

# Getting Started Guide

## HP x2000 Linux Workstation



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## Preface

This guide describes how to set-up and use your HP x2000 Linux Workstations (herein referred to as “Linux Workstation” or simply “Workstation”). These Workstations feature the **Red Hat** Linux Operating System, pre-installed by Hewlett-Packard.

**Red Hat** Linux is a popular open source operating system that gives you the ability to develop custom tools and applications or select from a growing number of commercial software and freeware solutions.

## Important Warnings

### Avoiding Electrical Shocks

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#### WARNING

**To avoid electrical shock, do not open the power supply. There are no user-serviceable parts inside.**

**To avoid electrical shock and harm to your eyes by laser light, do not open the laser module. The laser module should be serviced by service personnel only. Do not attempt to make any adjustment to the laser unit. Refer to the label on the CD-ROM for power requirements and wavelength. This product is a class I laser product.**

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### Removing and Replacing the Cover

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#### WARNING

**For your safety, never remove the Workstation cover without first disconnecting the power cord from the power outlet and removing any connection to a telecommunications network. If a Power Protection Device is fitted to your Workstation, you must shut down your computer using the on/off switch, then remove the power cord before removing the Workstation’s cover. Remove the Power Protection Device cables before any servicing operation. Always replace the cover before switching the**

**Workstation on again.**

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## **Safety Information**

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### **WARNING**

**There is a danger of explosion if the battery is incorrectly installed. For your safety, never attempt to recharge, disassemble, or burn an old battery. Replace the battery with the same or equivalent type, as recommended by the manufacturer.**

**The battery in this Workstation is a lithium battery that does not contain any heavy metals. However, to protect the environment, do not dispose of batteries in household waste. Return used batteries either to the shop from which you bought them, to the dealer from whom you purchased your Workstation, or to HP so that they can either be recycled or disposed of in the correct way. Returned batteries will be accepted free of charge.**

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### **If You Have a Modem**

- Do not attempt to connect this product to the phone line during a lightning storm. Never install telephone jacks in wet locations unless the telephone line has been disconnected at the network interface. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Use caution when installing or modifying telephone lines. Avoid using a telephone (other than a cordless type) during an lightning storm. There may be a risk from lightning.
- Never touch or remove the communications board without first removing the connection to the telephone network.
- Use minimum N° 26 AWG wire for telephone cable.

### **WARNING**

**Some parts inside the computer may be hot, wait for them to cool down before touching them.**

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## Avoiding Static Electricity

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**CAUTION**

Static electricity can damage electronic components. Turn OFF all equipment before installing an accessory card. Don't let your clothes touch the accessory card. To equalize the static electricity, rest the accessory card bag on top of the Workstation while you are removing the card from the bag. Handle the card as little as possible and with care.

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## Information on Ergonomic Issues

It is strongly recommended that you read the ergonomics information, available in the *Working In Comfort* section of this manual, before using your Workstation.

You can access more extensive ergonomics information from your Workstation by clicking the **Start** button, and then **Programs →HP Info→ Working in Comfort**, or by connecting to HP's web site [www.hp.com/ergo](http://www.hp.com/ergo).

## Recycling your Workstation

HP has a strong commitment toward the environment. Your HP Workstation has been designed to respect the environment as much as possible. HP can also take back your old Workstation for recycling when it reaches the end of its useful life. HP has a product take-back program in several countries. The collected equipment is sent to one of HP's recycling facilities in Europe or the USA. As many parts as possible are reused. The remainder is recycled. Special care is taken for batteries and other potential toxic substances, these are reduced into non-harmful components through special chemical processes. If you require more details about HP's product take-back program, contact your local dealer or your nearest HP Sales Office.

## Finding Information and Help

**Table 1 Information Roadmap**

<b>If you want...</b>	<b>Refer to...</b>
To set up your computer	<ul style="list-style-type: none"><li>• <i>x2000 Installation Poster</i> —shipped with the Workstation, basic information only.</li><li>• This manual — basic information only.</li></ul>
To troubleshoot your Workstation, install accessories, find part numbers.	<ul style="list-style-type: none"><li>• This manual — basic information only</li><li>• <i>x2000 Accessory Installation Guide</i> - shipped with customer installed accessories only.</li><li>• <i>x2000 Technical Reference/Troubleshooting Manual</i>- complete information (web accessible, see below) including: system board switches, IRQs, DMAs, and I/O Addresses, power consumption and acoustic noise emission test configurations, how to configure your network connection, parts installation and troubleshooting.</li><li>• <i>x2000 Service Handbook</i> - part numbers and exploded views (web accessible, see below)</li></ul>
Support information	<b>www.hp.com/workstations/support</b> — downloadable documentation, drivers & utilities, service & support options.
Warranty information	This manual. See “Hardware Warranty” or “HP Software Limited Warranty” in Appendix A.

### Downloadable Documentation from HP’s Web Site

The HP Workstations web site ([www.hp.com/workstations/support](http://www.hp.com/workstations/support)) contains a wide range of free information, including downloadable documentation, service and support options, and the latest versions of drivers and utilities.

To view and print the above guides, you must have Adobe’s Acrobat Reader installed on your Workstation. You can download it free of charge from the Adobe Systems Incorporated web site: [www.adobe.com](http://www.adobe.com).

## HP x2000 Technical Characteristics

Characteristics	HP x2000 Workstation
Weight (configuration with one CD-ROM drive, excluding keyboard and display)	14.4 kg (31.68 pounds)
Dimensions	Width: 21.0cm (8.26in.) Height: 49.0cm (19.29in.) Depth: 47.0cm (18.50in.)
Footprint	0.09 m2 (1.06 sq ft).
Acoustic noise emission (ISO 7779)	Sound power level
Operating (idle):	LwA <=40.5 dBA
Power Supply	
Input voltage (input current, max.)	100 - 127 VAC, 5.5 A 200 - 250 VAC, 2.5 A
Input frequency:	50/60Hz
Maximum output power:	492 W
Power consumption	25 W
Storage Humidity	8% to 85% (relative)
Operating Temperature	+10 °C to +35 °C (+40 °F to +95 °F).

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### NOTE

Operating temperature and humidity ranges may vary depending on the mass storage devices installed. High humidity levels can cause improper operation of disk drives. Low humidity can aggravate static electricity problems and cause excessive wear of the disk surface.

Power consumption and acoustics figures are valid for a standard configuration. For configurations, go to: [www.hp.com/workstations](http://www.hp.com/workstations)

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### NOTE

When the computer is turned off with the power button on the front panel, the power consumption falls below 3W, but it is not zero. This on/off method extends the life of the power supply. To reach zero power consumption in "off" mode, either unplug the power outlet or use a power distribution unit with a switch. When the power consumption is zero for an extended period of time, the life of the internal battery is shortened.

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# 1

## **Setting Up and Using Your Linux Workstation**

This *Guide* provides you with essential information on initial setup, basic troubleshooting and warranty for your x2000 Linux Workstation.

## Setting Up Your x2000 Linux Workstation

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### WARNING

**If you have any doubt that you can lift the Workstation and monitor safely, do not try to move them without help.**

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1. When you receive your Workstation, verify that you have all of the components as shipped.
2. Place the Workstation in an area with easily accessible power outlets and enough space for the keyboard, mouse, and any other accessories.
3. Position the Workstation so that its rear connectors are easily accessible.

### Installation Tools

No tools are required to set up your Workstation. However, if you plan to install or replace an accessory inside your Workstation, you will need a T-15 Torx screwdriver and a flat-blade screwdriver.

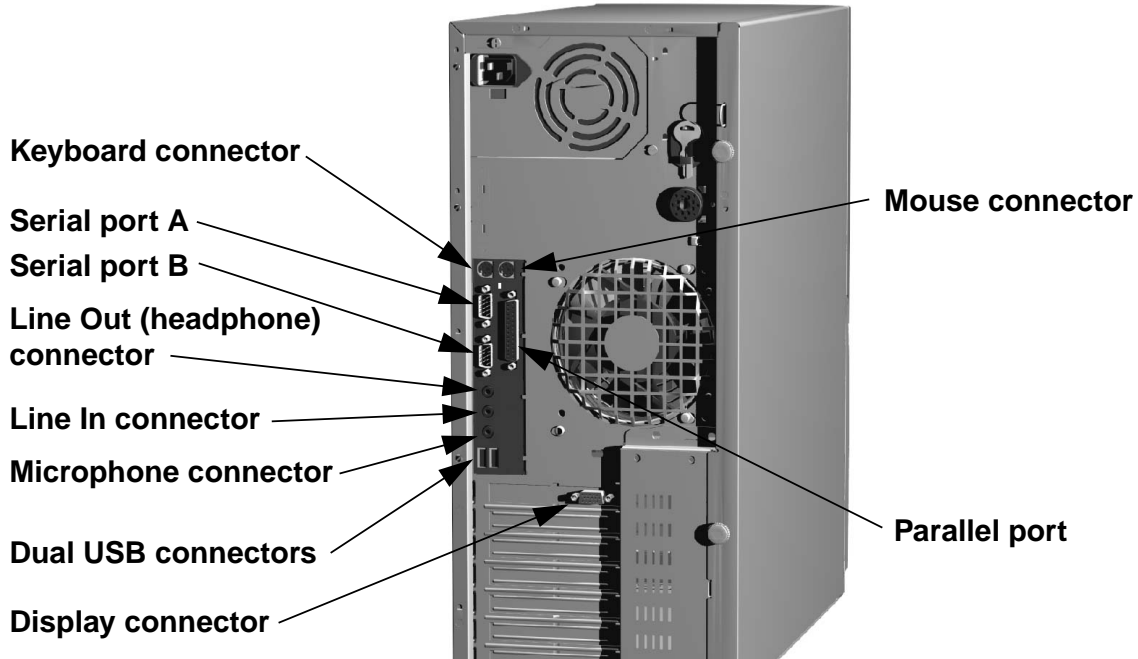
### Connecting Devices

Before connecting any cords or cables to your Workstation, please read the *Warning Notices* in the Preface of this manual.

If you purchased a graphics card that was not installed in your Workstation at the factory, you must install that card now. To install, refer to the instructions that came with the card or see the *x2000 Technical Reference/Troubleshooting Guide* available at: <http://www.hp.com/workstations/support>.

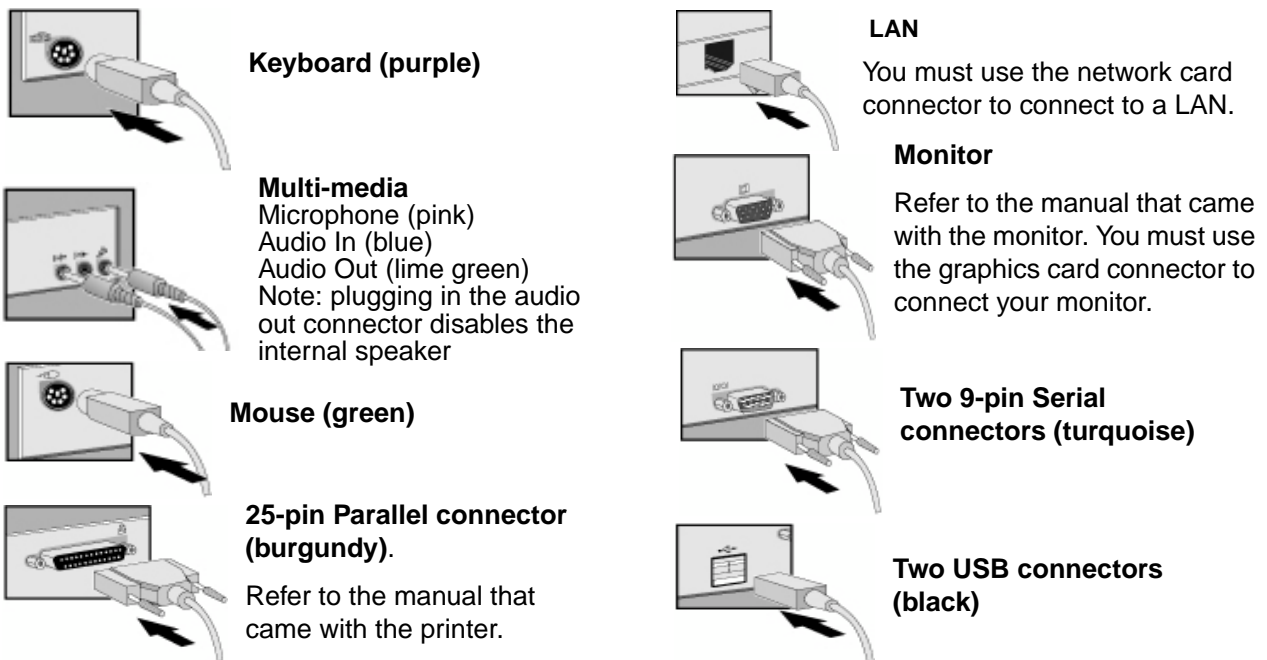


**Figure 1-1**      **Location of Rear Panel Connectors**



Match the color-codes of the connectors. *The connectors are shaped to go in one way only.* Figure 1-2 shows typical connectors.

**Figure 1-2**      **Typical Connectors**



## Connecting the Power Cord

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**WARNING**

**For your safety always connect equipment to a grounded wall outlet. Always use a power cord with a properly grounded plug, such as the one provided with the equipment, or one in compliance with your national safety standards. This equipment can be disconnected from the power by removing the power cord from the power outlet. This means the equipment must be located close to an easily accessible power outlet.**

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1. Connect the power cords to the rear of the monitor and the computer. *(The connectors are shaped to go in one way only.)*
2. Connect the monitor's power cord and the computer's power cord to a grounded outlet.

## Connecting Multimedia Accessories (if supplied)

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**WARNING**

**When you start your system, the speaker and headphone volume is set to maximum. Always turn the volume down before using the headphones or speakers. This avoids discomfort from unexpected noise or static. Listening to loud sounds for prolonged periods of time may permanently damage your hearing. Before putting on headphones, place them around your neck and turn the volume down. When you put the headphones on, slowly increase the volume until you find a comfortable listening level. When you are able to hear comfortably and clearly, without distortion, leave the volume in that position.**

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1. Connect the HP multimedia keyboard to the Workstation. *The connectors are color-coded for easy matching.*
2. Connect the microphone and headphones (or amplified speakers) to the keyboard.

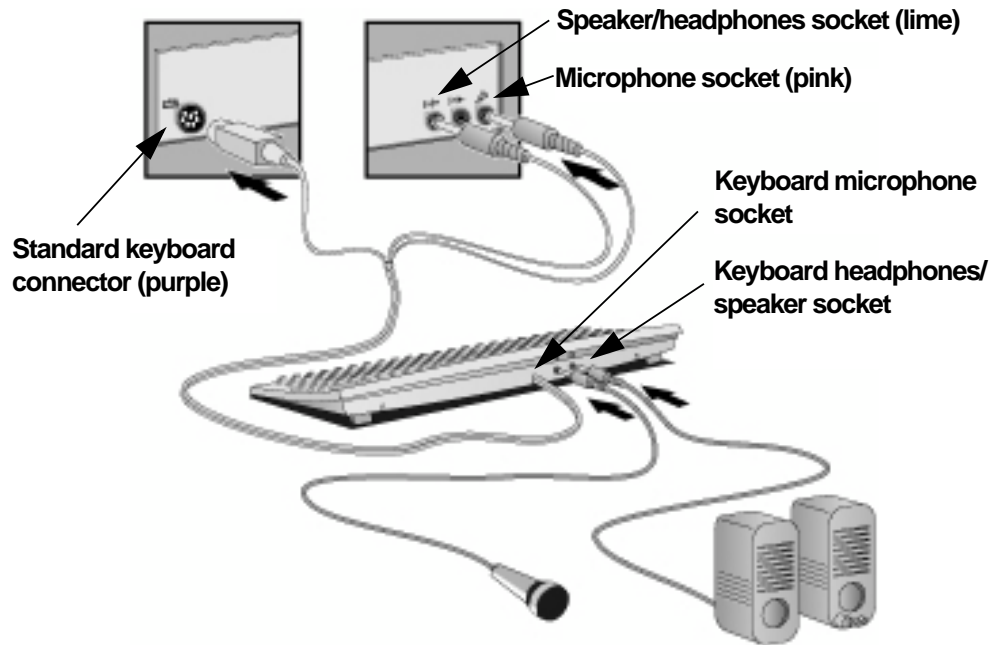
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**NOTE**

Plugging in the speaker/headphone (lime green) connector will disable the Workstation's internal speaker. If you want audio

capability, either plug-in the headphones or speakers or disconnect the speaker/headphone connector (lime green) and use the Workstation's internal speaker.

**Figure 1-3**      **Connecting Multimedia Accessories**



**NOTE**

Connect devices such as a Smart Card Reader to both a serial connector and a mouse port. Depending on your model, do not use a keyboard port as it does not provide enough power.

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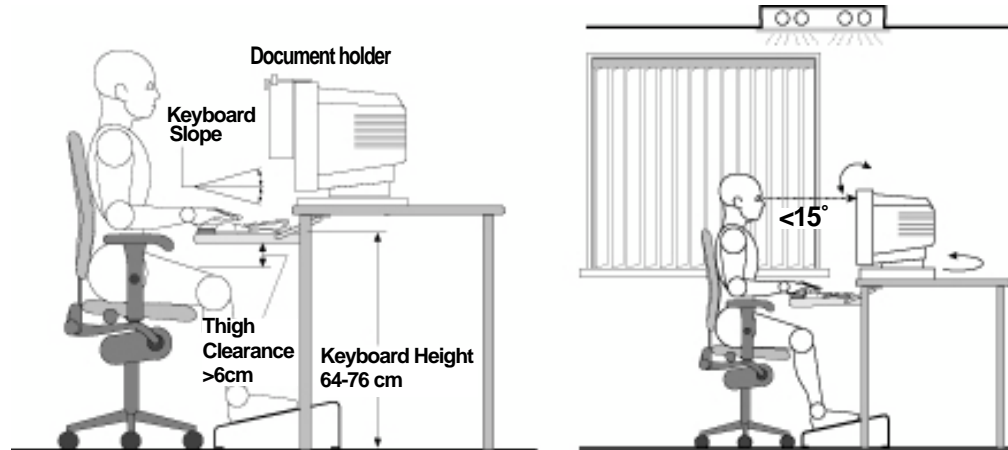
## Working In Comfort and Safety

### Preparing Your Work Environment

When using HP computing equipment, it is important that your work environment contributes to your comfort and productivity:

Figure 1-4

Your Work Environment



- *Work Surface Height.* Your work surface should be height adjustable. To ensure that your work surface is at the correct height, first adjust the height of your chair so that your feet are firmly on the floor or on an angled foot rest, then adjust the work surface height until your forearms are parallel to the floor when you have your fingers on the keyboard or other input devices.
- *Chair.* Your chair should provide a comfortable sitting position including features such as a height and tilt adjustment feature, curved seat edge, a stable base (for example, five legs and castors, adjustable back support, a freely rotating swivel, fully adjustable padded arm rests).
- *Monitor.* Place your monitor so that the top of the screen is at, or slightly below, eye level (up to 15 degrees).
- *Work Surface Arrangement.* Make sure that all elements of your HP Workstation system for example, monitor, document holder, keyboard, mice and other input devices, and headphones and speakers- are optimally arranged and adjusted to meet your personal requirements. For example, if you are primarily using the keyboard, place it directly in front of you, not to the side. If your work involves extensive use of a mouse or other pointing device, place that device directly in front of your left or right arm. If you are using both a mouse and keyboard, place them both at the same work surface height and close together. If a palm rest is used, the height should be flush with the front edge of the keyboard. Other items, such as your telephone or notepad, should also be considered.

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**CAUTION**

Various aspects of using mice, keyboards and other input devices may increase your risk of discomfort or injury. Optimize your comfort and safety by positioning these devices properly.

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### Your Work Posture

Sitting in one position for long periods can be uncomfortable. To minimize the potential risk for physical discomfort or injury, it's important that you maintain a proper posture.

- *Head.* When viewing your monitor, your head should not be tilted more than 15 degrees forward, and do not turn your head toward either side.
- *Back.* While sitting at your work surface, make sure your back is supported by the chair's backrest in an erect position or angled slightly backwards.
- *Arms.* Make sure your arms and elbows are relaxed and loose, with your upper arms perpendicular to the floor or tilted downward not more than 15 degrees. Keep your forearms and hands approximately parallel with the floor with elbows bent between 70 and 115 degrees. Keep your elbows close to your sides (less than 20 degrees away from your body).
- *Hands, Wrists, Forearms.* Try to keep your hands wrists and forearms in a relaxed neutral position when using your mouse keyboard or other input devices. For example, while using your keyboard and mouse, rest your forearms (flat) on your desktop.
- *Legs.* Your thighs should be horizontal or angled slightly downward. Your lower legs should be near a right angle to your thighs. Make sure there is sufficient room under the work surface for your legs.
- *Feet.* If after adjusting your chair you cannot rest your feet comfortably on the floor, use a footrest, preferably one that can be adjusted in height and angle.

### Additional Ergonomic Issues

- Look away from the screen from time-to-time to help reduce eyestrain. Focus on distant objects briefly, and blink periodically to lubricate your eyes. You also should have your eyes checked on a regular basis and ensure your eyeglass prescription is suitable for working on a computer monitor.
- Remember to occasionally shift position and move your body. Keeping your body in one position for long periods is unnatural and stressful. When prolonged work is required, take frequent short breaks. As a rule of thumb, a five or ten minute break every hour is a good idea. Short frequent breaks are more beneficial than longer less frequent breaks. Data show that people who work for long periods of time without a break may be more prone to ergonomic injury.
- Changing tasks frequently will help prevent muscle stiffness. Examples: alternating between keyboarding, reading, writing, filing, and moving around in your work environment, helps you maintain a relaxed posture. Occasionally stretch the muscles in your hands, arms, shoulders, neck and back. You should stretch at least as often as you take brief task breaks — at

## Setting Up and Using Your Linux Workstation

### Working In Comfort and Safety

least once every hour.

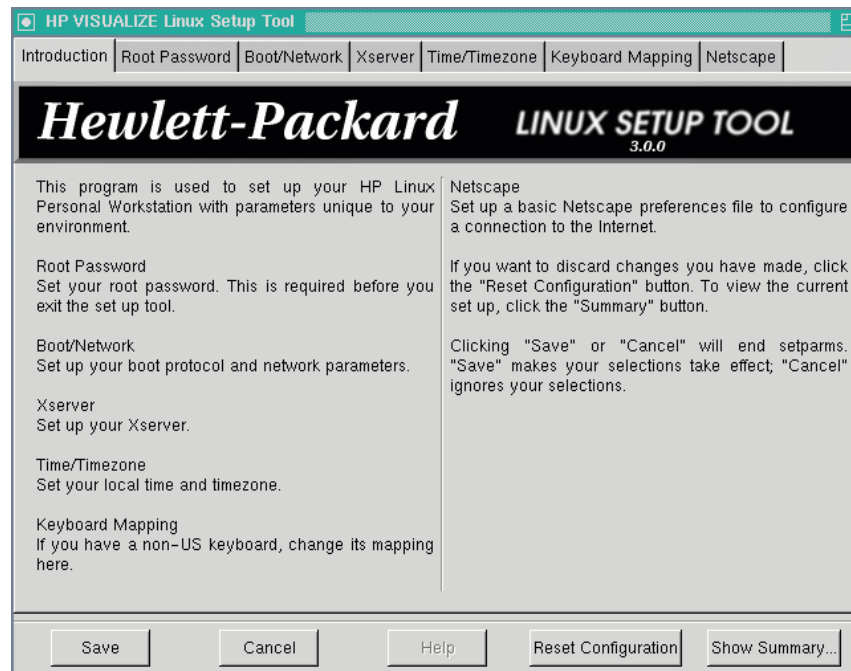
- Discomfort may be alleviated by using alternative ergonomic designs and accessories such as ergonomically personalized chairs, palm rests, keyboard trays, alternative input devices, prescription eyeglasses, anti-glare screens, and more. Seek additional information from the sources available to you, including your employer, doctor, local office supply store, and the *Information Sources* listed in the online version of *Working in Comfort*, preloaded on the hard disk of your HP computing equipment or available on the HP web site: [www.hp.com/ergo](http://www.hp.com/ergo)

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## Starting and Stopping Your Linux Workstation

### Starting Your Workstation for the First Time

Your Linux Workstation has pre-installed Red Hat Linux and HP software. It is initialized the first time you start the Workstation. The software initialization process takes a few minutes. Upon start-up, you will see the screen depicted below. Fill-in the information requested.



For more information on system start-up, configuration and recovery see the chapter "Linux System Setup and Recovery".

## Initializing Your Software

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**NOTE**

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Do NOT switch OFF the Workstation while the software is being initialized—this could cause unexpected results.

To initialize your software:

1. Turn on the display first, and then turn on the Linux Workstation.
2. When the Workstation is switched on, it performs a Power-On-Self-Test (POST). Press **Esc** if you want to view the POST details in the HP Summary Screen.

If there is an error in the POST, the error will automatically be displayed. For details, see the section “If a POST Error Message is Displayed” in the chapter “Troubleshooting Your Linux Workstation.”

3. If you have set a password in the Workstation's *Set-up* program, the password prompt displays after the POST has completed. If the Password prompt is displayed, type your password and press **Enter** to be able to use the Workstation.

## Stopping Your Linux Workstation

To stop the Workstation (when running an operating system), make sure that you have exited all application programs and then use the operating system's Shutdown command. Then press the On/Off button on the control panel. If you stop the Workstation without following these instructions, data loss or a damaged file system may result.



## Setting Hardware Passwords in the HP Setup Program

You can set hardware passwords to provide different levels of protection for your Workstation: the Administrator password and the User password. You set these passwords using the **Security** menu in the Setup program.

The Administrator can access and change all settings in the Setup program, while the User can only access and modify certain items in the Main menu.

### To Set a Password

1. Start the Setup program.
2. Select the **Security** menu.
3. Select the **Administrator** or **User** password submenu.
4. Choose the **Set Administrator** or **User Password** setup item. You must enter your password twice.
5. To save your changes and exit the Setup program, press **Esc** or select **Exit Menu**, then **Exit Saving Changes**.

To remove the password, follow the same procedure as to set a password. You will be asked to enter the existing password first. Then, for the new password, leave the password field blank and press **Enter**. To confirm your choice, press **Enter** a second time.

## **If You Forget Your User Password**

1. Switch off the Workstation.
2. Re-start the Workstation. If you are prompted for a password, enter the Administration password.
3. When **Press F2 to Enter Setup** appears, press the **F2** key.
4. Enter the Administrator password to access the Setup program.
5. Go to the **Security** menu.
6. Go to the **Set User Password** field and set a new User Password. This will replace the old password which you had forgotten.
7. Press **Esc** or select **Exit Menu** to save the new password. and exit Setup.

## Configuring Your Workstation

Use the HP Setup program to configure your Workstation (for example: setting up hardware system and user passwords, installing and upgrading mass storage devices), and to solve configuration problems.

It is recommended that you take note of any changes to the system setup.

### Starting the HP Setup Program

1. Turn on the display and then the Workstation. If the Workstation is already turned on, save your data and exit all programs, then restart the Workstation.
2. Press **F2** while **F2 Setup** is displayed at the bottom of the screen. If you fail to press **F2** in time and the start-up process continues, you will need to restart your Workstation and go through the POST again so you can press **F2**.

The opening screen of the Workstation's Setup program is displayed. The Main Menu presents a list of fields, for example, the installed BIOS version or Date and Time.

A band along the top of the screen offers a list of menus. Select a menu by using either the left or right arrow keys.

### Main Menu

The Main Menu presents a list of fields, including:

- The installed BIOS version
- Reset Configuration Data
- System Time
- System Date
- Key Click
- Key Auto-Repeat Speed
- Delay Before Auto-Repeat
- NumLock at Power-on

By default, "Reset Configuration Data" is set to **No**. Select **Yes** to clear the system configuration data and return to the default settings.

## **Advanced Menu**

The Advanced Menu offers a list of sub-menus allowing you to:

- Configure memory caching, USB ports, Integrated I/O Ports and Integrated Audio Devices
- Enable floppy disk drives, IDE devices (Primary and Secondary)
- Workstation Devices.

## **Security Menu**

Sub-menus are presented for changing the characteristics and values of the System Administrator Password, User Password, Power-on Password, Fixed Disk Boot Sector and for preventing unauthorized start-up from the Floppy, CD-ROM and IDE-HDD drives (refer to “Setting Hardware Passwords in the HP Setup Program” on page 25).

## **Boot Menu**

Select the order of the devices from which you want the BIOS to attempt to boot the operating system. The QuickBoot mode option allows the system to skip certain tests while booting. This decreases the time needed to boot the system.

## **Power Menu**

The Network Interface option enables the system to return to normal speed when a specific command is received by the network interface.

Setup changes system behavior by modifying the power-on initialization parameters. Setting incorrect values may cause system boot failure. Should this occur, press **F9** to load the Setup default values to recover.

## Viewing Your Workstation Configuration

The Summary Screen gives you a summary of the current configuration of your Workstation (for example: BIOS version, CPU speed, memory module size, and installed mass storage devices).

You should check the configuration of your Workstation when you first use it and each time after you install, remove, or upgrade accessories. To check the configuration:

1. Turn on the display and then the Workstation. If the Workstation is already turned on, save your data and exit all programs, then restart the Workstation. Consult your operating system documentation for any special instructions concerning turning off and restarting your Workstation.
2. When the start-up logo appears on your display, press **Esc**. This takes you to the Summary Screen. (To go immediately into the Setup program, and bypass the Summary Screen, press **F2** instead of **Esc**). The Summary Screen is displayed for only a short time. Press the **Pause/Break** key on the keyboard to retain the Summary Screen until another key is pressed.

## Using Power Management

Power management enables you to reduce the Workstation's overall power consumption by slowing down the Workstation's activity when it is idle. For more information on power consumption data, refer to the *x2000 Technical Reference* on HP's web site at: [www.hp.com/workstations/support](http://www.hp.com/workstations/support).

Operating systems differ in their power management capabilities. Refer to your operating system documentation for more information.

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## Software and Driver Availability

In the "Software and Drivers" section of the HP support site [www.hp.com/workstations/support](http://www.hp.com/workstations/support), you can download the latest drivers and BIOS for your Workstation.

You can also register to obtain information on new driver availability automatically.

Contact your dealer for an up-to-date list of supported devices or check the HP web site: [www.hp.com/workstations/support](http://www.hp.com/workstations/support).

## Additional System Information and Help

hp workstations

- search
- contact hp

welcome

- getting started
- hp support
- red hat information
- hp linux graphics
- tell us what you think

Click here to get the most recent drivers and BIOS

→ printing instructions

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After completing the Set-up Program and rebooting, your Workstation will launch a special “Welcome” program (see above) that will provide access to several on-line documents and manuals. This program will also guide you to additional information regarding the Red Hat and HP software.

Setting Up and Using Your Linux Workstation  
**Additional System Information and Help**





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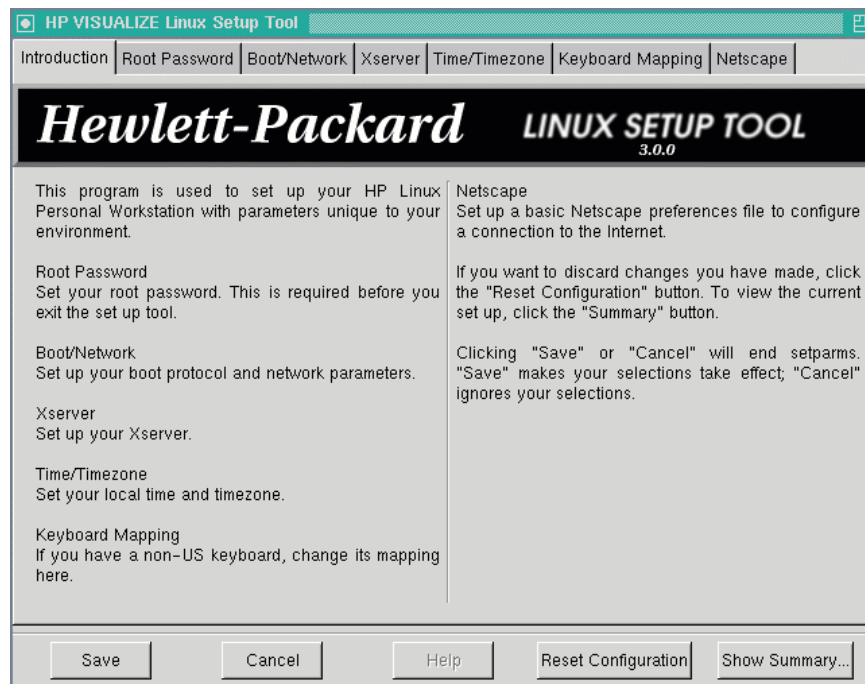
## Configuring Your Linux Workstation

Make sure there are no disks in the 3.5-inch floppy drive or the CD-ROM drive, then turn on the power switch. As the Workstation boots, it describes what is happening with messages on the screen. You do not need to respond to any messages you see. The start-up process is completely automatic.

The `setparms` utility is run the first time the workstation is booted. It allows you to set up important functionality of your workstation before you login. These areas of functionality are: networking, the X Server, timezone, system time, root password, and keyboard language. These areas will be discussed in more detail below.

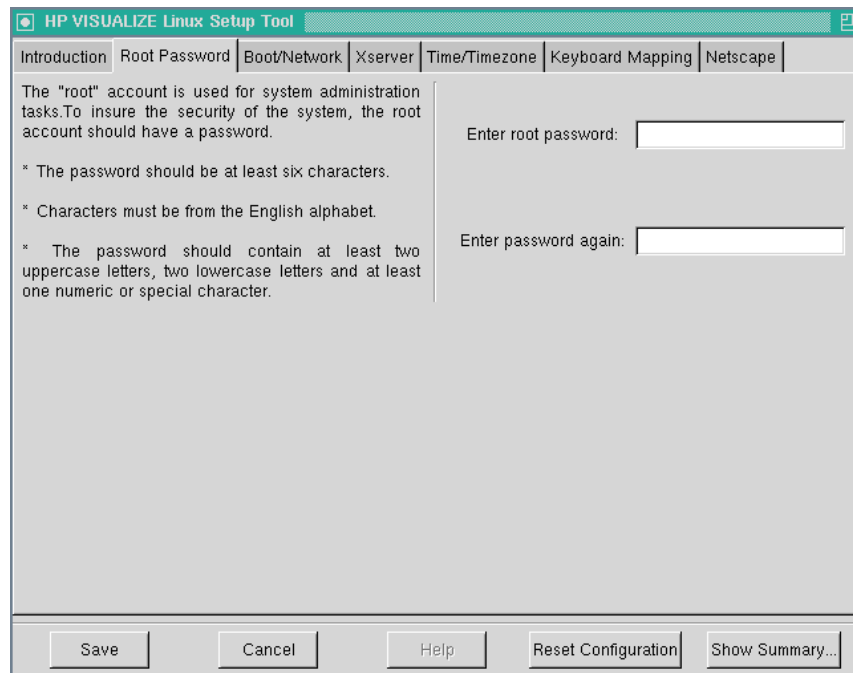
`setparms` is written so that you can go back to a function as many times as you need to and change it before you exit.

After a few minutes, the start-up process ends and the Linux Setup Tool window, shown below, appears. You can choose from the tabs at the top of the screen to select the various areas of functionality.



## Setting the Root Password (required)

By default, the root user has the password “hplinux.” Before you exit, you must set your own root password. `setparams` enforces this. Click on the “Root Password.” tab at the top of the Setup Tool window. This brings up the window shown below.



The screenshot shows a window titled "HP VISUALIZE Linux Setup Tool" with several tabs: Introduction, Root Password, Boot/Network, Xserver, Time/Timezone, Keyboard Mapping, and Netscape. The "Root Password" tab is active. The window contains the following text:

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

- \* The password should be at least six characters.
- \* 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.

On the right side, there are two input fields: "Enter root password:" and "Enter password again:". At the bottom of the window, there are five buttons: "Save", "Cancel", "Help", "Reset Configuration", and "Show Summary..."

Choose a password, according to the directions in the window, and type it in the “Enter root password” box. Asterisks appear in the box, instead of what you type. Type your password again in the “Enter password again” box. Click “Save.”

---

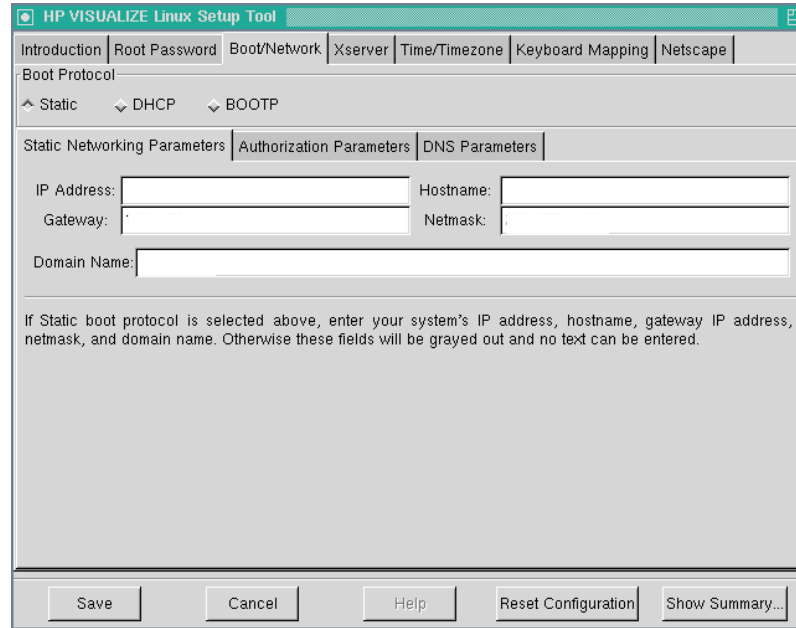
### NOTE

Write your password down and keep it in a secure place. If you forget it, you will not be able to log in to your Workstation.

---

## Changing Boot/Network Parameters

Choose the “Boot/Network” tab and the window below appears.



There are three kinds of booting protocols that `setparams` can set up for you: Static, DHCP, and BOOTP. Choose the appropriate protocol based on the following descriptions:

### 1. Static boot protocol

If you choose Static booting, you will have to set several networking parameters. Some of these are described below.

You will also need to provide an IP address for your workstation, a hostname, the IP address of the network gateway for your system, the netmask (255.255.248.0 for example), and a network domain name (for example, *company\_name.com*).

Press the “DNS Parameters” tab to set up your DNS Configuration. Refer to the section “DNS Parameters Configuration” in this Chapter for an example of the screen interface and instructions.

After setting up DNS, click on the “Authorization Parameters” tab and follow the instructions in the section “Setting Up Network Authorization Parameters.”

Files that are modified with these network changes are:

```
/etc/resolv.conf,  
/etc/sysconfig/network, and  
/etc/sysconfig/network-scripts/ifcfg-eth0
```

## 2. DHCP boot protocol

If you choose DHCP booting, your IP address, hostname, gateway, netmask, domain name, and DNS server information are all set up for you at boot time. It should also set up your NIS information. However, the current DHCP client-side implementation from Red Hat does not request this from the server, so you will have to set that up yourself if you use it. See the Sections “Setting Up Network Authorization Parameters” and “DNS Parameters Configuration” in this Chapter.

The file `/etc/sysconfig/network-scripts/ifcfg-eth0` is modified when you select DHCP.

## 3. BOOTP boot protocol

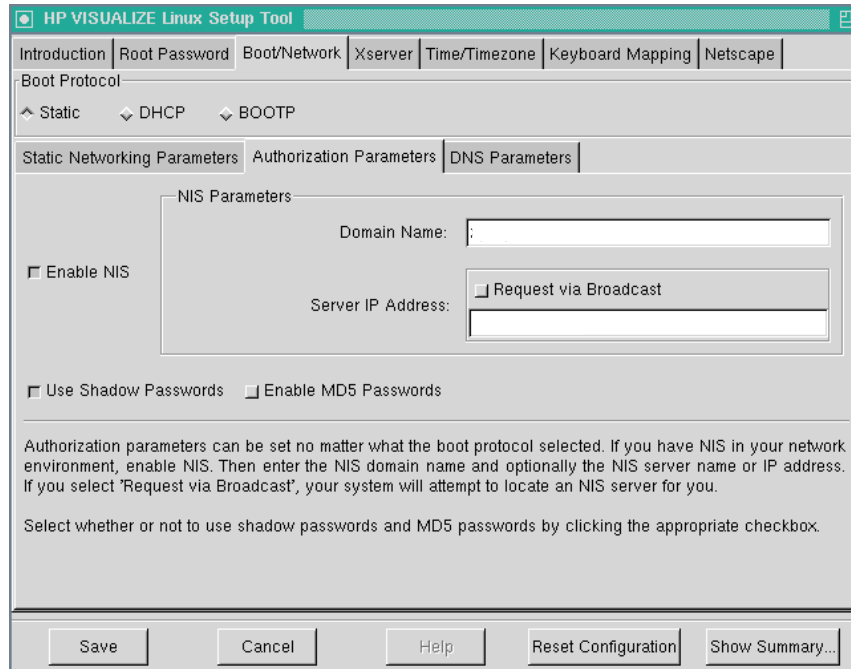
BOOTP is a subset of DHCP and will not be fully described here. It gets your IP address, hostname, gateway and netmask, but does not set up your DNS server information or NIS authentication, so you will have to do that yourself.

The file `/etc/sysconfig/network-scripts/ifcfg-eth0` is modified when you select BOOTP.

Choose the Boot Protocol that is appropriate for your system. If you do not know which protocol to choose, ask your system administrator. The following instructions assume you are using the Static protocol.

## Setting Up Network Authorization Parameters

After typing your workstation's IP Address, Hostname, network Gateway, Netmask addresses and the Domain Name in the appropriate spaces, click on the tab "Authorization Parameters."



Here is where you enable NIS, set up its parameters and other authentication parameters. If you choose to enable NIS, you will need to enter its domain name (see your network admin for more help), and optionally enter its server IP address or request it via broadcast.

Check the "Use Shadow Passwords" and "Enable MD5 Passwords" boxes if appropriate.

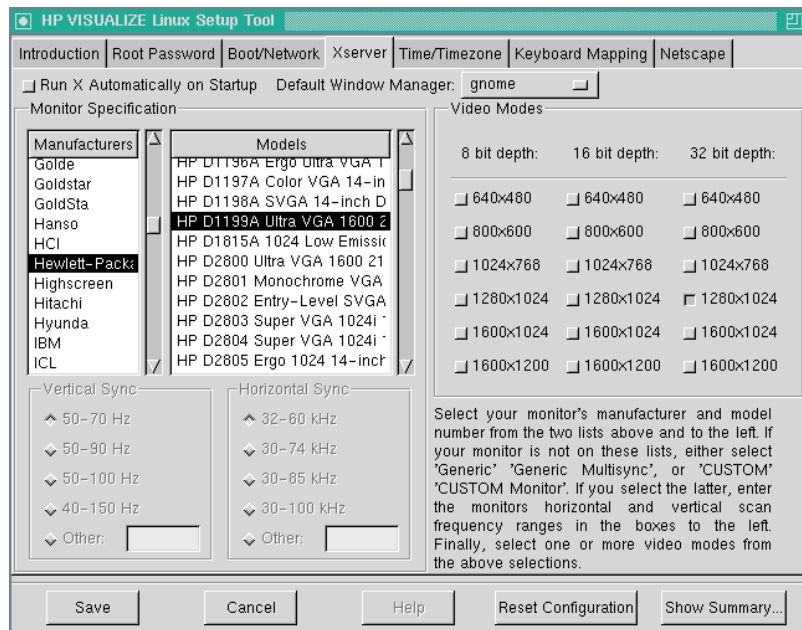
Click "Save" when satisfied, or "Cancel" if you want to skip this step.

### The files

`/etc/yp.conf` ,  
`/etc/shadow` and  
`/etc/pam.d/passwd` are modified with this step.

## Xserver Parameters

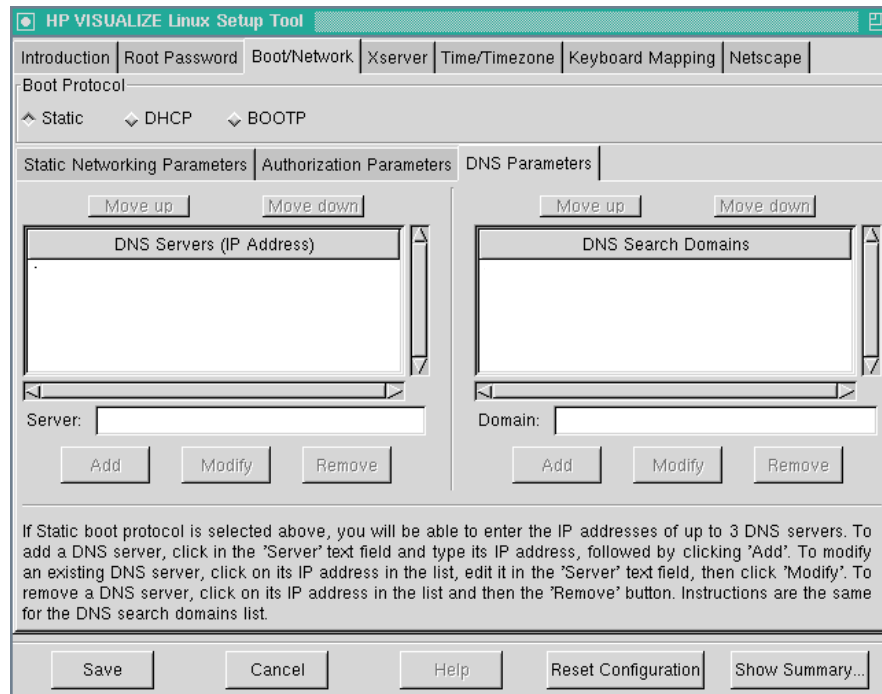
To set Monitor and Video parameters, use the “Xserver” tab at the top of the Setup Tool window. The Xserver window (see below) allows you to choose monitor manufacturer/type, video modes and which Default Window Manager to use.



Follow the directions on the screen and press “Save” to save the changes.

## DNS Parameters Configuration

In the “Boot/Network Parameters” tab, choose the “DNS Parameters” tab to configure your DNS connections



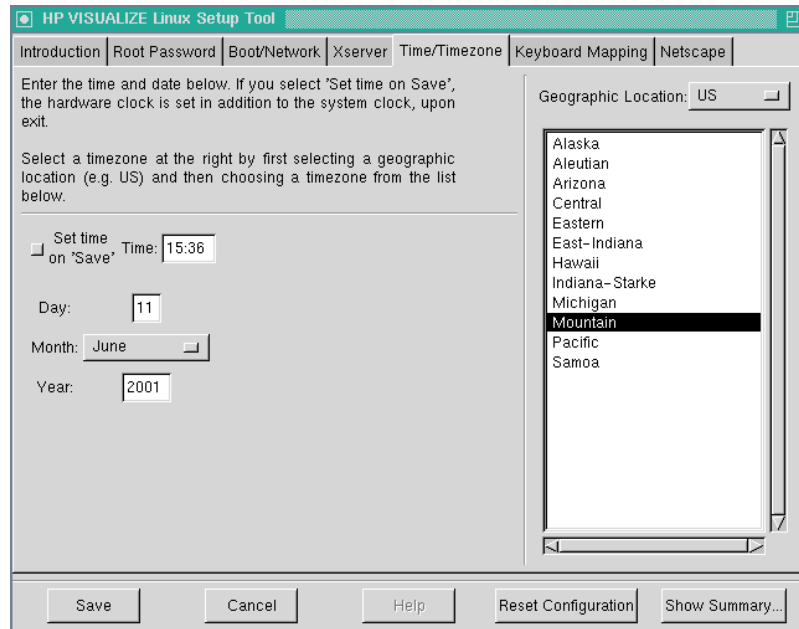
The window contains two smaller windows DNS Servers (IP Address) and DNS Search Domains. Below the left window, in the “Server:” box, type the network Domain Name Server address. Click the Add button below the small window to place this address in the larger window. If there is more than one domain name server, you may keep adding addresses until you have added them all. The first one will be your primary DNS. Below the right window, in the “Domain:” box, type the domain name and click the Add button below that window. If there is more than one, enter them all.

To change or remove an address, click on it to select it, and click on the Modify or Remove button below it.



## System Time, Timezone and Date Parameters

The “Time/Timezone” tab at the top of the Setup Tool screen will display the window shown below which is used for setting your system time and date. In the “Time:” box, you may type the current time using the 24-hour clock. In the “Day:” box, you may type the current day of the month. Pull down the “Month:” menu to select the current month. In the “Year:” box, you may type the year.



### Time Zone

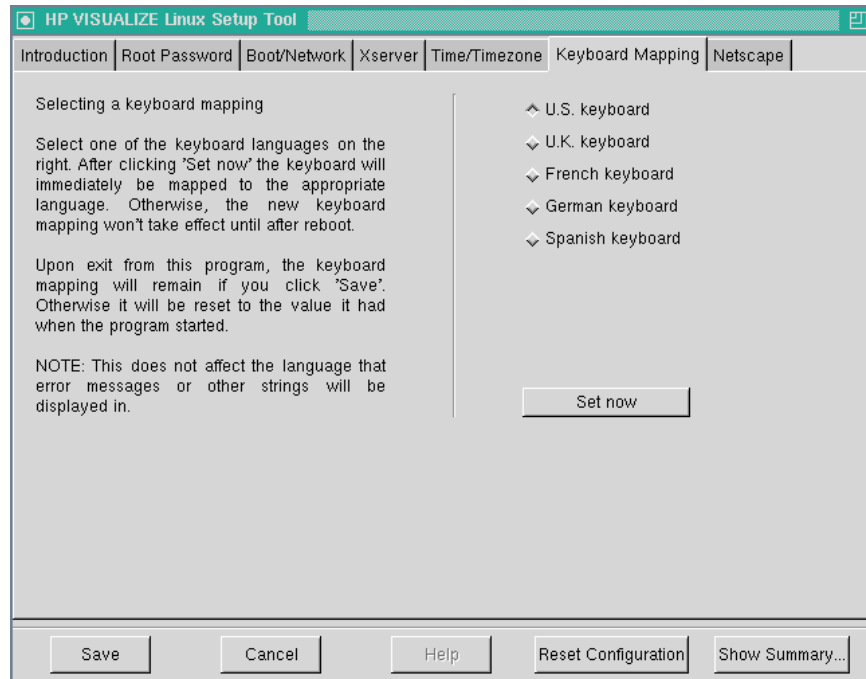
Click the “Geographical Location” button at the top of the window to select your location, if it is not “U.S.” Use the scroll bar to show your city/time zone, then click on it. Click “Save” to use these selections and close this window.

This step creates a symbolic link from `/etc/localtime` to `/usr/share/zoneinfo/<timezone>`.

Selecting the “Set time on Save” option causes `setparams` to set and save the system clock and the hardware clock with the time and date specified in the “Time” and date fields. If you do not select that option, they will remain set to their current value.

## Setting Keyboard Language (required)

The “Keyboard Mapping” functionality currently supports five keyboard languages: U.S., U.K., French, German and Spanish. U.S. is the default.

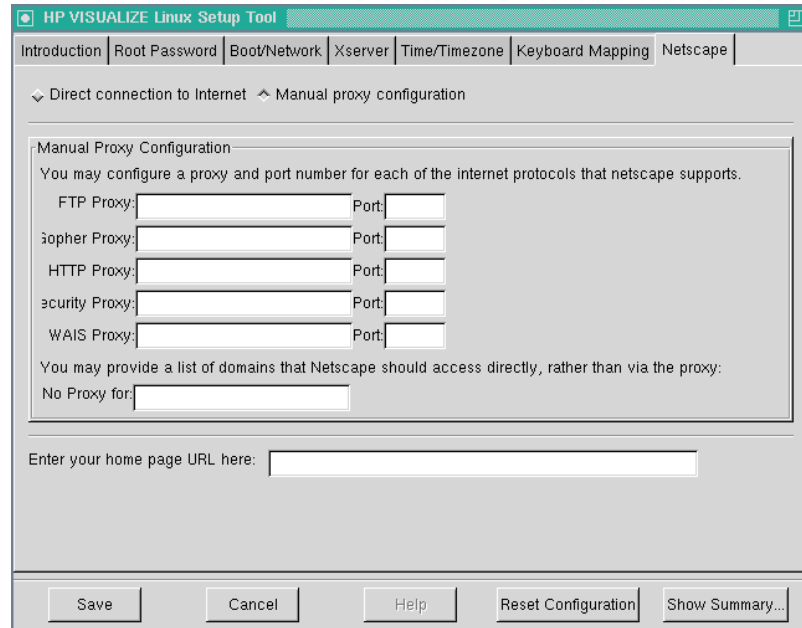


As soon as you click “Set Now” in this window, the keyboard language is set and the keyboard is re- mapped, but only for the time you are in setparms. The change is saved only if you click the “Save” button when you leave setparms, otherwise the change is discarded (that is, the previous keyboard mapping is kept).

This step modifies the files  
`/etc/sysconfig/keyboard` and  
`/etc/sysconfig/i18n`.

## Netscape Preferences

The “Netscape” tab at the top of the Setup Tool window allows you to set-up your Netscape Proxy Configuration parameters, home page URL and whether you want direct connection to the Internet (see below).

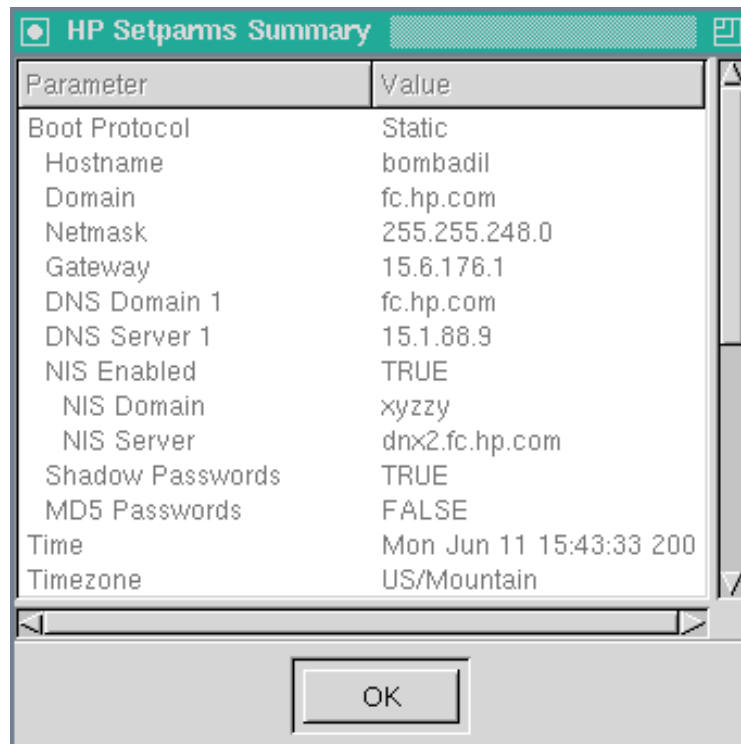


Fill-in the required information and click “Save.”

## Summary

This completes the miscellaneous parameters you can set from the Linux Setup Tool window. If you want to erase the changes you have made and keep the current configuration settings, click on the “Reset Configuration” button. To see the parameters you have chosen, click on the “Show Summary” button.

The “Show Summary” window, shown below, contains all the information you entered. To change any choices, click OK to close the Show summary window, and click the appropriate parameter box in the Linux Setup Tool window.



Click “OK” to close this window.

If you are satisfied with all the information you have entered, click “Save” at the bottom of the Linux Setup Tool window to save this configuration. NOTE: The system will not let you exit until you have set the root password.

## Recovering Your Linux System

This section will provide information on how to recover your Linux system should it be required.

### The Linux Rescue Mode

The Linux Rescue Mode is a Linux environment that lets you access files on your HP Visualize Linux Workstation when you cannot actually run Linux. You may be unable to run Linux because it will not boot or you have had a hardware or software failure.

Linux may not boot if you have installed another operating system. Some operating systems assume that you have no other operating systems on your computer. When such an operating system is installed, it overwrites the Master Boot Record that contained the Linux LILO bootloader. If this happens, Linux will not boot.

Any computer can experience a hardware or software failure for many reasons. With the HP Visualize Linux Workstation, it might happen because of problems with a hard drive or because LILO was not run after building a new kernel.

Rescue Mode can give you access to the system so you can try to solve the problem or, at least, make copies of important files.

### Booting Your System in Rescue Mode

To boot your system in Rescue Mode, enter the following parameter at the installation boot prompt:

```
boot: linux rescue
```

You can get to the installation boot prompt in one of these ways:

1. By booting your system from the diskette or CD-ROM that came with your Red Hat Linux boxed set.
2. By booting from a network or PCMCIA boot diskette. These methods assume your network connection is working and require you to identify the network host and transfer type.

Once you have your system in rescue mode, a prompt appears:

```
bash#
```

## Linux System Setup and Recovery

### Recovering Your Linux System

From this prompt, you can use the following commands:

**Table 2-1 Linux Commands**

anaconda	gzip	mke2fs.ext2	ps
badblocks	head	mknod	python
bash	hwclock	mkraid	python1.5
cat	ifconfig	mkswap	raidstart
chatter	init	mlabel	raidstop
chmod	insmod	mmd	rcp
chroot	less	mmount	rlogin
clock	ln	mmove	rm
collage	loader	modprobe	rmmod
cp	ls	mount	route
cpio	lsattr	mpartition	rpm
dd	lsmod	mrd	rsh
ddcprobe	mattrib	mread	sed
depmode	mbadblocks	mren	sh
df	mcd	mshowfat	sync
e2fsck	mcopy	mt	tac
fdisk	mdel	mtools	tail
fsck	mdeltree	mtype	tar
fsck.ext2	mdir	mv	touch
ftp	mdu	mzip	traceroute
genhdlist	mformat	open	umount
gnome-pty-helper	minfo	pico	uncpio
grep	mkdir	ping	uniq
gunzip	mke2fs	probe	zcat

---

#### NOTE

The `man` command is not available in rescue mode. Make sure you know how to use all the above commands before you use rescue mode.

---

If your root filesystem is undamaged, you can mount it and then run any

standard Linux utility. For example, suppose your root filesystem is in `/dev/hda5`. Here is how to mount this partition:

```
mount -t ext2 /dev/hda5 /foo
```

Where `/foo` is a directory that you have created.

Now you can run `chroot`, `fsck`, `man`, and other utilities. At this point, you are running Linux in single-user mode.

If you do not know the names of your Linux partitions, you can guess; mounting non-existent partitions will do no harm.

## Booting Single User Mode Directly

You may be able to boot single-user mode directly. If your system boots, but does not allow you to login when it has completed booting, try rebooting and specifying one of these options at the LILO boot prompt:

```
LILO boot: linux single
```

```
LILO boot: linux emergency
```

In single-user mode, your computer boots to runlevel 1. Your local filesystems will be mounted but your network will not be activated. You get a usable system maintenance shell.

In emergency mode, you are booted into the most minimal environment possible. The root filesystem will be mounted read-only and almost nothing will be set up. The main advantage of this over Linux single user is that your `init` files are not loaded. If `init` is corrupted or not working, you can still mount filesystems to recover data that could be lost during a re-installation.

Linux System Setup and Recovery  
**Recovering Your Linux System**





## Solving Hardware Problems

This table gives basic troubleshooting tips. For more in-depth information, see the section “Using HP MaxiLife to Diagnose Problems” in this manual.

**Table 3-1**      **Your Workstation Does Not Start Properly**

<b>The Workstation doesn't power on.</b>	
<i>Make sure...</i>	<i>How</i>
The Workstation's power cord is properly connected.	Connect the power cord to a working power outlet and to the rear of the Workstation.
<b>The power-on self test displays an error.</b>	
An on-screen error message or a beep code when the Workstation starts up means that there is a configuration problem.	
<i>Make sure...</i>	<i>How</i>
The Power-On Self Test (POST) has detected an error in some part of your configuration.	See “POST Phase Error Messages” in this manual. For more detailed help on POST errors, refer to the troubleshooting information which is available on HP's support web site at: <a href="http://www.hp.com/workstations/support">www.hp.com/workstations/support</a>
If you still have a problem, run HP e-DiagTools or DiagTools (refer to page 59).	
<b>There is a buzzing noise.</b>	
This is the pre-boot diagnostics capability feature. It detects problems with your Workstation.	<ol style="list-style-type: none"> <li>1. Count the number of beeps after the buzzer (refer to “Pre-Boot Diagnostics Audio Signal” section).</li> <li>2. Contact Support (refer to page 62).</li> </ol>

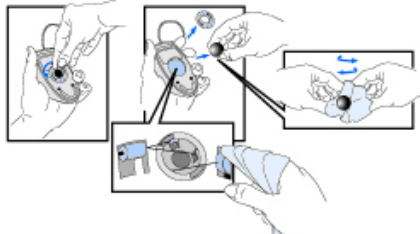
**Table 3-2 Your Workstation Has a Hardware Problem**

<b>The keyboard doesn't work.</b>	
<i>Make sure...</i>	<i>How</i>
The keyboard cable is correctly connected.	Plug the cable into the correct connector on the back of the Workstation. Color coding is used for easy matching.
The keyboard is free of debris and no keys are stuck down.	Check all keys are at the same height, and none are stuck.
The keyboard itself is not defective.	Either replace the keyboard by a known working unit or try the keyboard with another Workstation.
You are using the correct driver. This driver is provided with all Windows NT 4.0 and Windows 2000 preloaded systems. For other operating systems, refer to your operating system's documentation.	Download the latest driver from HP's Web at: <a href="http://www.hp.com/workstations/support">www.hp.com/workstations/support</a>
You are using the latest BIOS.	Download the latest BIOS from HP's Web at: <a href="http://www.hp.com/workstations/support">www.hp.com/workstations/support</a>
<b>The monitor doesn't work.</b>	
The Workstation's power indicator light works but the monitor remains blank	
<i>Make sure...</i>	<i>How</i>
The monitor is switched ON (LED is on).	Refer to the monitor manual for an explanation of the LED signals (green, orange, or blinking).

**Table 3-2 Your Workstation Has a Hardware Problem**

The monitor's power cord is correctly connected.	Connect the power cord – ensure it is plugged into a working grounded power outlet and into the monitor.
The graphics card is installed and the monitor (video) cable is correctly connected.	Connect the monitor (video) cable – ensure it is properly connected to both the Workstation and the monitor. If you have a model with a graphics card, ensure that the cable is connected to the graphics card's connector.
The monitor's brightness and contrast settings are correctly set.	Check the settings using the monitor's OSD (on-screen display) or using controls on the front of the monitor.
<b>There is an image during boot but then the screen goes blank.</b>	
<i>Make sure...</i>	<i>How</i>
The monitor settings in your Workstation are compatible with your monitor.	Switch to a text console by pressing <b>Ctrl-Alt-F1</b> . Log in as root and check that the "Monitor" section of your X server configuration file ( <i>/etc/X11/XF86Config-4</i> ) properly matches the specifications of your monitor.
If the Workstation starts but you still have a problem, run HP e-DiagTools (refer to page 59).	
<b>The mouse doesn't work.</b>	
<i>Make sure...</i>	<i>How</i>

**Table 3-2 Your Workstation Has a Hardware Problem**

<p>The mouse cable is correctly connected.</p>	<ol style="list-style-type: none"> <li>1. Switch off the Workstation (not necessary with a USB mouse).</li> <li>2. Plug the cable into the correct connector on the back of the Workstation (color coding is used for easy matching).</li> <li>3. Switch on the Workstation.</li> </ol>
<p>You are using the correct driver. If you are using HP's enhanced mouse, ensure that the correct driver is installed. <i>This driver is provided with all Windows 2000 preloaded systems.</i></p>	<p>Download the latest driver from HP's Web at: <a href="http://www.hp.com/workstations/support">www.hp.com/workstations/support</a></p>
<p>You are using the latest BIOS</p>	<p>Download the latest BIOS from HP's Web at: <a href="http://www.hp.com/workstations/support">www.hp.com/workstations/support</a></p>
<p>The mouse is clean.</p>	<p>Clean the mouse ball as shown below.</p> 
<p>The mouse itself is not defective.</p>	<p>Replace the mouse with unit that is known to work or try the mouse with another Workstation.</p>
<p>If the Workstation starts but you still have a problem, run HP e-DiagTools (refer to page 59).</p>	
<p><b>Your Workstation has no sound.</b></p>	
<p><i>Check that...</i></p>	<p><i>How</i></p>

**Table 3-2**

**Your Workstation Has a Hardware Problem**

The lime green Speaker/Headphone connector is plugged into the multi-media keyboard.	Either disconnect the lime green connector which activates the internal speaker or plug-in headphones or speaker into the keyboard.
--------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------

**Troubleshooting Tips:**

- Restart your Workstation and see if the problem recurs.
- Run HP e-DiagTools. You can create a hardware profile of your Workstation (Support Ticket) that can be faxed or mailed to support. Refer to this section for more information on using e-DiagTools.
- Visit the HP support web site [www.hp.com/workstations/support](http://www.hp.com/workstations/support) to see if you are experiencing a known problem.
- Update your Workstation's BIOS. The latest BIOS for your Workstation and instructions on updating the BIOS are available from HP's support web site at: [www.hp.com/workstations/support](http://www.hp.com/workstations/support)
- Record the details of the problem so that you can describe it accurately.
- Think of anything you may have done recently before you first experienced the problem.
- If possible, have your system up and running and close by when you call HP Support.
- We recommend you contact your HP dealer, or contact HP support outside of peak times (mid-morning and early evening).

### **If You Lose the Key**

If you lose the key to the Workstation, you must order a replacement lock (HP Part Number 5062-5590) from the HP dealer or HP Sales and Service Office. The new lock is delivered with two keys. Contact your HP dealer for installing the new lock.

### **Need More Help?**

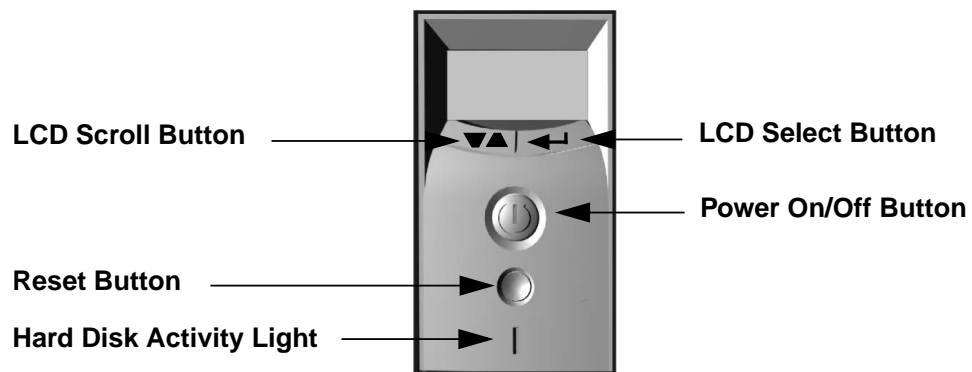
For more detailed help refer to the *x2000 Technical Reference* which is available on HP's support web site at: [www.hp.com/workstations/support](http://www.hp.com/workstations/support).

---

## Using HP MaxiLife to Diagnose Problems

Your HP MaxiLife LCD Status Panel can help you to diagnose problems with your Workstation, even when you are unable to get your system and monitor working properly. It also provides system information you may need to obtain support.

**Figure 3-1**      **MaxiLife Status Panel**



Press one of the LCD control buttons to display the menu. Use the scroll button to scroll through the menu items, then use the select button to select the item required. For more information on how to use the MaxiLife display, refer to the *x2000 Technical Reference* manual provided on the HP Workstations web page at [www.hp.com/workstations/support](http://www.hp.com/workstations/support)

### Pre-Boot Check Error Messages

When you press your Workstation's on/off button, HP MaxiLife checks your system before it initiates the start-up sequence. The pre-boot diagnostic tests are run in order of priority with respect to their importance to computer functions. The first detected error displays a message on the LCD status panel. If this happens, one of the following error messages could appear.

---

**NOTE**

Refer to the *x2000 Technical Reference Manual* (at [www.hp.com/workstations/support](http://www.hp.com/workstations/support)) for information on how to access the internal components of the Workstation.

---



**Table 3-3**                      **Possible Workstation Errors**

<b>Message</b>	<b>Solution</b>
ERROR! CPU Socket	Check that the processor is correctly inserted in CPU socket.
ERROR! Power Supply	Check the power supply and power cable connections.
ERROR! No video	Check that the graphics card is correctly installed.
ERROR! Contin Module	Check that RDRAM continuity modules are installed.
ERROR! No RIMM	No installed RDRAM modules.
ERROR! RIMM Speed	The RDRAM modules installed have incompatible speed ratings.
Mem Miscompare	Check that the RDRAM modules are correctly installed in identical pairs.
Memory Error	Check that the memory modules are correctly installed.

### **POST Phase Error Messages**

Following these checks, the POST (Power-On Self Test) sequence is initiated. One of the following messages appears in this phase:

**Table 3-4**                      **Possible Workstation Errors**

<b>Message</b>	<b>Solution</b>
HP x2000 Info Services	No errors occurred.
Error (Error Description)	A POST error occurred. Refer to the x2000 Technical Reference for more information about the error description.

---

## Pre-Boot Diagnostics Audio Signal

When your Workstation starts up, the BIOS performs Pre-Boot Diagnostics and a Power-on Self Test (POST) to test your hardware configuration for any problems. If a problem is detected during the POST, an error is displayed on your Workstation's monitor.

If, however, your Workstation is unable to display an error message (for example, when your graphics controller has failed), the Pre-Boot Diagnostics will emit an audio signal through the Workstation's internal speaker.

The Pre-Boot Diagnostics emits an audio sequence with two kinds of sounds. The first is an unusual series of tones that indicate an anomaly has been detected. This series of sounds also contains an electronic signal that can be sent through a telephone line to an authorized helpdesk or HP Support, if necessary. This signal cannot be interpreted by the human ear. However, it can be decoded by helpdesk equipment to extract the Workstation model and serial number.

The second type of sound is a series of long beeps that indicate a particular error. If you hear a series of beeps, you should count them as this will help you detect the cause of the problem.

Number of Beeps	Meaning
1	Processor absent, not correctly connected or ZIF socket not closed
2	Power supply is in protected mode
3	No memory, bad memory modules, incompatible memory module
4	Graphics card problem
5	PnP/WorkstationI initialization problem
6	Corrupted BIOS. You need to activate crisis recovery procedure
7	Defective system board

Please note that Memory (code 3), Video Card (code 4), and PnP/Workstation (code 5) errors will only be heard after a 15-second delay.

### If You Miss the Beep Code

If you miss the beep code, turn off the Workstation by pressing the on/off power button for five seconds or more, then listen for the signal again.

---

## HP DiagTools Hardware Diagnostics

---

### NOTE

Run e-DiagTools before contacting HP for Warranty service. This is to obtain information that will be requested by a Support Agent.

---

Your hard disk includes a hardware diagnostic partition containing either HP DiagTools or HP e-DiagTools hardware diagnostic utilities. These may be used to diagnose hardware-related problems on your HP Workstation. Do NOT delete this partition.

With this utility you can:

- Check the hardware configuration and verify that it is functioning correctly.
- Test individual hardware components.
- Diagnose hardware-related problems.
- Obtain a complete hardware configuration.
- Provide precise information to an HP support agent so they can solve any problems quickly and effectively.

For more information about this utility, refer to the *x2000 Technical Reference*, available on the HP web site at [www.hp.com/workstations/support](http://www.hp.com/workstations/support).

### Where Can I Get e-DiagTools?

HP e-DiagTools is supplied on the following media:

- The Utility Partition pre-installed on your hard disk drive (recommended)
- The CD-ROM that came with your Workstation:
  - *HP Linux Recovery CD-ROM for x2000 Linux Workstations*
- The *HP DiagTools CD*. You can order this CD-ROM from HP's Support web site: [www.hp.com/desktops/diagtools](http://www.hp.com/desktops/diagtools).

## Starting e-DiagTools from the Utility Partition on your Hard Drive

---

**NOTE**

This method will only work if the diagnostics partition on your hard disk drive is intact.

---

1. Restart your Workstation and press the function key **F10** when you see the message “Press F10 to enter HP Utility Partition or any other key to proceed...”
2. In the menu, select the option to run e-DiagTools hardware diagnostics.

## Starting e-DiagTools from the CD-ROM

1. Insert the e-DiagTools CD-ROM in the CD-ROM drive.
2. Restart the Workstation.
3. Select the option to run the hardware diagnostics.

---

**NOTE**

If you are unable to boot from your CD-ROM drive, restart your Workstation and press **F2** to enter HP’s Setup program. Check the Boot device settings to ensure that your Workstation can boot from the CD-ROM.

---

## Running HP e-DiagTools

Make sure:

- The Workstation model must match the CD-ROM (the CD-ROM is locked to a specific Workstation model).
- CD-ROM drive has been configured to boot before the hard disk drive.

## Producing a Support Ticket

To produce a complete record of your system’s configuration and test results, you will need to create a Support Ticket. This is a simple text file

that contains essential information and is designed to assist your local or HP Support Agent.

If you are using HP e-DiagTools from the hard disk drive and your Workstation is connected to a LAN using TCP/IP (Internet) protocols, you have the option of e-mailing your Support Ticket from within e-DiagTools.

If you are using HP e-DiagTools from a CD-ROM, you can create the Support Ticket file on either the hard disk drive or floppy disk drive.

You can also view the Support Ticket file using the “Support Ticket Viewer” program.

The Support Ticket file can be easily be sent, via e-mail or fax.

## HP Customer Care Center Phone Numbers

HP Customer Care Centers can help you solve issues related to HP products and, if necessary, initiate appropriate service procedures. In the U.S.A, telephone support is available 24 hours a day, 7 days a week. Elsewhere, it is available during normal office hours.

<b>North &amp; Latin America</b>		<b>Europe, Middle East &amp; Africa</b>	
Argentina	(5411) 4778 8380	Austria	(+43) 0810 00 60 80
Brazil	(011) 3747 7799 (Sao Paulo) 0800 157751 (other Locations)	Belgium	Dutch (+32) 02 626 88 06 French (+32) 02 626 88 07
Canada	905-206-4663	Denmark	(+45) 39 29 40 99
Chile	800 360 999	English Intl.	(+44) 0207 512 52 02
Mexico	800 472 6684	Finland	(+358) 0203 472 88
United States	(970) 635-1000	France	(+33) 01 43 62 34 34
Venezuela	800 47 777 (Caracas 207 8488)	Germany	(+49) 0180 525 81 43 (24PF/min)
<b>Asia Pacific</b>		Israel	Tel. (+972) 09-9524848 Fax. (+972) 09 9524849
Australia	(03) 8877-8000	Italy	(+39) 02-264 10350
China	+86 (0) 10 6564 5959 (800) 810-5959	Middle-East	Tel.+971 4 883 8454 Fax +971 4 883 9495
Hong Kong	(+85 2) 2802-4098	Netherlands	(+31) 020 606 87 51
India	(+91-11) 682-6035	Norway	(+47) 22 11 62 99
Indonesia	(+62-21) 350-3408	Poland	Tel. (+48) 22 865 98 00; Fax. (+48) 22 519 0601
Japan	(+81-3) 5344-7181	Portugal	+(351) 21 317 6333
Korea	(+82-2) 3270-0700 82 80 999 0700 (outside Seoul only)	Russian Federation	(+7) 095 797 3520 (Moscow) (+7) 812 346 7997(St-Petersb) Fax. (+7) 095 916 98 35
Malaysia	(+60-3) 2695-2566	South Africa	(+27) 11 258 9301 (outside RSA) 086 000 1030 (inside RSA)
Penang	1 300 88 00 28	Spain	(+34) 902 32 11 23
New Zealand	(+64-9) 356-6640	Sweden	(+46) 08 619 21 70
Philippines	(+63-2) 867-3551	Switzerland	(+41) 084 880 11 11
Singapore	(+65) 272-5300	Turkey	(+90) 212-221 6969
Taiwan	(+886) 2- 2717-0055	U K	(+44)
Thailand	(+66-2) 661-4000		
Viet Nam	(+84-8) 823-4530		



## Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

**Manufacturer:** Hewlett-Packard Company  
3404 East Harmony Rd.  
Fort Collins, CO 80528  
USA

**Declares that the:**

**Product Name:** HP x2000 Linux Workstation

**Base Product Number:** A6020A/A6038A

**Product Options:** All

**conforms to the following specifications:**

**Safety.** IEC 950:1991+A1+A2+A3+A4+A11/EN 60950:1992+A1+A2+A3+A4+A11  
IEC 60825-1:1993/EN60825-1:1994+A11 Class 1 for LEDs  
USA 21CFR Subpart J – for FC Laser module  
China GB4943-1995  
Russia GOST R 50377-92

**EMC.** CISPR 11: 1997 / EN 55011: 1991 Class A  
CISPR 22: 1993 +A1+A2 / EN 55022: 1994+A1+A2 Class A  
EN 50082-1:1992 Also compliant with:  
IEC 1000-3-2: 1995 / EN 61000-3-2: 1998  
IEC 1000-4-2: 1995 +A1 / EN 61000-4-2: 1999 - 4kV CD, 8 kV AD  
IEC 1000-4-3: 1995 / EN 61000-4-3: 1996 - 10 v/m  
IEC 1000-4-4: 1995 / EN 61000-4-4:1995 -2 kV Signal, 4 kV Power Lines  
U.S. FCC Part 15, Class A  
Japan VCCI Class A  
Australia/New Zealand AS/NZS 2046.1/2:1992, AS/NZS 3548:1995, and  
AS/NZS 4251.1:1994  
China GB9254-1988  
Taiwan CNS13438 Class A  
Russia GOST R 29216-94

**and is certified by:** UL Listed to UL1950, 2nd edition, File E146385  
cUL Listed to CSA 22.2 No. 950-M93  
TUV Certified to EN60950 2nd edition with A1+A2+A3+A4+A11  
HP Fort Collins CCQD HTC

**supplementary information:**

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

- the EMC directive 89/336/EEC and 92/31/EEC and 93/68/EEC
- the Low Voltage Directive 73/23/EEC and 93/68/EEC

This product was tested in a typical Hewlett-Packard workstation configuration.

Original signed by Ruth Lutes, Site Quality Manager, Fort Collins, CO, USA

**For Compliance Information ONLY, contact: European Contact:** Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Dept. HQ-TRE Standards Europe, Herrenberger Strasse 130 Boeblingen (FAX: +49-7031-14-3143) **Americas Contact:** Hewlett-Packard, Fort Collins Site Quality Mgr., Mail Stop 64, 3404 E. Harmony Road, Fort Collins, CO 80528, U.S.A.



## Regulatory Information

### FCC (for USA only)

Federal Communications Commission Radio Frequency Interference Statement

**NOTE:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Hewlett-Packard's FCC Compliance Tests were conducted with HP-supported peripheral devices and HP shielded cables, such as those you receive with your system. Changes or modifications not expressly approved by Hewlett-Packard could void the user's authority to operate the equipment.

### Notice for Canada

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la Class A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### Safety Warning for the USA and Canada

If the power cord is not supplied with the computer, select the proper power cord according to your local national electric code.

USA: use a UL listed type SVT detachable power cord.

Canada: use a CSA certified detachable power cord.

For your safety, never remove the PC's cover without first removing the power cord and any connection to a telecommunication network. Always replace the cover before switching on again.

## Regulatory Information and Warranty

### Regulatory Information

Si le cordon secteur n'est pas livré avec votre ordinateur, utiliser un cordon secteur en accord avec votre code électrique national.

USA: utiliser un cordon secteur "UL listed," de type SVT.

Canada: utiliser un cordon secteur certifié CSA.

Pour votre sécurité, ne jamais retirer le capot de l'ordinateur sans avoir préalablement débranché le cordon secteur et toute connexion à un réseau de télécommunication. N'oubliez pas de replacer le capot avant de rebrancher le cordon secteur.

#### **Notice for the Netherlands**

Bij dit apparaat zijn batterijen geleverd. Wanneer deze leeg zijn, moet U ze niet weggoien maar inleveren als KCA.

#### **Notice for Germany**

Wenn die Batterie nicht korrekt eingebaut wird, besteht Explosionsgefahr. Zu ihrer eigenen Sicherheit sollten Sie nicht versuchen, die Batterie wiederaufzuladen, zu zerlegen oder die alte Batterie zu verbrennen. Tauschen Sie die Batterie nur gegen den gleichen oder ähnlichen Typ aus, der vom Hersteller empfohlen wird. Bei der in diesem PC integrierten Batterie handelt es sich um eine Lithium-Batterie, die keine Schwermetalle enthält. Batterien und Akkumulatoren gehören nicht in den Hausmüll. Sie werden vom Hersteller, Händler oder deren Beauftragten kostenlos zurückgenommen, um sie einer Verwertung bzw. Entsorgung zuzuführen.

#### **Noise Declaration for Germany**

Lärmangabe nach Maschinenlärmmittelverordnung - 3 GSGV (Deutschland)  
LpA < 70 db am Arbeitsplatz normaler Betrieb nach EN27779: 11.92.

#### **Notice for Japan (Class A)**

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この装置は、情報処理装置等電波障害自主規制協議会（VCCI）クラスA情報技術装置です。この装置を家庭環境で使用すると電波障害を引き起こすことがあります。この場合には使用者が適切な対策を講ずることがあります。

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### Notice for Korea

#### 시용시 안내문 (A급 기기)

이 기기는 업무용으로 전자파장해검정을 받은 기기이오니, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

### Notice for Taiwan

**警告使用者：**  
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

### Recycling Your PC

HP has a strong commitment toward the environment. Your HP Personal Computer has been designed to respect the environment as much as possible.

HP can also take your old PC back for recycling when it reaches the end of its useful life.

HP has a product take-back program in several countries. The collected equipment is sent to one of HP's recycling facilities in Europe or the USA. As many parts as possible are reused. The remainder is recycled. Special care is taken for batteries and other potentially toxic substances, which are reduced into non-harmful components through a special chemical process.

If you require more details about HP's product take-back program, contact your dealer or your nearest HP Sales Office.

## HP Hardware Warranty

*Important: This is your hardware product warranty statement. Please, read it carefully.*

Warranty terms may be different in your country. If so, your Authorized HP Dealer or Hewlett-Packard Sales and Service Office can give you details.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

HP products external to the system processor unit —such as external storage subsystems, displays, printers, and other peripherals— are covered by the applicable warranties for those products; HP software is covered by the HP Software Product Limited Warranty

FOR CONSUMER TRANSACTIONS IN AUSTRALIA AND NEW ZEALAND: THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

### Three Year Limited Hardware Warranty

Hewlett-Packard (HP) warrants this hardware product against defects in materials and workmanship for a period of three years from receipt by the original end-user purchaser.

This three year warranty includes next-day, on-site service, three year free parts and 3 year free labor provided by an HP Service Center or a participating Authorized HP Computer Dealer Repair Center.

If HP receives notice of above defined defects during the warranty period, HP will either, at its option, repair or replace products, which prove to be defective.

Should HP be unable to repair or replace the product within a reasonable amount of time, the customer's alternate exclusive remedy shall be a refund of the purchase price upon return of the product.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit —such as video adapters, mass storage devices, and interface controllers— are covered by this warranty.

This warranty is extended worldwide under certain conditions (please check with your local HP office) to products purchased from HP or an Authorized HP Computer Dealer which are reshipped by the original purchaser either for use by the original purchaser or provided as an incidental part of systems integrated by the original purchaser. When available in the country of use, service is provided

in the same manner as if the product was purchased in that country and can only be provided in countries where the product is designed to operate. If the product is not normally sold by HP in the country of use, it must be returned to the country of purchase for service. Response time for on-site service, and parts delivery turn-around time for parts service, are subject to changes from standard conditions based upon non-local parts availability.

## **Limitation of Warranty**

The above warranty shall not apply to defects resulting from: misuse; unauthorized modification; operation or storage outside the environmental specifications for the product; in-transit damage; improper maintenance; or defects resulting from use of non-HP software, accessories, media, supplies, consumables, or such items not designed for use with the product.

Reloading the bundled or pre-loaded software on your Personal Workstation is not covered by the HP warranty.

HP MAKES NO OTHER EXPRESS WARRANTY, WHETHER WRITTEN OR ORAL, WITH RESPECT TO THIS PRODUCT. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE THREE-YEAR DURATION OF THIS WRITTEN WARRANTY. SOME STATES OR PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state, or province to province.

## **Limitation of Liability and Remedies**

THE REMEDIES PROVIDED ABOVE ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON WARRANTY, CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

The foregoing limitation of liability shall not apply in the event that any HP product sold hereunder is determined by a court of competent jurisdiction to be defective and to have directly caused bodily injury, death, or property damage; provided, that in no event shall HP's liability for property damage exceed the greater of \$50,000 or the purchase price of the specific product that caused such damage.

Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages—including lost profit—so the above limitation or exclusion may not apply to you.

## Obtaining On-Site Warranty Service

To obtain on-site warranty service, the customer must contact an HP Sales and Service Office (in the US, call the HP Customer Support Center at (970) 635-1000) or a participating Authorized HP Personal Computer Dealer Repair Center. The customer must be prepared to supply proof of the purchase date.

The system processor unit, keyboard, mouse, and Hewlett-Packard accessories inside the system processor unit —such as video adapters, mass storage devices, and interface controllers— are covered by this warranty.

During the on-site warranty period, customer-replaceable components may be serviced through expedited part shipment. In this event, HP will prepay shipping charges, duty, and taxes; provide telephone assistance on replacement of the component when necessary; and pay shipping charges, duty, and taxes for any part that HP asks to be returned.

On-site visits caused by non-Hewlett-Packard products —whether internal or external to the system processor unit— are subject to standard per-incident travel and labor charges.

On-site service for this product is restricted or unavailable in certain locations. In HP Excluded Travel Areas— areas where geographical obstacles, undeveloped roads, or unsuitable public transportation prohibit routine travel— service is provided on a negotiated basis at extra charge.

Response time for HP on-site service in an HP Service Travel Area is normally next business day (excluding HP holidays) for HP Travel Zones 1-3 (generally 100 miles or 160 Km from the HP office). Response time is second business day for Zones 4 and 5 (200 miles, 320 Km); third business day for Zone 6 (300 miles, 480 Km); and negotiated beyond Zone 6. Worldwide Customer Support Travel information is available from any HP Sales and Service Office.

Travel restrictions and response time for dealer or distributor service are defined by the participating dealer or distributor.

Service contracts which provide after-hour or weekend coverage, faster response time, or service in an Excluded Travel Area are often available from HP, an authorized dealer, or authorized distributor at additional charge.

## Customer Responsibilities

The customer may be required to run HP-supplied diagnostic programs before an on-site visit or replacement part will be dispatched.

The customer is responsible for the security of its proprietary and confidential information and for maintaining a procedure external to the products for reconstruction of lost or altered files, data, or programs.

The customer must provide: access to the product; adequate working space and facilities within a reasonable distance of the product; access to and use of all

information and facilities determined necessary by HP to service the product; and operating supplies and consumables such as the customer would use during normal operation.

A representative of the customer must be present at all times. The customer must state if the product is being used in an environment which poses a potential health hazard to repair personnel; HP or the servicing dealer may require that the product be maintained by customer personnel under direct HP or dealer supervision.

### **Obtaining Parts Warranty Service**

When parts warranty service applies, the customer may be required to run HP-supplied diagnostic programs before a replacement part will be dispatched. The customer must be prepared to supply proof of purchase.

The customer shall return some defective parts upon HP demand. In that case, HP will prepay shipping charges for parts returned to the HP parts service center.

### **HP Telephone Support Services**

HP free telephone support for your Workstation is available during the first year from date of purchase. This service will also provide technical assistance with the basic configuration and setup of your HP Workstation and for the bundled or pre-loaded operating system.

HP does NOT provide telephone support for Workstations configured as network servers. We recommend HP NetServers for your network server requirements.

(Rev. 06/01/2001)

## **HP Software Limited Warranty**

THIS HP SOFTWARE PRODUCT LIMITED WARRANTY SHALL COVER ALL SOFTWARE THAT IS PROVIDED TO YOU, THE CUSTOMER, AS PART OF THE HP COMPUTER PRODUCT, INCLUDING ANY OPERATING SYSTEM SOFTWARE. IT SHALL SUPERSEDE ANY NON-HP WARRANTY TERMS THAT MAY BE FOUND ON-LINE, OR IN ANY DOCUMENTATION OR OTHER MATERIALS CONTAINED IN THE COMPUTER PRODUCT PACKAGING.

**Ninety-Day Limited Software Warranty.** HP warrants for a period of NINETY (90) DAYS from the date of the purchase that the software product will execute its programming instructions when all files are properly installed. HP does not warrant that the software will be uninterrupted or error free. In the event that this software product fails to execute its programming instructions during the warranty period, Customer's remedy shall be a refund or repair. Should HP be unable to replace the media within a reasonable amount of time, Customer's alternate remedy shall be a refund of the purchase price upon return of the product and all copies.

**Removable Media (If supplied).** HP warrants the removable media, if supplied, upon which this product is recorded to be free from defects in materials and workmanship under normal use for a period of NINETY (90) DAYS from the date of purchase. In the event the media proves to be defective during the warranty period, Customer's remedy shall be to return the media to HP for replacement. Should HP be unable to replace the media within a reasonable amount of time, Customer's alternate remedy shall be a refund of the purchase price upon return of the product and destruction of all other non removable media copies of the software product.

**Notice of Warranty Claims.** Customer must notify HP in writing of any warranty claim not later than thirty (30) days after the expiration of the warranty period.

**Limitation of Warranty.** HP makes no other express warranty, whether written or oral with respect to this product. Any implied warranty of merchantability or fitness for a particular purpose is limited to the 90-day duration of this written warranty. Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above



limitation or exclusion may not apply to you. This warranty gives specific legal rights, and you may also have other rights which vary from state to state, or province to province.

**Limitation of Liability and Remedies.** THE REMEDIES PROVIDED ABOVE ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL HP BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFIT) WHETHER BASED ON WARRANTY, CONTRACT, TORT OR ANY OTHER LEGAL THEORY. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

**Obtaining Warranty Service.** Warranty service may be obtained from the nearest HP sales office or other location indicated in the owner's manual or service booklet.

**Consumer transactions in Australia and the United Kingdom:** The disclaimers and limitations above shall not apply and shall not affect the statutory rights of a Consumer.

(Rev. 19/11/96)

## HP Software Product License Agreement

UNLESS OTHERWISE STATED BELOW, THIS HP SOFTWARE PRODUCT LICENSE AGREEMENT SHALL GOVERN THE USE OF ALL SOFTWARE THAT IS PROVIDED TO YOU, THE CUSTOMER, AS PART OF THE HP COMPUTER PRODUCT. IT SHALL SUPERSEDE ANY NON-HP SOFTWARE LICENSE TERMS THAT MAY BE FOUND ON-LINE, OR IN ANY DOCUMENTATION OR OTHER MATERIALS CONTAINED IN THE COMPUTER PRODUCT PACKAGING.

Note: Operating System Software by Microsoft is licensed to you under the Microsoft End User License Agreement (EULA) contained in the Microsoft documentation.

The following License Terms govern the use of the software:

**USE.** Customer may use the software on any one computer. Customer may not network the software or otherwise use it on more than one computer. Customer may not reverse assemble or decompile the software unless authorized by law.

**COPIES AND ADAPTATIONS.** Customer may make copies or adaptations of the software (a) for archival purposes or (b) when copying or adaptation is an essential step in the use of the software with a computer so long as the copies and adaptations are used in no other manner.

**OWNERSHIP.** Customer agrees that he/she does not have any title or ownership of the software, other than ownership of the physical media. Customer acknowledges and agrees that the software is copyrighted and protected under the copyright laws. Customer acknowledges and agrees that the software may have been developed by a third party software supplier named in the copyright notices included with the software, who shall be authorized to hold the Customer responsible for any copyright infringement or violation of this Agreement.

**PRODUCT RECOVERY CD-ROM.** If your computer was shipped with a product recovery CD-ROM: (i) The product recovery CD-ROM and/or support utility software may only be used for restoring the hard disk of the HP computer with which the product recovery CD-ROM was originally provided.(ii) The use of any operating system software by Microsoft contained in any such product recovery CD-ROM shall be governed by the Microsoft End User License Agreement (EULA).

**TRANSFER OF RIGHTS IN SOFTWARE.** Customer may transfer rights in the software to a third party only as part of the transfer of all rights and only if Customer obtains the prior agreement of the third party to be bound by the terms of this License Agreement. Upon such a transfer, Customer agrees that his/her rights in the software are terminated and that he/she will either destroy his/her copies and adaptations or deliver them to the third party.

**SUBLICENSING AND DISTRIBUTION.** Customer may not lease, sublicense the software or distribute copies or adaptations of the software to the public in physical media or by telecommunication without the prior written consent of Hewlett-Packard.

**TERMINATION.** Hewlett-Packard may terminate this software license for failure to comply with any of these terms provided Hewlett-Packard has requested Customer to cure the failure and Customer has failed to do so within thirty (30) days of such notice.

**UPDATES AND UPGRADES.** Customer agrees that the software does not include updates and upgrades which may be available from Hewlett-Packard under a separate support agreement.

**EXPORT CLAUSE.** Customer agrees not to export or re-export the software or any copy or adaptation in violation of the U.S. Export Administration regulations or other applicable regulation.

**U.S. GOVERNMENT RESTRICTED RIGHTS.** Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013. Hewlett-Packard Company, 3000 Hanover Street, Palo Alto, CA94304 U.S.A. Rights for non-DOD U.S. Government Departments and Agencies are as set forth in FAR 52.227-19(c)(1,2).

Regulatory Information and Warranty  
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