getting started guide

hardware and software setup
hp workstation xw4100

Document Part Number: 326427-001

april 2003

Use this guide as a starting point. It will help you set up your
workstation hardware and factory-provided software. It also includes
basic troubleshooting information should you have problems during
the initial setup process.

WARNING: Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

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hardware setup

quick setup

After you have unpacked your workstation, locate an accessible workspace to set up the workstation and make the cable connections.

⚠ **WARNING:** It is important that you set the power voltage select switch to the correct voltage setting before introducing power to your workstation. The voltage select switch is located on the back panel of the unit.

Connect the cables according to the following illustration:

NOTE: Connect other components, such as a printer, according to the instructions included with the device.

For more information on your workstation, refer to the *Documentation Library* CD or visit http://www.hp.com/go/workstationsupport.

front panel components

Drive configuration may vary by model.
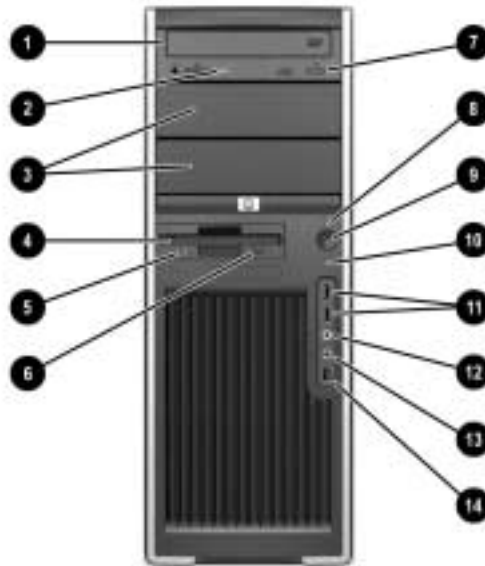
Front Panel Components

❶	Optical Drive* (optional)	❽	Power On Light
❷	Optical Drive Activity Lights	❾	Power Button
❸	5.25 inch drive bays	❿	Hard Drive Activity Light
❹	Diskette Drive (optional)	⓫	USB (Universal Serial Bus) Ports
❺	Diskette Drive Activity Light	⓬	Headphone Connector
❻	Diskette Eject Button	⓭	Microphone Connector
❼	Optical Drive Eject Button	⓮	IEEE-1394 Connector**

NOTE: * An optical drive is a CD-ROM, CD-R/RW, DVD-ROM, DVD+R/RW, or CD-RW/DVD combo drive.

NOTE: ** The IEEE-1394 is an optional feature. If the unit was purchased without this option, then this connector will be covered with a removable plug.

rear panel components
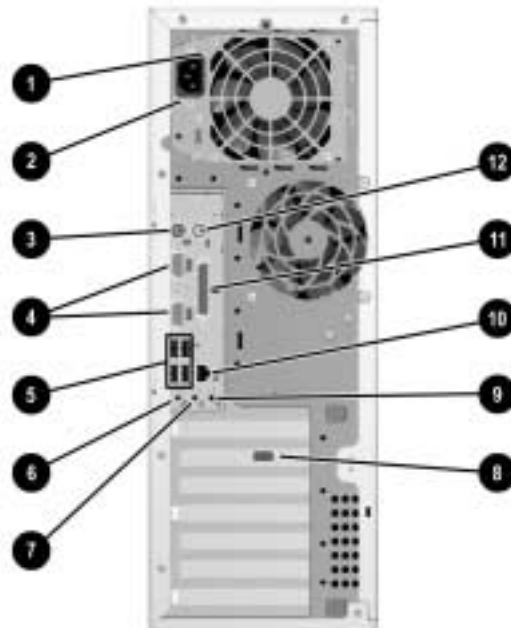
Rear Panel Components

❶	Voltage Select Switch	❼	Line-Out Connector (light green)
❷	Power Cord Connector	❽	Graphics Adapter
❸	PS/2 Keyboard Connector (purple)	❾	Line-In Audio Connector (light blue)
❹	Serial Connector (blue)	❿	RJ-45 Network Connector
❺	Universal Serial Bus (USB)	⓫	Parallel Connector (pink)
❻	Microphone Connector (orange)	⓬	PS/2 Mouse Connector (green)

NOTE: The rear panel connectors are labeled with industry-standard icons to assist you in connecting your peripheral devices.

Easy Access keyboard
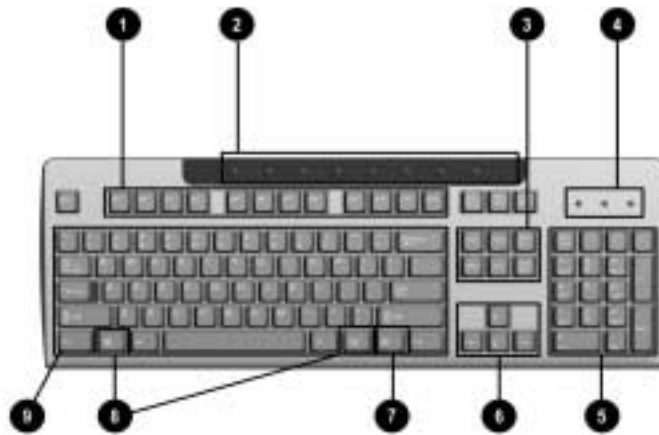
Easy Access Keyboard Components

❶	Function Keys	Perform special functions, depending on the software application being used.
❷	Easy Access Buttons	Provide quick access to specific Internet destinations.
❸	Editing Keys	Includes Insert, Home, Page Up, Delete, End, and Page Down.
❹	Status Lights	Indicate the status of the workstation and keyboard settings (Num Lock, Caps Lock, and Scroll Lock).
❺	Numeric Keys	Work like a calculator keypad.
❻	Arrow Keys	Used to navigate through a document or Web site. These keys allow you to move left, right, up, and down, using the keyboard instead of the mouse.
❼	Application Key*	Used (like the right mouse button) to open pop-up menus in a Microsoft™ Office application. May perform other functions in other software applications.
❽	Windows® Logo Keys*	Used to open the Start menu in Microsoft Windows. Used in combination with other keys to perform other functions. (not applicable to Linux-based workstations)
❾	Ctrl Key	Used in combination with another key; its effect depends on the application software you are using.

NOTE: * Keys available in select geographic regions.

customizing the Easy Access buttons

All Easy Access buttons can be reprogrammed to open any software application or data file on the hard drive, or any Internet address.

NOTE: The Easy Access buttons do not function on Linux systems.

To reprogram the Easy Access buttons, complete the following steps:

1. Double-click the keyboard icon in the notification area (lower right corner) of the Windows taskbar.

2. Click Help on the Keyboard Properties screen for instructions.

using the Windows® logo key

Use the Windows Logo key in combination with other keys to perform certain functions available in the Windows operating system.

NOTE: The Windows logo key does not function on Linux-based systems.

Windows Logo Key	Displays or hides the Start menu
Windows Logo Key + **d**	Displays the Desktop
Windows Logo Key + **m**	Minimizes all open applications
Shift + Windows Logo Key + **m**	Undoes Minimize All
Windows Logo Key + **e**	Launches My Computer
Windows Logo Key + **f**	Launches Find Document
Windows Logo Key + **Ctrl** + **f**	Launches Find Computer
Windows Logo Key + **F1**	Launches Windows Help
Windows Logo Key + **l**	Locks the computer if you are connected to a network domain, or allows you to switch users if you are not connected to a network domain
Windows Logo Key + **r**	Launches the Run dialog box
Windows Logo Key + **u**	Launches the Utility Manager
Windows Logo Key + **Tab**	Activates the next Taskbar button

special mouse functions

Most software applications support the use of a mouse. The functions assigned to each mouse button depend on the software applications you are using.

serial number and COA label location

Each workstation has two unique serial number labels and a certificate of authentication (COA) label. The serial number labels ❶ are located on the top (in a minitower configuration) of the unit and on the rear panel. Keep this number available for use when contacting customer service for assistance. The COA label ❷ is located on the top panel (in a minitower configuration) near the serial number label.

serial number and COA label locations

security features

The following optional security features are available for your workstation.

■ solenoid hood lock—this is a software-controllable cover lock, controlled by the setup password, that prevents unauthorized access to the internal components.

■ cable lock provision—your workstation is equipped with a cable lock slot and a padlock loop. An optional cable lock is available as an option for your workstation.

For more information about these features, refer to the *Service and Technical Reference Guide* located on the *Documentation Library* CD that came with your workstation.

removing the access panel

1. Turn off the workstation properly through the operating system and turn off any external devices.

2. Disconnect the power cord from the power outlet, and disconnect any external devices.

$\triangle$ **CAUTION:** Before removing the workstation access panel, ensure that the workstation is turned off and that the power cord is disconnected from the electrical outlet. Network and telephone cables should be disconnected as well.

3. Lay the workstation down on its large base for greater stability.

4. Lift up on the access panel handle ❶, slide the access panel back about 1 inch (2.5 cm), then lift it up and off the unit ❷.

removing the workstation access panel

To replace the access panel, reverse steps 1–4.

removing the front bezel

1. Turn off the workstation properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

2. Remove the workstation access panel.

3. Push up on the two release tabs ❶, then rotate the front bezel away from the chassis to release it ❷.
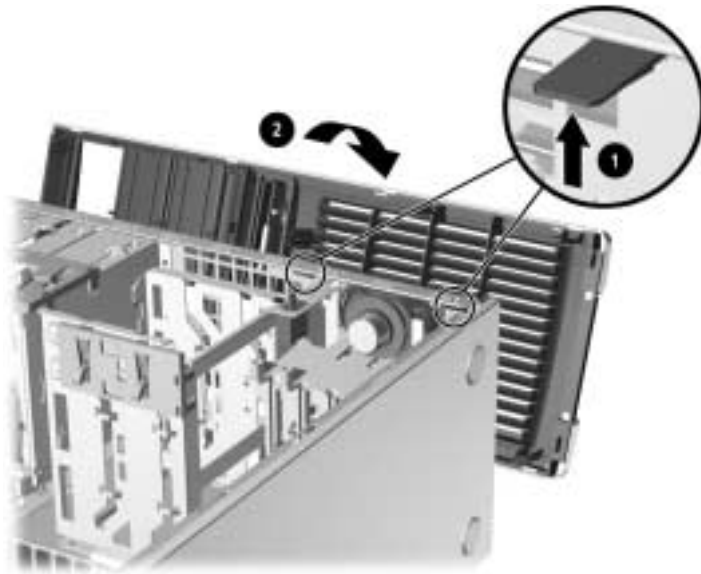
removing the front bezel

NOTE: When replacing the front bezel, ensure that the bottom hinge points are properly placed in the chassis before rotating the front bezel back into its original position.

removing bezel blanks

1. Turn off the workstation properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

2. Remove the workstation access panel then remove the front bezel.

3. Gently pull the subpanel, with the bezel blanks secured in it, away from the front bezel, then remove the desired bezel blank.

⚠ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.
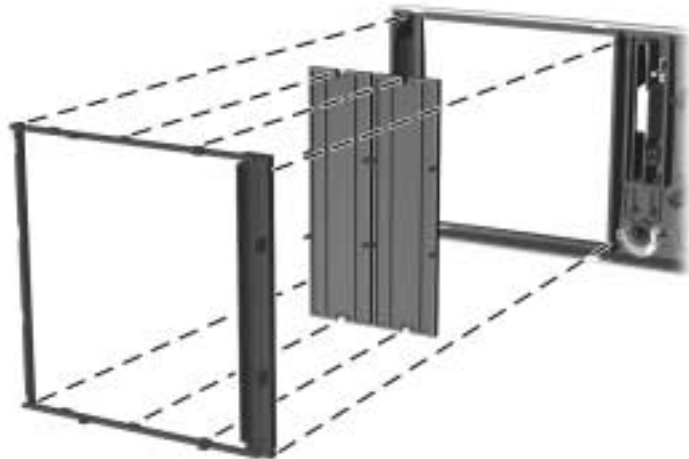
removing bezel blanks from the subpanel (desktop shown)

NOTE: When replacing the subpanel, ensure that the aligning pins and any remaining bezel blanks are in their proper orientation. The logo on the subpanel should be located at the bottom of the subpanel when properly oriented.

changing from a minitower to a desktop configuration

1. Turn off the workstation properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

2. Remove the workstation access panel as described in the "removing the access panel" section.

3. Remove the front bezel as described in the "removing the front bezel" section.

4. Disconnect all power and data cables from the back of the drives in the 5.25-inch drive bays.

5. To release the drives from the 5.25-inch drive bay, lift the release tab on the green latch drive bracket for the drive. While lifting the release tab, slide the drive from its drive bay. Repeat this step for each 5.25-inch drive.
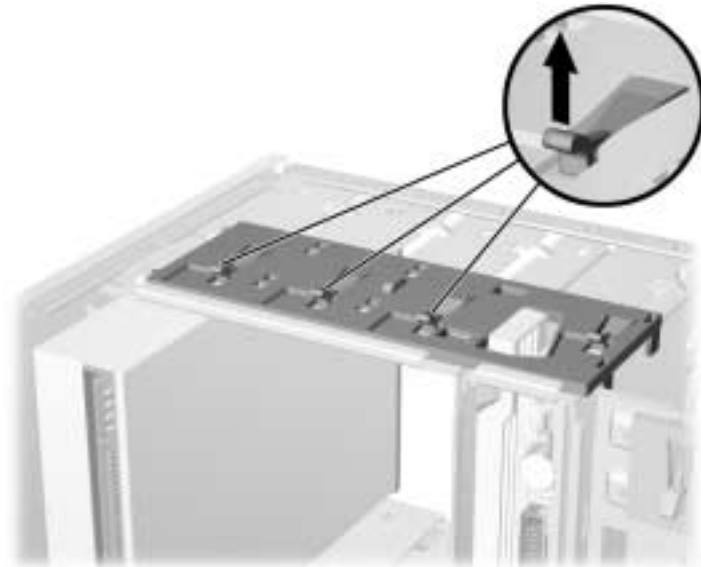
releasing the 5.25-inch drives from the drive bays (minitower)

6. Before you reinstall each drive into the chassis, turn the drive so that it is perpendicular to the internal 3.5-inch drive (this is an optional drive). The drive should be parallel to the green latch drive bracket.

installing a drive in the desktop configuration

7. Gently slide the drive into the uppermost available bay until it snaps into place. When the drive is properly inserted, the drivelock will secure it. Repeat this step for each drive.

⚠ **CAUTION:** The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive that is no more than 6.7 inches in depth, including the cables that attach to the back of the drive. Do not try to force a larger drive, such as an optical drive or MultiBay drive, into the bottom bay. This could cause damage to the drive and the system board.

The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

8. Reconnect all power and data cables to the drives in the 5.25-inch drive bays.

9. Remove the bezel subpanel as described in the "removing bezel blanks" section.

⚠ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.

10. Reposition the bezel blanks within the subpanel in the proper orientation for the desktop configuration.

11. Reposition the subpanel (rotate it 90°) with the HP logo at the bottom, then snap it back into the bezel.
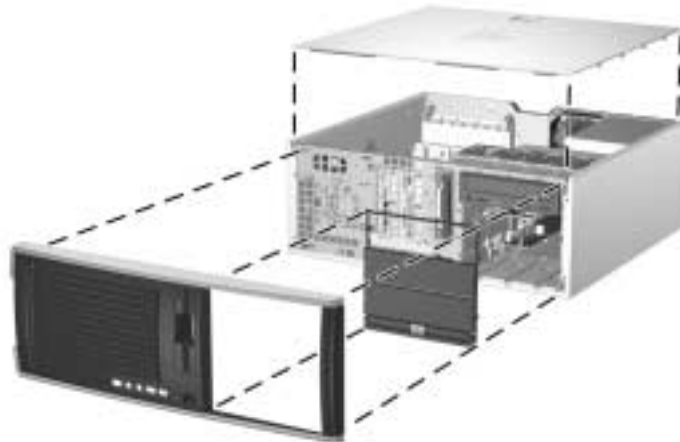
changing from a minitower to a desktop configuration

12. Replace the front bezel and workstation access panel.

13. Reconnect the external equipment.

changing from a desktop to a minitower configuration

1. Turn off the workstation properly through the operating system and turn off any external devices. Disconnect the power cord from the power outlet and disconnect any external devices.

2. Remove the workstation access panel as described in the "removing the access panel" section.

3. Remove the front bezel as described in the "removing the front bezel" section.

4. Disconnect all power and data cables from the back of the drives in the 5.25-inch drive bays.

5. To release the drives from the 5.25-inch drive bay, press down on the short yellow drivelock as shown. While pressing the drivelock, pull the drives out of the drive bay.
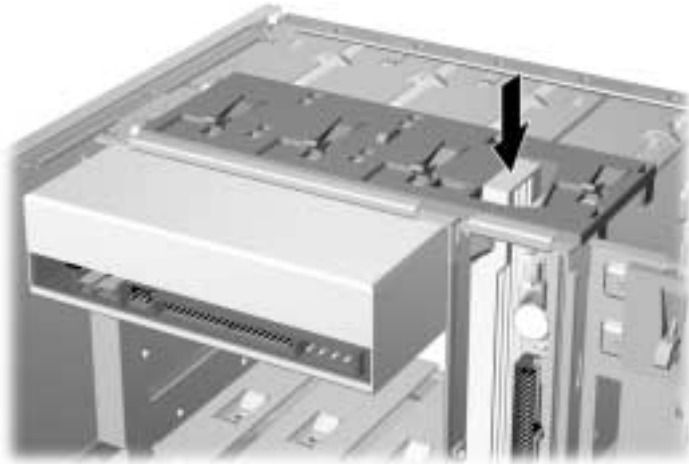
releasing the 5.25-inch drives from the drive bays (desktop)

6. Before you reinstall each drive into the chassis, turn it so that it is in the same orientation as the internal 3.5-inch drive. The bottom of the drive should be parallel to the yellow drivelock.
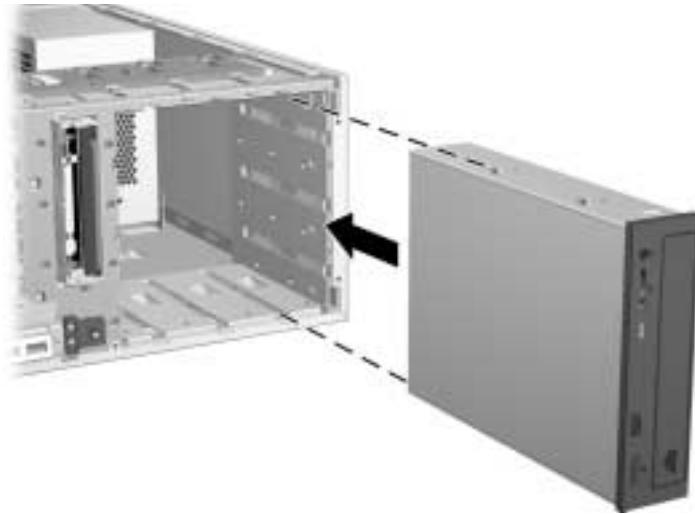
installing a drive in the minitower configuration

7. Gently slide the drive into the uppermost available bay until it snaps into place. When the drive is properly inserted, the drivelock will secure it. Repeat this step for each drive.

⚠ **CAUTION:** The bottom 5.25-inch drive bay has a shorter depth than the upper two bays. The bottom bay supports a drive that is no more than 6.7 inches in depth, including the cables that attach to the back of the drive. Do not try to force a larger drive, such as an optical drive or MultiBay drive, into the bottom bay. This could cause damage to the drive and the system board.

The use of unnecessary force when installing any drive into the drive bay may result in damage to the drive.

8. Reconnect all power and data cables to the drives in the 5.25-inch drive bays.

9. Remove the bezel subpanel as described in the "removing bezel blanks" section.

⚠️ **CAUTION:** Hold the subpanel straight when you pull it away from the front bezel. Pulling the subpanel away at an angle could damage the pins that align it within the front bezel.

10. Reposition the bezel blanks within the subpanel in the proper orientation for the minitower configuration.

11. Reposition the subpanel (rotate it 180°) with the HP logo at the bottom, then snap it back into the bezel.
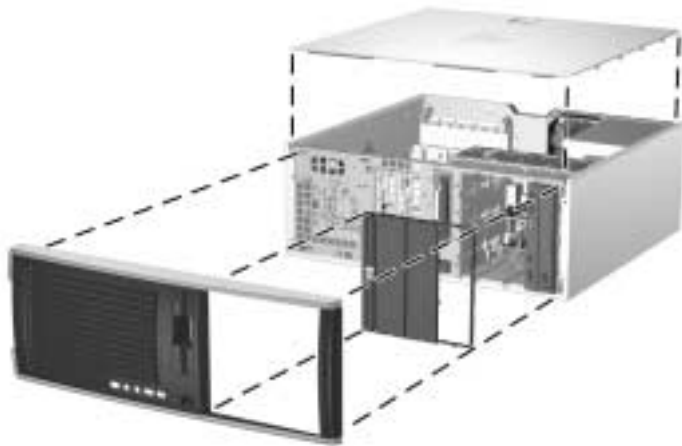
changing from a desktop to a minitower configuration

12. Replace the front bezel and workstation access panel.

13. Flip the workstation to the minitower position.

14. Reconnect the external equipment.

2

software setup

installing and customizing the operating system and software

This section discusses the configuration of the software and operating system for your workstation. This section covers the following:

■ Windows-based workstations

■ Linux-based workstations.

⚠ **CAUTION:** Do not add optional hardware or third-party devices to the workstation until the operating system is successfully installed. Doing so may cause errors and prevent the operating system from installing properly.

Windows-based workstations

NOTE: If your workstation shipped with the Linux operating system, see the "Linux-based workstations" section later in this guide for applicable instructions.

If your unit is a Windows-based workstation, follow the instructions in this section to setup up your OS and software.

installing the operating system

The first time you turn on the workstation, the operating system is installed automatically. This process takes about 5 to 10 minutes. Carefully read and follow the instructions on the screen to complete the installation.

⚠ **CAUTION:** Once the automatic installation has begun, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during the installation process may damage the software that runs the workstation or prevent its proper installation.

For complete operating system installation and configuration instructions, refer to the operating system documentation that was provided with the workstation. Additional information is available in the online help after you install the operating system.

restoring the software

Restore the original operating system and factory-installed software by using the *Restore Plus!* CD and the OS CD that came with the workstation. Carefully read and follow the instructions provided with the *Restore Plus!* CD.

NOTE: If you restore your system using the *Restore Plus!* CD, some settings, such as your power management settings (e.g. Energy Star®settings) will need to be reapplied.

installing or upgrading device drivers

When installing optional hardware devices after the operating system installation is complete, you must also install the drivers for each device.

If prompted for the I386 directory, replace the path specification with **C:\i386,** or use the **Browse** button in the dialog box to locate the I386 folder. This action points the operating system to the appropriate drivers.

You can obtain the latest support software, including support software for the operating system from:

http://www.hp.com/go/workstationsupport

You can also obtain the latest support software through a subscription to the Support Software CD Kit using the Support Software Management order form available at the following Web site:

http://h18007.www1.hp.com/support/files/workstations/us/purchase.html

This site also provides information on how to purchase a subscription.

NOTE: If the workstation has an optical RW drive, you must install the appropriate application to be able to write to the drive. To install the application, use the optical software application CD and load the appropriate applications.

Energy Star®

The Energy Star program is a government-backed initiative to promote energy efficiency by identifying ways to reduce energy consumption at home or in the office. Select HP workstations participate in the Energy Star program.

NOTE: Energy Star is not supported on Linux-based workstations.

For those workstations supporting Energy Star and have it enabled, the power management features will be set as follows:

■ Monitor—goes into sleep mode after 15 minutes of inactivity.

■ System—goes into Standby mode after 15 minutes of inactivity.

■ Hard Drive—goes into power savings mode after the system goes into Standby mode.

NOTE: Should you have to restore the operating system, Energy Star settings (if applicable) will need to be reset after the restore.

NOTE: For more information on Energy Star, refer to the *Service and Technical Reference Guide*.

accessibility

HP is committed to designing products, services, and programs with improved usability and accessibility for all customers. HP products with Microsoft Windows XP or Windows 2000 preinstalled are designed for accessibility, and these products are tested with industry-leading Assistive Technology products. HP Accessibility - connecting everyone to the power of technology.

customizing the monitor display

You can manually select or change the monitor model, refresh rates, screen resolution, color settings, font sizes, and power management settings. To do so, right-click on the Windows Desktop, then click Properties to change display settings. For more information, refer to the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

Linux-based workstations

NOTE: If you have a Windows-based workstation, see the "Windows-based workstations" section earlier in this chapter for applicable instructions.

If your workstation is a Linux-based, follow the instructions in this section to setup up your OS and software.

After the boot process completes, you can view additional HP Linux documentation by simply opening your Internet browser (the browser is automatically set to use the local HP documentation page as its default). You can also access Linux Web links for Red Hat (Internet access required) by using your Internet browser.

Installing the Linux operating system

The first time the workstation is booted, the Linux Setup Tool utility displays. This program allows you to enter your password, network, graphics, time, and keyboard settings for your workstation.

⚠ **CAUTION:** Once the automatic installation has begun, DO NOT TURN OFF THE WORKSTATION UNTIL THE PROCESS IS COMPLETE. Turning off the workstation during the installation process may damage the software that runs the workstation or prevent its proper installation.

NOTE: When you enable the YPBind feature in the Network tab of the Linux Setup Tool, you may get a blank screen for about 15-30 seconds after you have selected and saved all of your settings and have exited the utility. This is normal. The boot process continues its execution after the screen returns.

NOTE: In the Time/Time Zone tab of the Linux Setup Tool utility, the Time Zone Region must be selected first and then the City, before clicking the Save/Exit button.

restoring the software

Should a recovery of the OS be required, insert the *hp workstations Red Hat Linux with hp additions* (Binary Disk 1/3) CD and follow the prompts on the screen to successfully complete the recovery process.

upgrading device drivers

Should you ever have to upgrade a Linux device driver, visit the HP Web site at:
http://www.hp.com/go/workstationsupport

Hyper-Threading Technology

Hyper-Threading Technology is a high performance technology, developed by Intel®, that allows a single processor to execute multiple threads of instructions simultaneously. Hyper-Threading Technology enables the processor to utilize its execution resources more efficiently, delivering performance increases and improving user productivity. Not all systems benefit from the Hyper-Threading Technology.

To see if Hyper-Threading Technology can benefit you, test your system by turning the feature on. Computer Setup (F10) can be used to turn this feature on or off. To do this, run F10 Setup during boot up and select Advanced > Device Options > Hyper-Threading, then choose whether to enable or disable the Hyper-Threading Technology.

NOTE: If your workstation does not support Hyper-Threading Technology, the Hyper-Threading menu item will not be available on the Computer Setup menu.

For more information about the Hyper-Threading Technology, you can visit the Intel® Web site at www.intel.com

turning off the workstation

To properly turn off the workstation, first shut down the operating system software.

$\triangle$ **CAUTION:** Manually forcing the workstation off can cause loss of data.

To turn off power to the workstation, press and hold the power button for four seconds. However, manually turning off the power bypasses the standby state and can result in loss of data.

To reconfigure the power button to work in On/Off mode, run Computer Setup (F10). Refer to the *Service and Technical Guide* on the *Documentation Library* CD for more information about using the Computer Setup (F10) utility.

finding more information

Refer to the *Documentation Library* CD for additional product information in PDF format. The CD contains the following:

■ *Getting Started* (available in print and PDF on library CD) Helps you set up hardware and factory-provided software; also includes basic troubleshooting information should you encounter any problems during initial startup.

■ *Service and Technical Reference Guide* (PDF on library CD–English only) Provides an overview of the product hardware, troubleshooting, product specs, as well as instructions for the removal and replacement of components. This guide also includes information on RTC batteries, memory installation, and power supply.

■ *Safety and Comfort Guide* (PDF on library CD) Provides safety and ergonomic information to assist you in setting up a safe and comfortable workstation environment.

■ *Safety & Regulatory Information Guide* (PDF on library CD) Provides safety and regulatory information that ensures compliance with U.S. Canadian, and various international regulations.

NOTE: Product documentation is also available from the HP Web site: http://www.hp.com/go/workstationsupport.

using the Documentation Library CD

To access the contents of the *Documentation Library* CD follow the steps below that are applicable to your workstation.

Windows-based workstations

Insert the CD into the CD-ROM drive. The CD will Autorun.

If there is no CD-ROM drive activity for two minutes or more, the Autorun feature may not be enabled on the workstation. To run the CD, follow these steps:

1. Click **Start > Run**.

2. Type:

   X:\index.htm

   (where X is the drive letter designator for the CD-ROM drive)

3. Click **OK**.

Linux-based workstations

If the workstation is running a Linux operating system, browse the CD and click on the *index.htm* file to launch the CD interface. To view the documents on the CD, download and install Adobe® Acrobat® Reader for Linux from www.adobe.com.

locating regulatory information

Refer to the *Safety & Regulatory Information* guide on the *Documentation Library* CD for product Class information. You can also refer to the label on the rear of the chassis.

3

troubleshooting

before you call for technical support

If you are having problems with the workstation, try the following solutions before calling for technical support.

■ Look for flashing LEDs on the front of the workstation that are codes for specific problems. Refer to "interpreting diagnostic lights and audible codes" in this guide for details.

■ If the screen is blank, plug the monitor into a different video port on the workstation if one is available. Or, change out the monitor with a monitor that you know is working properly.

■ If you are working on a network, plug another workstation with a different cable into the network connection. There may be a problem with the network plug or cable.

■ If you recently added new hardware, remove the hardware and see if the workstation functions properly.

■ If you recently installed new software, uninstall the software and see if the workstation functions properly.

■ Refer to the following "helpful hints" section in this guide for more general suggestions.

■ Refer to the troubleshooting chapter in the *Service and Technical Reference Guide* on the *Documentation Library* CD for more detailed information.

  http://www.hp.com/go/workstationsupport

■ Refer to the comprehensive online technical support at

  http://www.hp.com/support/

■ Run the R*estore Plus!* CD (for Windows) or the *hp workstations Red Hat Linux with hp additions* CD (for Linux).

If it becomes necessary to call for technical assistance
(1-800-652-6672), be prepared to do the following to ensure
that your service call is handled properly:

■ Be in front of your workstation when you call.

■ Write down the workstation and monitor (if equipped) serial
numbers before calling and have them readily available.

■ Be prepared to spend the time necessary troubleshooting the
problem with the service technician.

NOTE: When calling in for service or support, you may be asked for
the Product Number (example: P8814A) of your workstation. If your
workstation has a Product Number, it is generally located next to the
10- or 12-digit Serial Number of your workstation.

NOTE: Refer to Chapter 1 for the location of the Serial Number label
on your workstation. In general, the Serial Number and Product
Number label are located at the rear of the workstation.

For sales information and warranty upgrades (hp care packs), visit the
hp Web site for your region.

helpful hints

If you encounter some minor problem with your workstation, monitor, or software, refer to the following list of general suggestions before taking further action:

■ Check that the workstation and monitor are plugged into a working electrical outlet.

■ Check to see that the voltage select switch is set to the appropriate voltage for your region (115V or 230V).

■ Check to see that the workstation is turned on and the green power light is on.

■ Check to see that the monitor is turned on and the green monitor light is on.

■ Look for flashing LEDs on the front of the workstation. The flashing lights are error codes that will help you diagnose the problem. Refer to the *Services and Technical Reference Guide* on the *Documentation Library* CD for more information.

■ Turn up the brightness and contrast controls of the monitor if the monitor is dim.

■ Press and hold any key. If the system beeps, then your keyboard is operating correctly.

■ Check all cable connections for loose connections or incorrect connections.

■ Wake the workstation by pressing any key on the keyboard or pressing the power button. If the system remains in suspend mode, shut down the workstation by pressing and holding the power button for at least four seconds, then press the power button again to restart the workstation. If the system will not shut down, unplug the power cord, wait a few seconds, then plug it in again. If it does not restart automatically, press the power button to start the workstation.

■ Reconfigure your workstation after installing a non–plug and play expansion board or other option. See "solving hardware installation problems" for instructions.

■ Be sure that all the needed device drivers have been installed. For example, if you have connected a printer, you need to install a printer driver.

■ Remove all diskettes from your system before turning it on.

■ If you have installed an operating system other than the factory-installed operating system, check to be sure that it is supported on your system.

■ If your workstation has multiple video sources (PCI, or AGP adapters) installed and a single monitor, the monitor must be plugged into the monitor connector on the source selected as the primary VGA adapter. During startup, the other monitor connectors are disabled; if the monitor is connected into one of these ports, it will not function. You can select the default VGA source in Computer Setup (F10).

⚠ **CAUTION:** When the workstation is plugged into an AC power source, voltage is always being applied to the system board. You must disconnect the power cord from the power source before opening the workstation to prevent system board or component damage.

basic troubleshooting

This section concentrates on problems that you might encounter during the initial set up process. Additional troubleshooting information is available in the *Service and Technical Reference Guide* on the *Documentation Library* CD and at the following HP Web site:

http://www.hp.com/go/workstationsupport

solving general problems

You may be able to easily resolve the general problems described in this section. If a problem persists and you are unable to resolve it yourself or if you feel uncomfortable about performing the operation, you can contact an HP customer care center, or you can contact an authorized dealer or reseller. For a list of support telephone numbers for your region, visit the HP Web site at:

http://welcome.hp.com/country/us/eng/wwcontact.html

Solving General Problems

Problem	Cause	Solution
Workstation appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	Press and hold the power button for at least four seconds until the workstation turns off.
Workstation will not respond to USB keyboard or mouse.	Workstation is in **standby** mode.	Press the power button to resume from **standby** mode.

⚠ **CAUTION:** When attempting to resume from **standby** mode, do not hold down the power button for more than four seconds. Otherwise, the workstation will shut down and you will lose your data.

Problem	Cause	Solution
Workstation date and time display is incorrect.	RTC (real-time clock) battery may need to be replaced. **NOTE:** Connecting the workstation to a live AC outlet prolongs the life of the RTC battery.	First, reset the date and time using Computer Setup (F10). If the problem persists, replace the RTC battery. See the *Service and Technical Reference Guide* for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Workstation appears to pause periodically.	Network driver is loaded and no network connection is established.	Establish a network connection, or use Computer Setup (F10) to disable the network controller.
Cursor will not move using the arrow keys on the keypad.	The **Num Lock** key may be on.	Press the **Num Lock** key. The Num Lock light should not be on if you want to use the arrow keys. The **Num Lock** key can be disabled (or enabled) in Computer Setup (F10).
Cannot remove workstation cover or access panel.	Solenoid hood lock, featured on some workstations, is locked.	Unlock the solenoid hood lock using Computer Setup (F10). The solenoid hood lock FailSafe Key, a device for manually disabling the solenoid hood lock, is available from HP. You will need the FailSafe Key in case of forgotten password, power loss, or workstation malfunction.
Poor performance is experienced.	Processor is hot.	1. Make sure the airflow to the workstation is not blocked. 2. Make sure the fans are connected and working properly (some fans only operate when needed). 3. Make sure the processor heatsink is installed properly.
	Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.

Solving General Problems *(Continued)*

Problem	Cause	Solution
Workstation powered off automatically and the Power LED flashes Red two times, once every second, followed by a two second pause.	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink is not properly attached to the processor.	1. Ensure that the workstation air vents are not blocked and the cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace the processor fan. 4. Reseat processor heatsink and verify that fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

Solving General Problems *(Continued)*

Problem	Cause	Solution
System does not power on and the LEDs on the front of the workstation are not flashing.	System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:
		1. Check that the voltage selector, located on the rear of the power supply, is set to the appropriate voltage. Proper voltage setting depends on your region.
		2. Remove the expansion cards one at a time until the 3.3 V_aux light on the system board turns on.
		3. Replace the system board.
		OR
		Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:
		1. Check that unit is plugged into a working AC outlet.
		2. Open hood and check that the power button harness is properly connected to the system board.
		3. Check that both power supply cables are properly connected to the system board.
		4. Check to see if the 3.3 V_aux light on the system board is turned on. If it is turned on, then replace the power button harness.
		5. If the 3.3 V_aux light on the system board is not turned on, then replace the power supply.
		6. Replace the system board.

solving hardware installation problems

You may need to reconfigure the workstation when you add or remove hardware, such as an additional diskette drive. If you install a plug and play device, some operating systems automatically recognize the device and configure the workstation. If you install a non–plug and play device, you must reconfigure the workstation after installing the new hardware.

Solving Hardware Installation Problems

Problem	Probable Cause	Recommended Solution
A new device is not recognized as part of the system.	Device is not seated or connected properly.	Ensure that the device is properly and securely connected and that pins in the connector are not bent down.
	Cable(s) of new external device are loose or power cables are unplugged.	Ensure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the workstation and follow the instructions for accepting the changes.
	A plug and play board may not automatically configure when added if the default configuration conflicts with other devices.	Use Computer Setup (F10) to reconfigure or disable devices to resolve the resource conflict.

Solving Hardware Installation Problems *(Continued)*

Problem	Probable Cause	Recommended Solution
Workstation will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	1. Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. 2. Observe the beeps and LED lights on the front of the workstation. See "Interpreting diagnostic Lights and Audible Codes" to determine possible causes. 3. If you still cannot resolve the issue, contact Customer Support.
Power LED flashes Red five times, once every second, followed by a two second pause, and the workstation beeps five times.	Memory is installed incorrectly or is bad.	1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.
Power LED flashes Red six times, once every second, followed by a two second pause, and the workstation beeps six times.	Video card is not seated properly or is bad, or system board is bad.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board.

interpreting diagnostic lights and audible codes

This section covers the front panel light (LED) codes as well as the audible codes that may occur before or during the Power-On Self-Test (POST) that do not necessarily have an error code or text message associated with them.

NOTE: If you see flashing LEDs on a PS/2 keyboard, look for flashing LEDs on the front panel of the workstation and refer to the following table to determine the front panel LED codes.

Recommended actions in the following table are listed in the order in which they should be performed.

Diagnostic Front Panel Lights (LEDs) and Audible Codes

Activity	Beeps	Possible Cause	Recommended Action
Green Power LED On.	None	Workstation on.	None
Green Power LED flashes every two seconds.*	None	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	None
Green Power LED is off.*	None	Workstation in Suspend to Disk or "Hibernate" mode.	None

* *NOTE:* When the Unique Sleep State Blink Rates is disabled in Computer Setup (F10), these reflexes are observed on the green power LED.

Diagnostic Front Panel Lights (LEDs) and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Green Power LED flashes three times, once per second.**	None	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	None
Green Power LED flashes four times, once per second.**	None	Workstation in Suspend to Disk or "Hibernate" mode.	None
Red Power LED flashes two times, once every second, followed by a two-second pause.	None	Processor thermal protection activated: A fan may be blocked or not turning. OR The heatsink/fan assembly is not properly attached to the processor.	1. Ensure that the workstation air vents are not blocked and the cooling fan is running. 2. Open hood, press power button, and see if the processor fan spins. If the processor fan is not spinning, make sure the fan's cable is plugged onto the system board header. Ensure the fan is fully/properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, then replace processor fan. 4. Reseat processor heatsink and verify that fan assembly is properly attached. 5. Contact an authorized reseller or service provider.

NOTE: When the Unique Sleep State Blink Rates is enabled in Computer Setup (F10), these reflexes are observed on the green power LED.

Diagnostic Front Panel Lights (LEDs) and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED stays on.	None	Processor not installed (not an indicator of bad processor).	1. Check to see that the processor is present. 2. Reseat the processor.
Red Power LED flashes once every two seconds.	None	Power failure (power supply is overloaded).	1. Check that the voltage selector, located on the rear of the power supply, is set to the appropriate voltage. Proper voltage setting depends on your region. 2. Open the hood and ensure the 4-wire power supply cable is seated into the connector on the system board. 3. Check if a device is causing the problem by removing ALL attached devices (such as hard, diskette, or optical drives, and expansion cards.) Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure, until failure occurs. Replace the device that is causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly. 4. Replace the power supply. 5. Replace the system board.
Red Power LED flashes five times, once every second, followed by a two second pause.	5	Pre-video memory error	1. Reseat DIMMs. Power on the system. 2. Replace DIMMs one at a time to isolate faulty module. 3. Replace third-party memory with HP memory. 4. Replace the system board.

Diagnostic Front Panel Lights (LEDs) and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
Red Power LED flashes six times, once every second, followed by a two second pause.	6	Pre-video graphics error.	For systems with a graphics card: 1. Reseat the graphics card. Power on the system. 2. Replace the graphics card. 3. Replace the system board.
Red Power LED flashes seven times, once every second, followed by a two second pause.	7	System board failure (ROM detected failure prior to video).	Replace the system board.
Red Power LED flashes eight times, once every second, followed by a two-second pause.	8	Invalid ROM based on bad checksum.	1. Reflash the ROM using a ROMPaq diskette. See the "ROM Flash" section of the *Service and Technical Reference Guide* on the *Documentation Library* CD. 2. Replace the system board.

Diagnostic Front Panel Lights (LEDs) and Audible Codes *(Continued)*

Activity	Beeps	Possible Cause	Recommended Action
System does not power on and LEDs are not flashing.	None	System unable to power on.	Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:

Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:

1. Check that the voltage selector, located on the rear of the power supply, is set to the appropriate voltage. Proper voltage setting depends on your region.

2. Remove the expansion cards one at a time until the 3.3 V_aux light on the system board turns on.

3. Replace the system board.

OR

Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:

1. Check that unit is plugged into a working AC outlet.

2. Open hood and check that the power button harness is properly connected to the system board.

3. Check that both power supply cables are properly connected to the system board.

4. Check to see if the 3.3 V_aux light on the system board is turned on. If it is turned on, then replace the power button harness.

5. If the 3.3 V_aux light on the system board is not turned on, then replace the power supply.

6. Replace the system board.

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