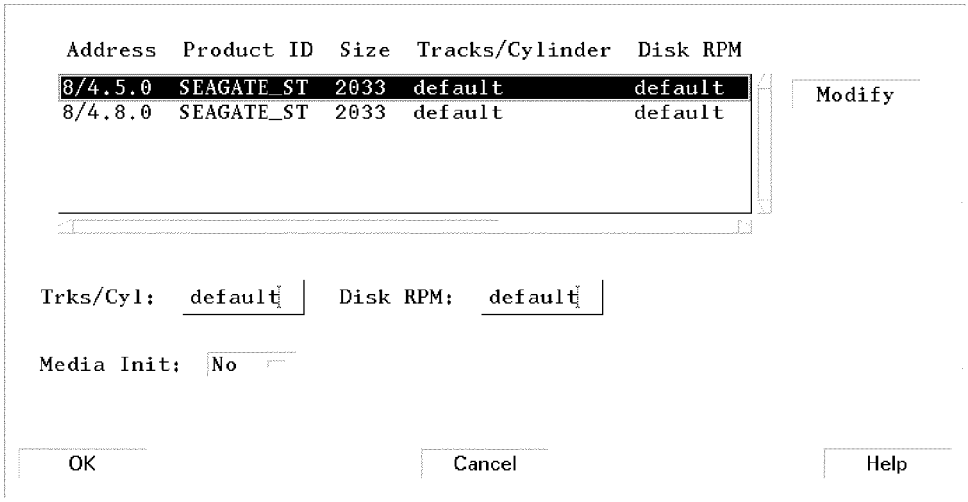
- Disk Parameters.
- File System Parameters.
- Logical Volume Parameters.
- Volume Group Parameters.

Clicking on one of these will open a screen which will enable you to change advanced parameters. The button will retain the label of the area you are currently working in.

Note: the choices on this screen will differ depending on the file system choices you made on the Basic tab.

Advanced Disk Parameters Screen

Figure 5-19



1. Highlight a disk in the selection list to select it.
2. Configure the Trks/Cyl and Disk RPM by direct editing, as needed.

3. Indicate whether Media Init is required, by clicking on the selection box and selecting a choice, as needed.
4. Select **Modify** to configure changes.
5. Select **OK**, to leave Advanced Disk Parameters and return to the File System tab.

Tracks per Cylinder

- Select a disk by clicking on its entry in the list displayed.
- Edit the Trks/Cyl field as needed, using the backspace and left/right arrow keys.
- Select the **Modify** button, to execute any changes.
- Select **OK**, to leave this screen and return to the File System tab.

Disk RPM

- Select a disk by clicking on its entry in the list displayed.
- Edit the Disk RPM field as needed, using the backspace and left/right arrow keys.
- Select the **Modify** button, to execute any changes.
- Select **OK**, to leave this screen and return to the File System tab.

Media Init

- Select a disk by clicking on its entry in the list displayed.
- Select the Media Init button to open the selection list.
- Select "Yes" or "No". If this is set to "Yes", you will also see the Interleave field.
- Select the **Modify** button, to execute any changes.
- Select **OK**, to leave this screen and return to the File System tab.

For more information, refer to the man pages for the following:

- *mkfs_vxfs*(1M).
- *mkfs_hfs*(1M).
- *mediainit*(1).

Intrlv

This field is available if Mediainit is set to "Yes".

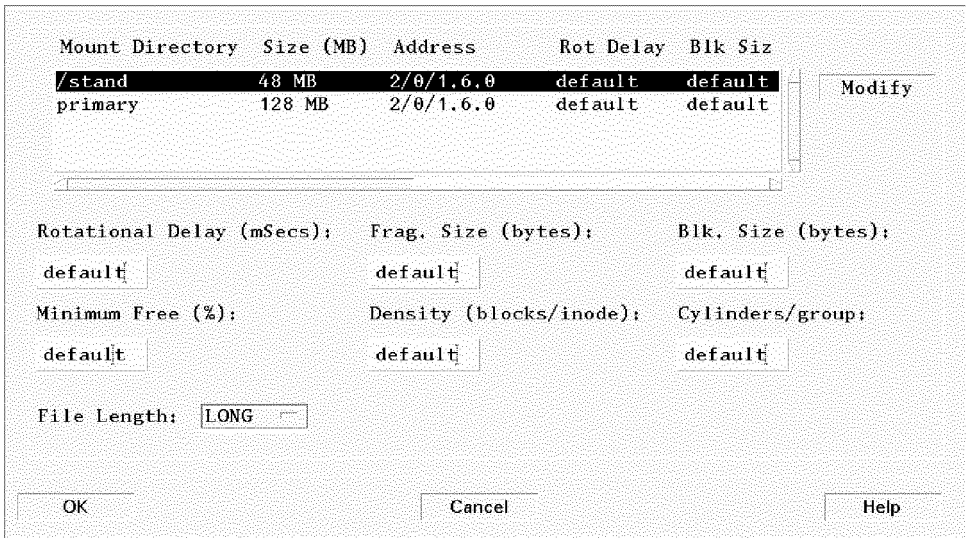
The interleave factor, `interleave`, refers to the relationship between sequential logical records and sequential physical records on the disk. It defines the number of physical records that lie between the beginning points of two consecutively numbered logical records. The choice of interleave factor can have a substantial impact on disk performance.

For more information, consult the manual for your disk hardware.

Also see the *mediainit*(1) man page.

Advanced File System Parameters Screen

Figure 5-20



These parameters apply only to HFS file systems. You can use the default values computed by Ignite-UX, or change them, as needed.

When you have finished with this area, select OK to return to the File System tab.

For More Information

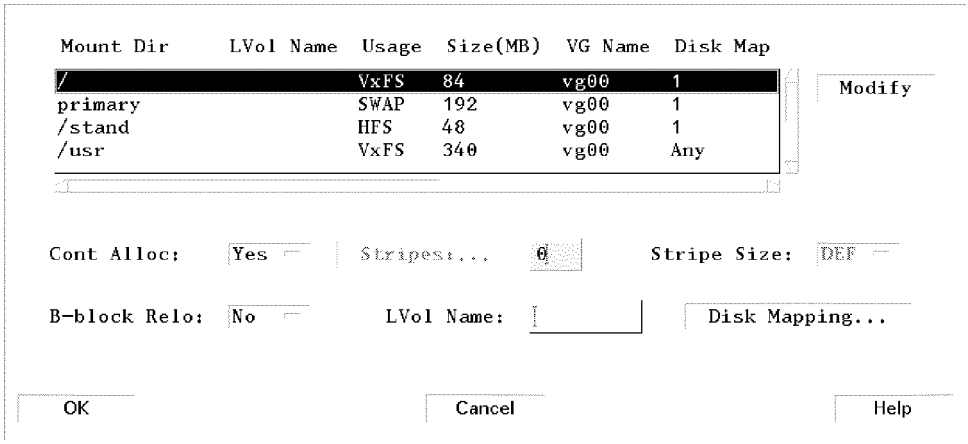
To get more details about the following, refer to the *mkfs_hfs*(1M) and *mkfs*(1M) man pages.

- Rotational Delay
- Fragment Size
- Block Size

- Minfree
- Disk Density
- Cylinder/Group

Advanced Logical Volume Layout Screen

Figure 5-21



Use this screen to do detailed configuring of LVM, as needed, in the following areas:

Cont Alloc (Continuous Allocation): See the manpage *lvcreate*(1M), for more information.

B-block Relo (Bad-Block Relocation): See the manpage *lvcreate*(1M), for more information.

Stripes If two or more disks are in the volume group, then you may enable data striping over multiple disks for performance purposes.

Stripe Size Configure this in case you have at least two disks in a volume group and want to reconfigure the default values computed by Ignite-UX. Ignite-UX uses the file system block size as the default.

- Type in the stripe size you intend to use.

For more details, see the manpage *lvcreate*(1M).

LVol Name (Logical Volume Name):

- Type in the name you want for the selected volume.

For more details, see the manpage *lvcreate*(1M).

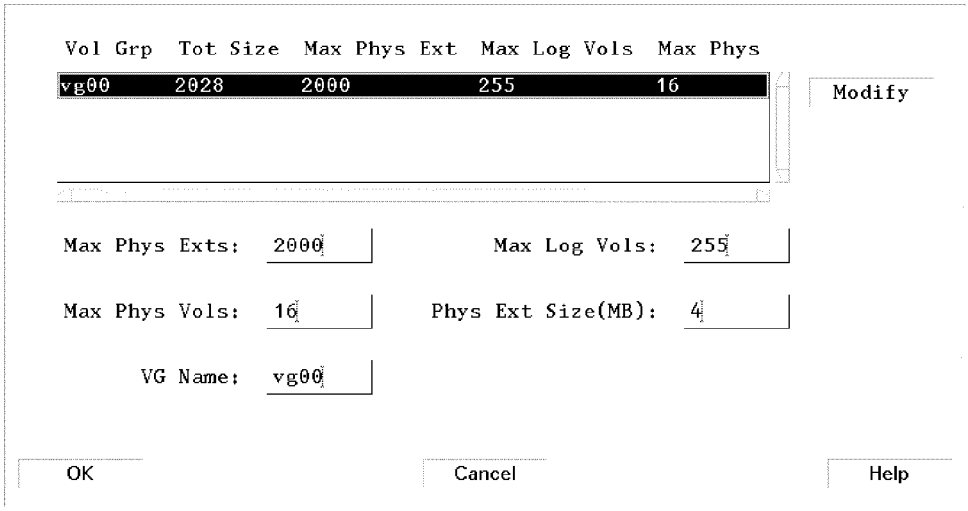
Logical Volume to Disk Mapping

This button displays a screen which allows you to restrict the disk drives on which the volume data will reside. Normally, the data will be allocated over these disks sequentially.

See the manpage *lvextend*(1M), for more details.

Advanced Volume Group Parameters Screen

Figure 5-22



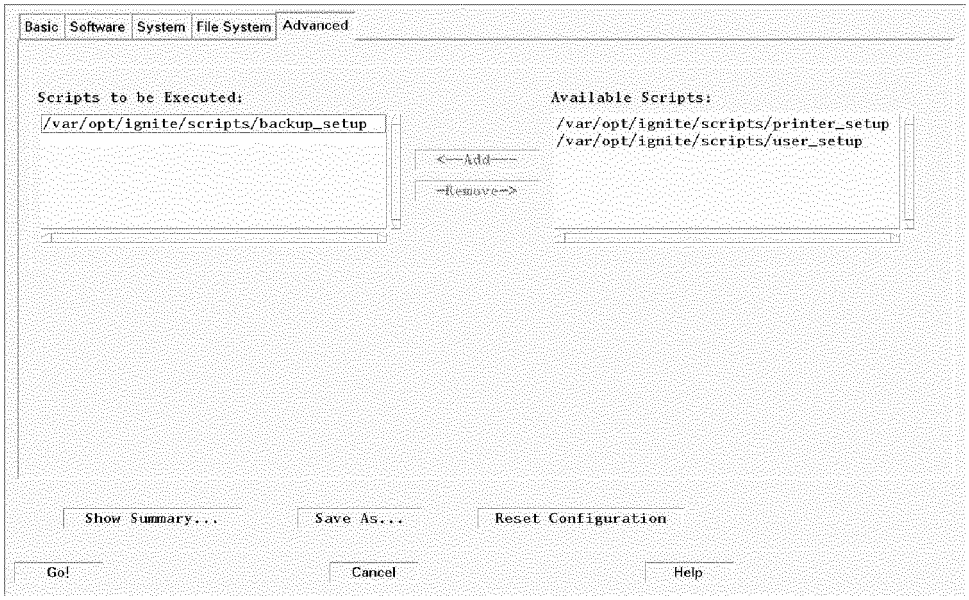
Use this screen to do detailed configuring of LVM, as needed, in the following areas. See the manpage *vgcreate*(1M), for additional information.

- Max Phys Exts (Maximum Physical Extents).
- Max Phys Vols (Maximum Physical Volumes).
- VG Name (Volume Group Name). This allows for renaming the existing volume group names.
- Max Log Vols (Maximum Logical Volumes).

- Physical Ext Size (MB) (Physical Extent Size in Megabytes).

Advanced Tab

Figure 5-23



Transfer Lists

In this screen you can activate any HP or custom scripts which you might want to run as part of your installation. Note that the scripts listed are those with a "scripts" keyword in the INDEX file.

The file `/var/opt/ignite/config.local` is a place holder for such files as you may want to generate for post-install, for example.

For more details, see the *instl_adm*(4) man page.

Adding a Script

To add an item to "Scripts to be Executed":

1. Select the item from "Scripts Available" to select it.
2. Select **Add** to add it to the list "Scripts to be Executed."

Removing a Script

To remove an item from "Scripts to be Executed:"

1. Select the item in "Scripts to be Executed".

2. Select **Remove** to remove it.

The item will be deactivated, but will continue to be available in the "Scripts Available" list.

Executing the Installation: Go!

Select **Go!** in any Ignite-UX tab to initiate the installation. You do not need to examine all tabs, if you simply want to do a generic installation.

1. You will then see a confirmation screen listing the disks that will be written on during the process of installation, and a log of any warnings or errors. *This screen will allow you to Cancel before the load begins and return to the current tab you were working in*.

- If you do not wish to proceed with the installation at this time, press **Cancel**.
- The pre-install analysis display screen is scrollable. Be sure to inspect this information and check to see that the disk(s) described in the display list is the one you intend to install on.
- Any ERRORS which are listed must be corrected before you proceed.

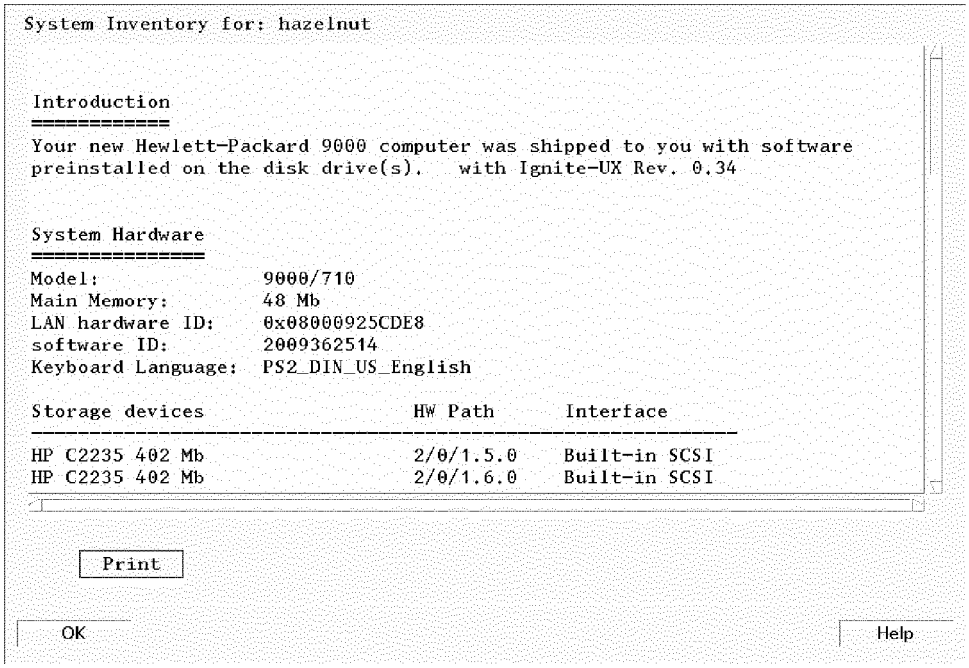
As the installation proceeds, you will see a log including the warnings and errors which may need to be addressed before proceeding.

When the installation is complete, you can print a manifest, and either save the client data in a history directory or remove the client and its data from the server.

Viewing and Printing a Manifest

The following screen can be accessed from the Ignite-UX server screen, by selecting on a client icon, and then clicking on Actions → View Manifest, or via the client actions menu (right-click on client icon).

Figure 5-24



The manifest screen provides customer order information for the selected target system. Ignite-UX can display and print the manifest of a newly-installed system from the Server screen, with the action View/Print Manifest.

You can view or print the manifest when a target client is "Complete", as indicated by the Client Status screen. The online information is scrollable.

The manifest contains the following information:

- Customer information, if this has been entered on the individual client configuration screen.
- Hardware connected to the system.
- Storage Devices.
- Installed Software.
- Disk layout.
- File System layout.

- Swap Configuration
- Kernel Configuration.
- System Information.

The manifest file is saved on the server as `/var/opt/ignite/clients/`*LLA*`/manifest/`*manifest*. It is on the target client system as `/var/opt/ignite/local/manifest/`*manifest*.

Using the Ignite-UX interface or the command line, the `/opt/ignite/bin/print_manifest` utility prints these files in ASCII to stdout, using the format instructions from the manifest template file

If the client data is moved to history, that data includes both the client's manifest and config file. Both these files can be recalled at a later time.

Non-Interactive Installation Using bootsys

The `bootsys` command can be used to start a system installation on one or more clients without the need to interact on the console of the client system. The only requirements are that each client must be currently booted under HP-UX version 9.0 or newer, and each client must be accessible on the network. Each will also need to have enough disk space in the `/stand` directory to hold the two files: `/opt/ignite/boot/INSTALL` and `/opt/ignite/boot/INSTALLFS`.

`bootsys` copies the Ignite-UX kernel and RAM filesystem to each client and then sets the system AUTO file in the LIF area of the root disk to automatically boot from this kernel at the next system reboot.

Examples:

The following sample command line will boot the client system from the server and wait for install instructions from the Ignite-UX GUI:

```
bootsys -w system_name
```

To automatically install `system1` using a different IP address than what is currently assigned and without waiting for server interaction, you would type a line similar to the following:

```
bootsys -a system1:1.2.3.45
```

See the man entry for the *bootsys*(1m) command for more examples and information.

6 Troubleshooting

Chapter Contents

Likely Problem Areas

As an install progresses, you will see messages relating to the progress being entered into the log file. Usually these messages are related to normal behavior. `ERROR` and `WARNING` messages have the following significance:

`ERROR`	This indicates a serious problem, usually requiring action from the user in order to proceed with an installation.
`WARNING`	This indicates something out of the ordinary, but *not* fatal. The warning *may* require action.

In case you see a message, or experience unusual behavior, you can use the following tables as prioritized lists of likely problems and their solutions. They are grouped by the following topics, with the problems you are most likely to encounter near the beginning of each section.

Table 6-1 Running add_release

Message(s) or Behavior	Possible Cause	Fix
Couldn't mount cdrom device at: *device_file*	This error could occur if: • the user entered the wrong device file • the cdrom is not loaded and ready • the device file is not correct for the cdrom	Try to mount the cdrom manually by executing the following: `mount -Fcdfs -oro \` *cdrom_block_device_file* `\` *mount_point_dir* Verify that the device file is correct by running `sam`.
`ERROR: Failed to register the cdrom depot at:` *tmp_dir_name*	This error could occur if: the CD-ROM media in the CD-ROM drive is not a depot CD-ROM.	Verify that the CD-ROM is a valid SD depot by executing the following: `swreg -l depot \` *cdrom_mount_block_device_file* `swlist -s \` *cdrom_mount_point_dir*
`Remove command failed:` *remove_command_executed*	This error occurs when you have specified removal of an obsolete release and the command to do the removal failed.	Refer to the log file for the command used to remove the release. Typically the `remove_release` command is used. Its messages are written to `stderr`.

Message(s) or Behavior	Possible Cause	Fix
`Load command failed:` *load_command*	This error occurs if the command used to load software has failed during the load. Such failure can be due to a problem with the media or the source specification.	Refer to the log file for the command used to load software. If `make_depots` is used its log file is under `/var/opt/ignite/logs`.
`Problem executing command:` *command*	This error occurs if the command used to configure the software which has just been loaded fails.	Refer to the log file for the command used to configure software. If `make_config` is used, its log file is under `/var/opt/ignite/logs`.
`Problem executing command to set default:` *default_cmd*	This error occurs if the command used to set the default release fails. Typically this command is `manage_index`.	Refer to the log file for the command used to configure software. If `manage_index` is used, its log file is under `/var/opt/ignite/logs`.

Table 6-2 Other Problems Related to add_release

Message(s) or Behavior	Possible Cause	Fix

You do not see the releases you expect to see as available to load.	This could happen if you specify the wrong `-u` parameter.	For `-u` the following parameters should be used:
		`-u re`
		This should be used by HP Authorized distributors to load DART software and OS releases provided to them by HP as part of the Instant Ignition program.
		`-u mo`
		This should be used by HP manufacturing organizations to load DART software and OS releases provided to them by HP as part of the Instant Ignition program.

You do not see the releases you expect to see as available to load (continued).		no `-u` If `-u` is not specified then non-specific generic software can be loaded. This is any software that is not provided by HP as part of the Instant Ignition program.
The screen enhancements are not working properly:	This can be caused by problems with `dtterm`.	Run the program from an hpterm window.

During Installation and Configuration of Ignite-UX Tools and Data

Table 6-3 Running swinstall

Message(s) or Behavior	Possible Cause	Fix
`swinstall` cannot read the tape. For example you may see the following: `Source connection failed for "ignitesvr:/dev/rmt/0m".`	Wrong device file	Use the Actions menu in the SAM Peripheral Devices/Tape Devices area to show the device files for the tape drive.
Failure reading the contents of the tape.	No device file present for the tape.	Use the Actions menu in the SAM Peripheral Devices/Tape Devices area to create the device files for the tape drive.

Message(s) or Behavior	Possible Cause	Fix
	Bad/wrong tape.	Verify label on tape. Check the contents. SD tapes are in "tar" format. You can check whether the tape is a "tar" tape by typing the following command: `tar tvf` *device_file* `| more` **Enter** For example, if the tape device is `/dev/rmt/0m`, you would type: `tar tvf /dev/rmt/0m \ | more` **Enter** You should see a "tar" format table of contents. If you do not see this, then the tape is corrupt.
	Dirty head in DDS tape drive.	Use a DDS tape cleaning cartridge to clean the tape head.

Table 6-4 Booting a Client

Message(s) or Behavior	Possible Cause	Fix

Using "boot lan.080009-xxxxxx" s700 won't boot from known good IUX server.	• Not enough temporary IP addresses for booting.
	• `rbootd` is not running on the server.
	• server lan is something other than ethernet, e.g., FDDI,X.25,token-ring, and s700 is older generation 715,735,755. Older s700's will not be able to boot from ROM because rbootd doesn't function over non-ethernet lan. (See *rbootd*(1M)).
		• Allocate more addresses in `/etc/opt/ignite/instl_boottab` or wait for an address to become available.
		• Start rbootd by hand: `/usr/sbin/rbootd`.
		• Do one of the following:
		  • Start install from bootable media (CD-ROM,tape) and enable networking from there.
		  • If s700 contains 9.x or 10.x bootable disk, boot from that disk and run `bootsys -w` *s700 hostname* on the IUX server.

Table 6-5 Setting Up the Ignite-UX Cluster

Message(s) or Behavior	Possible Cause	Fix
`ERROR: This machine is not an NFS server (no nfsd running). The -n option will not be processed.`	NFS is not set up. The IUX server must be an NFS server if you wish to control the installation process from the IUX server or if you wish to make sure that config files and manifest information end up on the server. If the IUX server is an NFS server, `/var/opt/\ ignite/clients` will be exported as `r/w`.	Make the IUX server an NFS server. • Be sure the NFS software is on the system, for example: `swlist -l product | grep NFS` giving the following: `NFS B.10.[123]0 ONC/NFS;\ Network-File System, Information Services,Utilities` • Either use SAM to enable the system as an NFS server, or edit the file `/etc/rc.config.d/nfsconf` and set the variables `NFS_SERVER=1` and `START_MOUNTD=1`. Then reboot the system.

Message(s) or Behavior	Possible Cause	Fix
Bad IP addresses specified for either the temp IP or DHCP: `ERROR: Illegal IP (`*IP address given*`) passed to -I.` OR `ERROR: Bad range passed to -I.` *1st IP address given* `is greater than` *2nd IP address given*`.`	The checks done on this IP address are the following: Given a format like *###.###.###.###* (for example, 151.12.54.205), ensure the following: • There are indeed four dot-separated sets of numbers. • Each of the dot-separated sets is less than 255.	Check the IP address syntax. If a range is given, the first IP address given must be less than the second IP address given.

Table 6-6 Running the make_depots command

Message(s) or Behavior	Possible Cause	Fix

`make_depots: warning - -r option \ ignored with -d absolute path name`
 	
`make_depots: warning - -m option \ ignored with -d absolute path name`
	Using either `-r` or `-m` option with `-d` absolute path name.	Remove `-r` and/or `-m` option.

`make_depots: warning - -r and -o \ arguments that differ not recommended`	Arguments to `-r` and `-o` are different.	Make arguments the same.
`make_depots: warning - \ trailing slashes stripped from /////`	Argument to `-d` option has trailing slashes.	Remove the trailing slashes.
`make_depots: \ both -d and -r options missing`	There is neither a `-d` nor `-r` option.	Add either a `-d` or `-r` option.
`make_depots: unknown -a argument` *XXX*	*XXX* is an unknown argument for `-a` option.	Argument must be either 700 or 800.
`make_depots: -r option missing \ with -d relative path name`	There is no `-r` option when using the `-d` option with a relative path name.	Add a `-r` option or use an absolute path name for the `-d` option.

`make_depots: bad argument for -r. \ Must match B.[0-9][0-9].[0-9][0-9]`
 	
`make_depots: bad argument for -o. \ Must match B.[0-9][0-9].[0-9][0-9]`
	The argument for either `-r` or `-o` is badly formed.	Change the argument to match the pattern, e.g. B.10.20.

`make_depots: error - \ cannot stat source depot` *XXX*	The `-d` argument *XXX* does not exist.	Change `-d` argument to point to something that actually exists.

Message(s) or Behavior	Possible Cause	Fix
`make_depots: error - \ unknown source depot type` *XXX*	The `-s` argument is not identifiable as either a depot (local or remote) or a character or block special device file.	Specify a real source depot.

`make_depots: \ malloc of` *XXX* `failed`
 	
`make_depots: \ strdup of` *XXX* `failed`
 	
`make_depots: \ tmpnam of` *XXX* `failed`
 	
`make_depots: \ fopen of` *XXX* `failed`
 	
`make_depots: \ fprintf to` *XXX* `failed`
 	
`make_depots: internal swcopy \ option buffer overflow`
 	
`make_depots: \ internal failure in regcomp call`
 	
`make_depots: \ internal failure in regexec call`
 	
`make_depots: \ build_bundle_list failed`
	The `make_depots` command failed due to lack of resources.	Contact HP support.

`make_depots: cannot create temporary \ directory XXX to mount CDROM`
 	
`make_depots: cannot mount \ XXX as CDFS, errno = YY`
	Insufficient permissions to perform `mkdir` and mount.	Make sure you are running as root.

Message(s) or Behavior	Possible Cause	Fix
`make_depots: swcopy command failed`	A `swcopy` command failed.	Examine `/var/adm/sw/swcopy.log` and `/var/adm/sw/swagent.log` for more information.

Adjusting File System Size

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

You might have a problem updating your system(s) if the `/var` volume is too small.

If you try an update, `swcopy` will determine how much disk space is required. If there isn't sufficient space, `swcopy` will report an error like this:

```
     ERROR: The used disk space on filesystem "/var" is estimated
            to increase by 57977 Kbytes.
            This operation will exceed the minimum free space for
 this
            volume.  You should free up at least 10854 Kbytes to
avoid
            installing beyond this threshold of available
            user disk space.
```

In this example, you would need to increase the file system size of `/var` by 10 MB, which actually needs to be rounded up to 12 MB.

The following are the steps required for increasing the size limit of `/var`:

1. Determine if any space is available by entering the following:

   ```
   /sbin/vgdisplay
   ```

   You should see a display like the following:

   ```
        - Volume groups -
   VG Name                     /dev/vg00
   VG Write Access             read/write
   VG Status                   available
   Max LV                      255
   Cur LV                      8
   Open LV                     8
   Max PV                      16
   Cur PV                      1
   Act PV                      1
   Max PE per PV               2000
   VGDA                        2
   PE Size (Mbytes)            4
   Total PE                    249
   Alloc PE                    170
   Free PE                     79
   Total PVG                   0
   ```

   The "Free PE" indicates the number of 4 MB extents available, in this case this is 79 (equivalent to 316 MB).

2. Enter the following:

   ```
   /sbin/shutdown
   ```

   Change to single user state. This will allow `/var` to be unmounted.

3. Enter the following:

   ```
   /sbin/mount
   ```

   You will see a display similar to the following:

   ```
         / on /dev/vg00/lvol1 defaults on Sat Mar 8 23:19:19 1997
         /var on /dev/vg00/lvol7 defaults on Sat Mar 8 23:19:28 1
   997
   ```

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

5. Execute the following command:

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

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

6. Extend the size of the logical volume by entering the following:

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

   This extends the size of the logical volume.

   For example,

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

   This will make this volume 332 MB.

7. Execute the following command:

   ```
   /sbin/extendfs /dev/vg00/rlvol7
   ```

   This extends the file system size to the logical volume size.

8. Finally, execute the following commands:

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

9. Go back to the regular init state:

   ```
   init 3
   ```

   OR

   ```
   init 4
   ```

   OR

   ```
   reboot
   ```

Large Systems

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

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

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

2. To reduce the likelihood of this problem occuring, before you do the installation you should *turn off any disks you don't plan to use for the installation process and start over.*

3. After the system is cold-installed, you may wish to add back all the file systems that existed under the previous installation, either manually or using SAM. However, for a large number of file systems (for example, over a hundred), some tables in the kernel may be too small to allow correct booting. This is because the newly-installed kernel contains default values for kernel tables sizes, and does not allow for special configurations made to the kernel installed previously.

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

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

   Additionally, the boot may fail in various ways. For example, you may be have to do file system repair manually.

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

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

   - Alternatively, you may wish to re-configure the kernel in one of the following ways:

- By raising `maxusers` to a large value, such as `200`.
- By selecting an appropriate bundle of SAM-tuned parameters from the SAM Kernel Configuration Actions menu.

You should determine the correct configuration for your system.

Note that this problem does not appear to affect the Upgrade process (updating from HP-UX 9.0*x*), since during Upgrade, the new kernel parameters are derived from the previous kernel.

A Configuring for a DHCP Server

Introduction

The HP-UX 10.20 version of HPUX and Ignite-UX supports retrieving network information via the Dynamic Host Configuration Protocol (DHCP). This appendix gives the details of setting up DHCP.

The Ignite-UX GUI allows for setting up DHCP for use during system installation. This Appendix is for the user who wishes to use DHCP for ongoing IP address management, as well as for system installation.

Appendix Contents

Using DHCP Services: Overview

DHCP provides the following features:

- Allows for dynamically allocating IP addresses and hostnames.
- Automatically supplies most of the networking defaults that are requested during a system installation or first time boot.
- Provides for on-going IP address maintenance via a concept of an "IP address lease". Having a lease on an IP address means that if the system "goes away" for a specified period of time without renewing the lease, then that IP address can be given to a different system that request a new IP address lease.
- Assists in reestablishing valid network parameters when a system has been moved from one DHCP-managed network to another.

The environment where DHCP works best is where the following conditions and restrictions exist:

- When a range of currently unused IP addresses can be allocated for use during new system bring-up.
- When the IP address-to-hostname mapping can be made ahead of time (before the system to use it is installed). And this mapping can be configured in the name services database before installing a system.
- When the IP address and hostname that get assigned to a system are not important. A system will keep the same IP address and hostname for as long as it renews the lease. However the original assignment is arbitrary.
- When the person installing the systems does not desire to choose a hostname for the system, but rather accepts the one already registered for the IP address supplied by DHCP. This will ensure that the system will be recognized immediately by its hostname.
- When existing systems that did not use DHCP before will continue not to use it. Or, if they did, they would be willing to accept an arbitrary hostname and IP address. This is the same as with a new system. There currently is no tool available for pre-loading the DHCP database with existing IP addresses and identifying the systems they belong to. A tool to do this may be available in a future release.

An alternative to using DHCP is to create `/etc/bootptab` entries for each specific client on the network. This allows for specific IP address mappings and greater control. For more detail, please see the section in this Appendix , “Using bootptab as an Alternative to DHCP,” at the end of this chapter.

Setting Up a DHCP Server

Once you have decided that using DHCP will provide a benefit, you will need to follow the steps below to set up a DHCP server. *Note that only one DHCP server per network subnet is required*. On the server system:

1. Allocate a set of currently unused IP addresses (preferably a contiguous block of addresses). For example:

   ```
   15.1.48.50 - 15.1.48.80
   ```

2. Pre-assign and register hostnames to the IP address allocated above. Using the `-h` option to the *dhcptools*(1M) command may be useful. For example, the following line:

   ```
   dhcptools -h fip=15.1.48.50 no=30 sm=255.255.255.0 hn=devlab#
   #
   ```

   This command will create a file `/tmp/dhcphosts` that can be incorporated into your `/etc/hosts` or `DNS/NIS` database.

3. Designate a system to act as the DHCP server for your network. This should be a system that is "always" available to it's clients.

4. Use the SAM application to configure the DHCP services on this server. To do this:

   a. Start the interactive SAM application by typing `sam`. (Note, you may need to set your `DISPLAY` variable to use the graphical version)

   b. Double-click on the icon Networking and Communications.

   c. Double-click on the icon Bootable Devices.

   d. Double-click on the icon DHCP Device Groups Booting From this Server.

      You should now see a screen that lists any DHCP groups already defined (there may not be any if DHCP is not already configured).

   e. To add the new group of IP addresses which you allocated in Step 1, click on the Action menu item and choose Add DHCP Group.

      This should bring up a form with parameters to fill in.

f. Now you will need to fill in the information on this screen. Some information may require additional research if you are not familiar with the terms or with your network.

Group Name:	This can be any name that isn't already defined as a DHCP group. For example: `group1`
Subnet Address:	This is the portion of an IP address that is not masked off by the subnet mask (see below). If you don't want to figure this out, then just enter one of the IP addresses in the range you picked along with the correct subnet mask and SAM will take care of the calculation. For example: `15.1.48.50`
Subnet Mask:	This depends on the "class" of your network, and basically determines how an IP address is separated into a network number and a host specific number. Press F1 in this field for more information. For example: `255.255.255.0`
Subnet Address Pool:	Press this button to select the range of IP addresses that you allocated in Step 1. A new screen will be displayed where you can enter the Start and End address. If there are addresses within the range that you picked that you do not want allocated via DHCP, you can use the Reserved Addresses button to specify those (or ranges of them).
Allow Any Device Class:	The SAM default is to allow any type of DHCP device to use the group of IP address you are configuring. This may be undesirable if you use a different method (or a different DHCP server or group) for managing systems such as PCs running Win95™ or NT™.

	If you want this range of addresses to be used only by HP-UX systems, then unselect this button, and enter the text: "`HewlettPackard.HP-UX`" in the text field provided. When using Ignite-UX to set up DHCP, it will set a class specific to the server, and will set the `dhcp_class_id` string to match. For more detail, see the *instl_adm*(4) man page.
Automatic Allocation to Bootp Clients:	Leave this option disabled. Enabling it will cause problems for bootp devices such as printers and terminals which rely only on their preconfigured server to respond to their boot request.
Accept New Clients:	Leave this option enabled.
Address Lease Time:	The lease time should be set sufficiently long so that if a client system is temporarily out of service (*off*) for a time, its lease will not expire too soon. Infinite leases will never expire and disable the IP-address reclamation features of DHCP. For example: 2 weeks.
Boot file name:	You can leave this field blank.
Additional Param-, eters:	There are many parameters that can be specified in this screen for such things as the default routers, time server, DNS server, and NIS domain. You can specify as much or as little as you like in this area.

Callback
Routines: None is necessary.

g. Once the parameters are all filled in, then press OK on the Add DHCP Group screen. SAM will then make the modifications to the `/etc/dhcptab file`.

h. You will now want to use the Action menu to Enable boot Server (if it is not already enabled).

5. Now, new systems that are installed with HP-UX 10.20 (or newer) or booted with a pre-installed 10.20 (or newer) version of HP-UX should contact this server to get an IP address lease and other network information provided by the server.

Details of the DHCP Services

- When doing a cold install of the HP-UX Operating system (version 10.20 or newer):

  The installation tools will broadcast out on the network for any available DHCP servers. The first server to respond will be chosen to provide the default network information that the user is presented with.

  In the network parameters screen during a Cold Install, you see the question: "Is this networking information only temporary?". The "`yes`" or "`no`" answer to this implies the following:

  - "`no`": Answering "`no`" (the default) means that if the IP address and hostname were leased from an DHCP server, then that lease will be retained after the install is done, so that the first boot of the system will attempt to renew the same lease.
  - "`yes`": Answering "`yes`" implies that the IP address and hostname lease should be returned to the server after the installation is complete. In this case, the first system boot will try to get a new lease. This is most useful when the system is being installed on a network that is different from its final destination.

    (This answer to the question can also be set in the configuration file with *instl_adm*(1M) using the keyword `is_netwk_info_temporary`).

  When automating system installations, the DHCP services allows systems to get networking information without the need to make a mapping in the Ignite-UX configuration files. (See *instl_adm*(1m) and *instl_adm*(4)).

- When a system boots for the first time (either after a Cold Install, or the first boot of a pre-loaded (Instant Ignition) system):

  The `auto_parms` tool, that lets you configure the system identity and basic configuration parameters, will invoke the `dhcpclient`, which will broadcast out to find a DHCP server. The server, in turn, provides a default set of networking parameters.

  In both cold install and a first boot of a pre-loaded system, if the user chooses not to use the IP address given by the DHCP server, the tool will inform the DHCP server that it can release the lease on it and give it to someone else.

- At each system boot:

  If a client system was initially set up using an IP address that was leased by a DHCP server, that client will check to ensure that the lease is still valid at each boot. In addition, the system will start a daemon process (`dhcpclient -m`) that will maintain and renew that lease while the system is running.

  If a system cannot contact the DHCP server from which it originally got the IP address lease, it will try to contact other DHCP servers in order to determine if it has been moved to a different network. If this is the case, the system will write a message to the `auto_parms` log file (`/etc/auto_parms.log`) indicating that it has detected a move to a new subnet and that it is attempting to request a new lease. If the new lease request is successful, new networking configuration values supplied by the DHCP server will automatically be applied.

Enabling DHCP on a System Not Initially Configured with DHCP

If a system has been set up without using DHCP, but you would like to start using it, the following steps may be taken.

NOTE

The system's hostname and IP address may change based on what the DHCP server assigns to it the first time it boots.

There are two methods for enabling DHCP on a system that is not currently using it:

1. The first method is to use SAM.

   a. As `root`, run `sam`.

   b. Double-click Networking and Communications.

   c. Double-click Network Interface Cards.

d. Highlight the card you wish to enable DHCP on, go to the Actions pull-down menu and select Configure.

e. Single click the Enable DHCP button.

NOTE If Enable DHCP appears grayed-out, you will need to use the alternate method for enabling DHCP described below.

f. Single click OK and exit SAM.

Your system will now begin using DHCP after the next reboot. Please note that all of the current networking parameters will be overridden with new values supplied by the DHCP server. *If for some reason the system cannot contact a DHCP server during the next reboot, it will continue to use its current networking parameters.*

If you suspect that your system had problem contacting the DHCP server, you can examine the `auto_parms` log file (`/etc/auto_parms.log`) to determine if the lease request was successful.

2. The second method for enabling DHCP over a particular network interface is use a text editor (such as `vi` or `emacs`) to edit the `/etc/rc.config.d/netconf` file. In the header of this file, you will find some brief instructions regarding a variable named `DHCP_ENABLE`. This variable is tied by an index number to an individual network interface. For example, in the following block:

```
INTERFACE_NAME[0]=lan0
IP_ADDRESS[0]=15.1.50.76
SUBNET_MASK[0]=255.255.248.0
BROADCAST_ADDRESS[0]=""
DHCP_ENABLE[0]=1
```

Here, the variables are instructing the system to use the `lan0` interface when attempting to contact a DHCP server. Similarly, if the lease request is successful, the above `IP_ADDRESS` variable would be updated to reflect the new value supplied by the DHCP server.

If the `DHCP_ENABLE` variable was set to `0` or if the variable did not exist, no DHCP operations would be attempted over the corresponding network interface.

As noted in the first method of enabling DHCP, if the variable `DHCP_ENABLE` does not exist for a particular interface, the SAM tool will display a grayed out DHCP enable button.

In this case, you will need to add the variable definition to a specific interface variable block. As an example, you would need to add `DHCP_ENABLE[2]=1` to the following interface variable block in order to enable DHCP on the `lan1` interface:

```
INTERFACE_NAME[2]=lan1
IP_ADDRESS[2]=15.1.50.89
SUBNET_MASK[2]=255.255.248.0
BROADCAST_ADDRESS[2]=""
```

The contents of `/etc/rc.config.d/netconf` for this definition block should now look like the following:

```
INTERFACE_NAME[2]=lan1
IP_ADDRESS[2]=15.1.50.89
SUBNET_MASK[2]=255.255.248.0
BROADCAST_ADDRESS[2]=""
DHCP_ENABLE[2]=1
```

Correspondingly, you could disable DHCP over a particular interface by setting the variable to "0".

Again, as in the first method, the system will only begin using DHCP after the next reboot.

Examples of DHCP Usage

To enable a DHCP server to respond only to specific clients, use the *instl_adm*(1M) tool to configure specific *dhcp_class_id*'s.

DHCP Examples

For example, your situation might fall into one of the following four categories:

1. The network has a DHCP server that manages the whole network, and the clients doing installations will be using the addresses from this server permanently. Then the Ignite-UX server setup should be:

   - Don't set up DHCP on Ignite-UX server In this case, enter the following in `INSTALLFS`, (using `instl_adm`).:

     ```
     is_network_info_temporary=false
     ```

2. The network has a DHCP server, but the user would like to manage a small group of temporary IP addresses, just for use in doing installations, and the clients will get reassigned new addresses when deployed.

   a. Set up DHCP on Ignite-UX server

b. Use a unique *dhcp_class_id* in both the dhcptab and the 8K config file. This *dhpc_class_id* could have the server's hostname init. In this case, enter the following in `INSTALLFS`:

```
is_network_info_temporary=true
```

c. *And* enter your class i.d. as the following in the dhcptab and `INSTALLFS`:

dhcp_class_id

3. The user would like to setup the Ignite-UX server as a "departmental" DHCP server, in which case the IP address leases are permanent, but they will be isolated to the department's DHCP server.

a. Set up DHCP on the Ignite-UX server.

b. Enter the following:

```
Is_network_info_temporary=false
```

c. *And* enter your class i.d. as the following in the dhcptab and `INSTALLFS`:

dhcp_class_id

Use a unique *dhcp_class_id* in both the dhcptab and the `INSTALLFS` file. This *dhcp_class_id* could have the server's hostname in it.

4. You want to start using DHCP with this server managing the whole network.

- Refer to the preceding sections and `/usr/sbin/sam`, and its manpage (*sam*(1M)) for this procedure.

If you want to set up the Ignite-UX system to be a DHCP server, the default setting will give you Item 2. Otherwise, you can toggle the `is_network_info_temporary` keyword to select Item 3.

For more information, see the ink *setup_server*(1M) and *bootpd*(1M) man pages.

Using bootptab as an Alternative to DHCP

If you want to have more control over the allocation of IP addresses and their mappings to your clients, you can configure entries in `/etc/bootptab` for each client. Because BOOTP is a subset of DHCP, the client's request for a DHCP server will be satisfied with the BOOTP response.

If you also specify a boot-file (bf) of `/opt/ignite/boot/boot_lif` in the bootptab entries, then you do not need any additional entries in `/etc/opt/ignite/inst_boottab`. In this case, you would then boot the clients using `boot lan` instead of `boot lan install`. Only clients known in `/etc/bootptab` would be able to boot if you do not use `instl_boottab`.

A minimal example `/etc/bootptab` entry would be like the entry below (with your own hostname, IP address, hardware address, and subnet mask). Other networking information may also be specified here, or can be specified via `instl_adm`. The IP address of the IUX server must be specified with the `instl_adm -t` option.

```
sysname:\
  hn:\
  vm=rfc1048:\
  ht=ether:\
  ha=080009352575:\
  ip=15.1.51.82:\
  sm=255.255.248.0:\
  bf=/opt/ignite/boot/boot_lif
```

Background Information on DHCP Design

The DHCP protocol is implemented as extensions to the BOOTP protocol, and in fact the HP-UX DHCP server daemon and the BOOTP daemon are the same (*bootpd*(1M)). This daemon reads two configuration files: `/etc/bootptab` and `/etc/dhcptab`.

The mapping of systems to IP addresses and lease time information is kept in the DHCP database file `/etc/dhcpdb`. Some amount of management of this database is provided by the *dhcptools*(1M) command.

On the client side, a command called `/usr/lbin/dhcpclient` is used to contact the server to get an IP address lease. This command has the ability to broadcast out onto the network prior to the network interface being enabled.

The `dhcpclient` also serves as a daemon process that sleeps until the time that it needs to renew the IP address lease, at which time it will re-contact the server where it got the original lease in order to extend it.

The `dhcpclient` command is not intended to be run by users directly, and is called by other tools during system bootup and installation.

For More Information

Refer to the *auto_parms*(1M) man page and the *dhcpdb2conf*(1M) man page for more information regarding the networking parameters which DHCP can supply.

More information on DHCP in general can be found in the following locations:

- Man pages:

  bootpd(1m)
  dhcptools(1M)
  auto_parms(1M)
  dhcpdb2conf(1M)

- Worldwide Web information site:

  `http://web.syr.edu/~jmwobus/comfaqs/dhcp.faq.html`

B Using Configuration Files

Introduction

The Ignite-UX central data store is called a config file. A config file can be thought of as a recipe for how to construct a target system. The config file is expressed in a language designed for this purpose. The language is fully defined in the instl_adm(4) manual page. The syntax is human-readable; config files may be created directly by a user or via the Ignite-UX graphical user interface. The config file language is much like many programming languages in that it supports the use of variables and conditional expressions.

Most of the important elements which make up an installed system can be described in the config file, as follows:

- Disk and file system layout.
- Software to be installed.
- The target system hardware identity and network configuration.
- Kernel modifications (additional drivers or tunable parameter settings).
- User-defined scripts which will run at various points in the installation process to further customize the target machine.

Types of Config Files

For maintenance convenience, the configuration information is split into several different config files. These config files fall into the following basic classes:

- Default disk and file system layout.

  Because the capabilities of each operating system release differ somewhat, HP supplies a different set of defaults for each release. These are located in `/opt/ignite/data/ Rel_`*release*`/config`, where release is the result of the `uname -r` command. For example, `/opt/ignite/data/Rel_B.10.20/config` contains the default disk layouts for the HP-UX 10.20 release.

- Software description of a single SD depot.

Config files which describe software available from SD depots can be automatically generated via an Ignite-UX tool called *make_config*(1m). This tool produces one config file per SD depot. Software description config files are located in `/var/opt/ignite/data/Rel_`*release*`/*`.

- Software description of an archive.

  Config files can be hand built to allow access to non-SD archives (templates are provided with the Ignite-UX product in `/opt/ignite/data/examples/` to give you a good starting point). Archives may be in either tar or cpio format. Archive software description config files are also located in `/var/opt/ignite/data/Rel_`*release*`/*`.

- Local configuration overrides that apply globally.

  It is often convenient to specify defaults which will be applied to every machine in- stalled from a particular server. For example, you might want to specify the same NIS domain for all machines. Such overrides should be placed in the `/var/opt/ignite/config.local` file.

- Boot control parameters and networking information

  It is possible to specify defaults for attributes like the IP address of the Ignite-UX server and whether to run a UI to install a new target. These can be specified in the first 8 KB of the install file system (`/opt/ignite/boot/INSTALLFS`). This information is added or deleted with the *instl_adm*(1m) command.

- Client-specific configuration files.

  Each client which is to be installed has a configuration file which is peculiar to it located at `/var/opt/ignite/clients/0x`*LLA*`/config`, where LLA is the link-level address of the client. This file is typically created as a result of running the user interface to specify the target machine configuration.

  This file usually refers to other config files mentioned above. It also contains specific directives to override what may have been defined in the other files. For example, you may wish to customize the disk layout beyond what the defaults in `/opt/ignite/data/Rel_`*release*`/config` allow. The customizations end up in `/var/opt/ignite/clients/0x`*LLA*`/config`.

- Named configurations created by saving a configuration via the UI

You can create your own default configurations via the UI and save them for future use. For example, you might have a large number of users with similar machines who all run CAD tools. You could build a configuration which matches what they need and save it in a configuration called "CAD System". When you need to install a new system of this type, you can select "CAD System" from the UI and you're done (or you could customize it further using "CAD System" as a starting point). Saved configurations are located in `/var/opt/ignite/saved_cfgs/*`.

Other Customized Building Blocks

You can also build your own config files to specify a particular building block you are interested in, and then combine them in arbitrary ways. These building block config files should be located in `/var/opt/ignite/data/Rel_{release}/*`.

Combining Config Files Via INDEX Entries

The grouping of config files into useful configurations is accomplished in the INDEX file (`/var/opt/ignite/ INDEX`). This file contains a list of valid configurations, each of which is made up of one or more config files. The list of these configurations is presented in the UI as the basic starting point. For example, the INDEX file might contain the following:

```
 cfg "HP-UX B.10.20 Default"  {

              description "This selection supplies the default
             system configuration that HP
             supplies for the B.10.20
             release."

               "/opt/ignite/data/Rel_B.10.20/config"
               "/var/opt/ignite/data/Rel_B.10.20/core_700_cfg"
               "/var/opt/ignite/data/Rel_B.10.20/core_800_cfg"
               "/var/opt/ignite/data/Rel_B.10.20/apps_700_cfg"
               "/var/opt/ignite/data/Rel_B.10.20/apps_800_cfg"
               "/var/opt/ignite/data/Rel_B.10.20/patches_700_cfg"
               "/var/opt/ignite/data/Rel_B.10.20/patches_800_cfg"
               "/var/opt/ignite/config.local"
    }

    cfg "CAD System - 10.10" {
      description "This selection is the typical CAD system insta
llation
        for HP-UX B.10.10"
       "/opt/ignite/data/Rel_B.10.10/config"
       "/var/opt/ignite/data/Rel_B.10.10/core_700_archive_cfg"
       "/var/opt/ignite/data/Rel_B.10.10/apps_700_cfg"
       "/var/opt/ignite/data/Rel_B.10.10/patches_700_cfg"
       "/var/opt/ignite/config.local"
    } = TRUE
```

With this INDEX file, the UI would present two different configurations: "HP-UX B.10.20 Default" and "CAD System - 10.10". The "CAD System - 10.10" configuration is the default (it is marked TRUE). Once you choose one of these base configurations, you can do further customizations with the UI if necessary, or just accept the defaults the configuration provided and do the install immediately.

If you selected "CAD System - 10.10", you would get the combination of the five config files listed for that clause. The order of the config files is significant; attributes specified in a later config file can override the same attributes specified in an earlier config file. There are also two config files which are implicitly used every time. Any information stored in the first 8 KB of /opt/ignite/boot/INSTALLFS is implicitly appended to each configuration. The client-specific configuration file (`/var/opt/ignite/clients/0x{LLA}/config`) is implicitly added as the last config file for each configuration.

A default cfg clause for each release is shipped as part of the Ignite-UX product. Additional cfg clauses are added when the following apply:

- You save a named configuration from the graphical user interface via the Save As button.
- You wish to create a configuration by modifying the INDEX file directly

Examples of Config files

This section shows a few sample config files to give you an idea of their look and capabilities. It does not pretend to fully cover the subject. See the *instl_adm*(4) manual page for a complete description.

The following example shows how a disk might be defined. Here, the disk is located at hardware address 2/0/1.6.0 and does not use LVM. The disk contains the "/" file system and a swap area. The swap area takes up 64 MB, and the file system takes up whatever space is left over:

```
partitioned_disk {
   physical_volume disk[2/0/1.6.0] {
   }
   fs_partition {
    mount_point ="/"
    usage=HFS
    size=remaining
    file_length=long
   }
   swap_partition {
    usage=SWAP
    size=64Mb
   }
  }
```

In this example, two disks are put together to form a single LVM volume group. Two file systems are defined; both are striped across both disks. The first file system ("/apps1") is sized by calculating the amount of space required by the software which is to be loaded, and then adding a 30% free space cushion. The second file system ("/apps2") gets all of the remaining space on the disks.

```
volume_group "appsvol" {
   physical_volume disk[2/0/1.5.0] {
   }
   physical_volume disk[2/0/1.4.0] {
   }
   logical_volume "apps1" {
    mount_point= "/apps1"
    usage=VxFS
    size=30%free
    minfree=5
    stripes=2
   }
   logical_volume "apps2" {
    mount_point= "/apps2"
    usage=VxFS
    size=remaining
    minfree=5
    stripes=2
   }
  }
```

This example defines a few of the network parameters which will be assigned to the machine after it has been installed:

```
final system_name = "acorn1"
  final ip_addr["lan0"] = "15.99.45.123"
  final netmask["lan0"] = "255.255.248.0"
  final nis_domain = "nis1"
  final route_gateway[0] = "15.99.45.1"
```

This example defines a single SD depot from which software can be installed. Two different pieces of software are defined for the SD depot. Each can be selected independently for installation. The impacts lines tell Ignite-UX how much space this software requires in a given directory. This information is used to size the file systems correctly. Another interesting construct is sw_category. This allows you to group the software so that the user interface can present it in chunks which make sense to you. Since this example references an SD depot, it would have been created by the make_config command:

```
sw_source "ee_apps_depot" {
   description = "Electrical Engineering Application"
   source_format = SD
   source_type = "NET"
   sd_server = "15.23.45.6"
   sd_depot_dir = "/var/opt/ignite/depots/Rel_B.10.20/ee_apps"
  }
```

```
sw_category "Applications" {
 description = "User Applications"
}
sw_sel "EE CAD Package" {
 sw_source = "ee_apps_depot"
 sw_category = "Applications"
 sd_software_list = "EECad,r=1.2,a=HP-UX_B.10.20_700"
 impacts = "/var" 90524Kb
 impacts = "/sbin" 1248Kb
}
sw_sel "EE Routing Package" {
 sw_source = "ee_apps_depot"
 sw_category = "Applications"
 sd_software_list = "EERoute,r=2.4,a=HP-UX_B.10.20_700"
 impacts = "/usr" 12568Kb
 impacts = "/var" 26788Kb
}
```

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