



HP xw Workstation series

Setup and Troubleshooting Guide

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1 Locating HP resources

This section provides information on the following HP resources for your workstation:

Topics

[Product information on page 2](#)

- HP Cool Tools
- Regulatory information
- Accessories
- System board
- Serial number and Certificate of Authenticity labels
- Linux

[Product support on page 3](#)

- Additional information
- Technical support
- Business Support Center
- IT Resource Center
- HP Service Center
- HP Business and IT Services
- Warranty information

[Product documentation on page 4](#)

- User and third-party documentation, and white papers
- Product notifications
- QuickSpecs
- Customer Advisories, Security Bulletins, Notices

[Product diagnostics on page 5](#)

- Diagnostics tools
- Audible beeps and LED code definitions
- Web-based support tools

[Product updates on page 6](#)

- Software, BIOS, and driver updates
 - Operating system reinstallation
 - Operating system
-

Product information

Table 1-1 Product information

Topic	Location
HP Cool Tools	<p>Most HP Microsoft Windows workstations are preloaded with additional software that is not automatically installed during first boot. Additionally, a number of valuable tools on your workstation are preinstalled that may enhance system performance. To access or learn more about these applications, choose one of the following options:</p> <p>To learn more about these applications, click HP Cool Tools—Learn More.</p> <p>To install or launch the applications, click the appropriate application icon.</p> <ul style="list-style-type: none">• Click the HP Cool Tools icon on the desktop, or• Open the HP Cool Tools folder by selecting Start > All Programs > HP Cool Tools.
Regulatory information	<p>Refer to the <i>Safety & Regulatory Information</i> guide for product Class information. You can also refer to the label on the workstation chassis.</p>
Accessories	<p>For complete and current information on supported accessories and components, see http://www.hp.com/go/workstations.</p>
System board	<p>A diagram of the system board is located on the inside of the side access panel. Also, additional information is located in the <i>Service and Technical Reference Guide</i> on the Web at http://www.hp.com/support/workstation_manuals/.</p>
Serial number and Certificate of Authenticity (COA) labels (if applicable)	<p>Serial number labels are on the top panel, or on the side of the unit at the rear, depending on the workstation model. The COA label is generally located on the top or side panel near the serial number label. Some workstations have this label on the bottom of the unit.</p>
Linux	<p>For information on running Linux on HP workstations, see http://www.hp.com/linux/.</p>

Product support

Table 1-2 Product support

Topic	Location
Additional information	<p>For online access to technical support information and tools, see http://www.hp.com/go/workstationsupport.</p> <p>Support resources include Web-based troubleshooting tools, technical knowledge databases, driver and patch downloads, online communities, and proactive notification services.</p> <p>The following communication and diagnostic tools are also available:</p> <p>Refer to the workstation <i>Service and Technical Reference Guide</i> for more information on how to receive support.</p> <ul style="list-style-type: none">• Instant Chat• Instant Support• Diagnose Problem
Technical support	<p>Before you call technical support, refer to the workstation <i>Service and Technical Reference Guide</i> for a listing of information you need to have available before you call.</p> <p>For a listing of all worldwide technical support phone numbers, see http://www.hp.com/support/, select your region, and click Contact HP in the upper-left corner.</p>
Business Support Center (BSC)	<p>For software/driver downloads, warranty information, single-topic documents, user manuals, or service manuals, see http://www.hp.com/go/bizsupport.</p>
IT Resource Center (ITRC)	<p>See http://www.itrc.hp.com/ for a searchable knowledge base for IT professionals.</p>
HP Business and IT Services.	<p>For business and IT information, see http://www.hp.com/hps/.</p>
HP Hardware Support Services	<p>For hardware service information, see http://www.hp.com/hps/hardware/.</p>
Warranty information	<p>To locate base warranty information, see http://www.hp.com/support/warranty-lookuptool.</p> <p>To locate an existing Care Pack, see http://www.hp.com/go/lookuptool.</p> <p>To extend a standard product warranty, see http://www.hp.com/hps/carepack. HP Care Pack Services offer upgraded service levels to extend and expand a standard product warranty.</p>

Product documentation

Table 1-3 Product documentation

Topic	Location
HP user documentation, white papers, and third-party documentation	For the latest online documentation, see http://www.hp.com/support/workstation_manuals . These include this Setup and Troubleshooting Guide and the <i>Service and Technical Reference Guide</i> .
Product notifications	<p>Subscriber's Choice is an HP program that allows you to sign up to receive driver and software alerts, proactive change notifications (PCNs), the HP newsletter, customer advisories, and more. Sign up at http://www.hp.com/go/subscriberschoice/.</p> <p>Customer advisories and product change notifications are also available on http://www.hp.com/go/bizsupport/.</p>
Workstation QuickSpecs	The Product Bulletin contains QuickSpecs for HP Workstations. QuickSpecs provide an overall specification review of your product. It includes information about its features including the operating system, power supply, memory, CPU, and many other components of the system. To access the QuickSpecs, see http://www.hp.com/go/productbulletin/ .
Customer Advisories, Security Bulletins, and Notices	<p>To find advisories, bulletins, and notices:</p> <ol style="list-style-type: none">1. see http://www.hp.com/go/workstationsupport.2. Select the desired product.3. From the Resources section, select See more...4. Use the scroll bar to select Customer Advisories, Customer Bulletins, or Customer Notices.

Product diagnostics

Table 1-4 Product diagnostics

Topic	Location
Diagnostics tools	The HP Vision Field Diagnostics utility can be downloaded from the HP Web site. To use this utility, refer to the appropriate section of the workstation <i>Service and Technical Reference Guide</i> .
Audible beep and LED code definitions	Refer to the appropriate section of the workstation <i>Service and Technical Reference Guide</i> for detailed information about beep and Light Emitting Diode (LED) codes applicable to the workstation.

Product updates

Table 1-5 Product updates

Topic	Location
Software, BIOS, and driver updates	See http://www.hp.com/go/workstationsupport to verify that you have the latest drivers for the workstation. To locate the current workstation BIOS on your Microsoft Windows workstation, select Start>Help and Support>Pick a Task>Use Tools to view...>Tools>My Computer Information>View general system information...
Operating system	For information on operating systems supported on HP workstations, see http://www.hp.com/go/wsos .

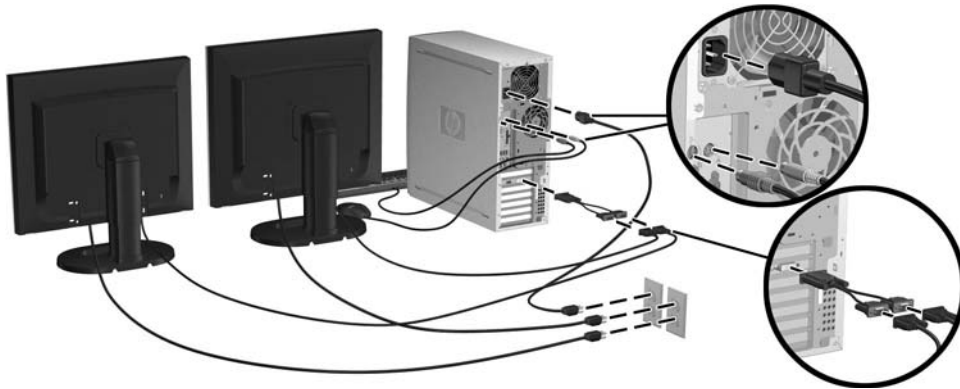
2 Setting up the Hardware

This chapter provides information on setting up of the workstation hardware.

Quick setup


-
- ⚠ **WARNING!** To reduce the risk of electric shock or damage to your equipment:
- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the power cord in a grounded (earthed) outlet that is easily accessible at all times.
-
- 📝 **NOTE:** Your workstation might not have PS/2 mouse and keyboard connectors as shown in Figure 2-1. Alternatively, connect the mouse and keyboard to appropriate USB connectors (see Table 2-2).
-

Figure 2-1 Workstation quick setup example



-
- 📝 **NOTE:** After setting up your workstation hardware, connect other peripheral components (such as a printer) according to the instructions included with the device. For more information on your HP Workstation, visit <http://www.hp.com/go/workstationsupport>.
-

To rapidly set up your workstation hardware, complete the following steps:

1. After unpacking your HP Workstation, locate an accessible workspace to set up the system and connect the mouse, keyboard, and power cables to your workstation. Connect the power cable from the workstation to a power outlet.
 2. Connect the workstation monitors, as appropriate for your system configuration, as follows:
 - If your workstation has a PCI-Express graphics card with a DMS-59 output receptacle (see Table 2–2), use an appropriate adapter to connect your monitors. Adapters are available to connect the DMS-59 output to two DVI or two VGA monitors. Figure 2–1 (lower inset) illustrates using an adapter to connect dual DVI or VGA monitors to the workstation DMS-59 output.
 - If your workstation has a PCI-Express graphics card with two DVI output receptacles (see Table 2–2), you can connect a monitor to each DVI receptacle (using appropriate adapters, if required).
-
-  **NOTE:** On a system with two DVI connections, the **primary display port** (used to display BIOS and other important information) will be port #1; defined as the port physically closest to the system board, and located on the PCI-Express card bulkhead installed closest to the workstation chassis rear panel.
-
3. Connect a power cable from each monitor to a power outlet, as shown in Figure 2–1.

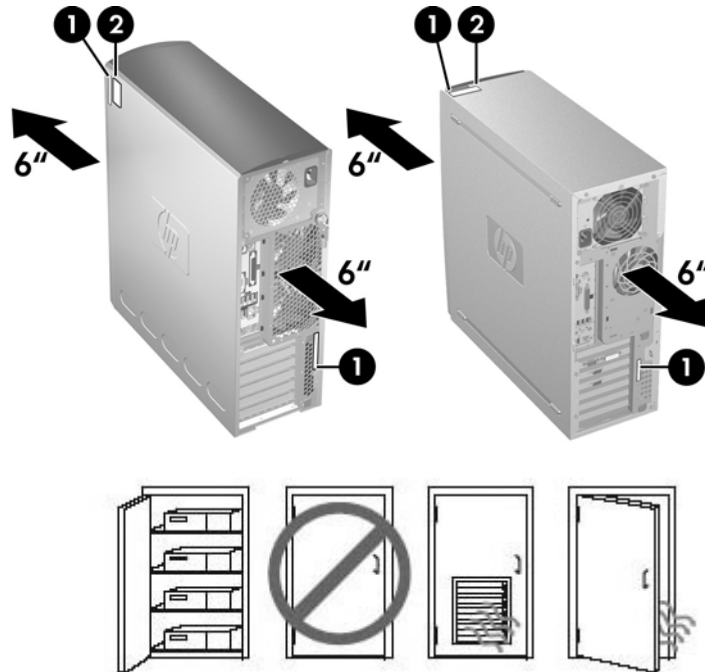
Ventilation, COA label, and serial number label information

Proper ventilation for your system is very important. See Figure 2–2 and the following notes to properly position your system for maximum airflow.


- Operate the computer on a sturdy, level surface.
- Place the computer in an area that is relatively cool with adequate ventilation. Provide at least 6 inches of clearance at the front and back of the workstation. For cabinet installation, ensure adequate cabinet ventilation and ensure that the ambient temperature within the cabinet does not exceed 35° C (95° F).

- Never restrict the incoming or outgoing airflow of the computer by blocking any vents or air intakes.

Figure 2-2 Workstation ventilation



Each HP Workstation has two unique serial number labels (1) and a Certificate of Authentication (COA) label (2) (for Windows®-preinstalled systems only) as shown in Figure 2–2. In general, the serial number labels can be found on the top panel or on the side of the unit and at the rear of the unit. Keep this number available when contacting customer service for assistance. The COA label is generally located on the top panel or side of the unit near the serial number label.

 **NOTE:** If you must restore the operating system with Windows OEM CDs (installing without using the *Restore Plus!* CDs), refer to the appropriate section of the chapter [Restoring the operating system on page 20](#).

Front and rear panel components

This section provides information on workstation front and rear panel controls and components.

Front panel components

Figure 2–3 is for reference only, and shows examples of different workstation series. Your HP workstation might look different.

Figure 2-3 Workstation series front panel examples

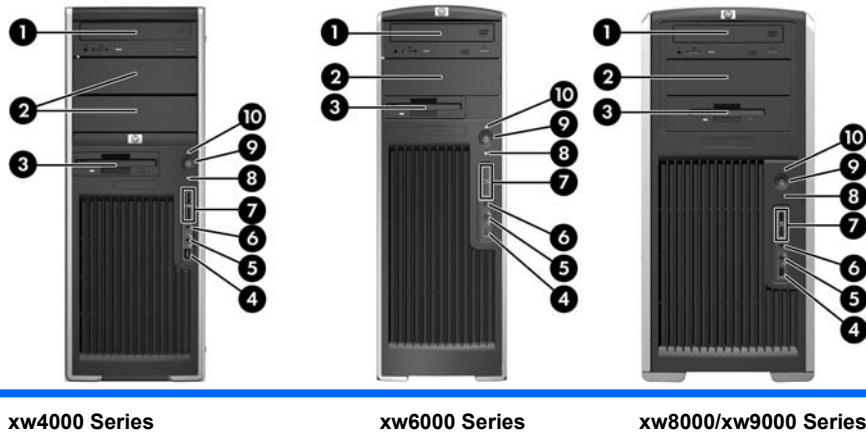








Table 2-1 Front panel component examples*

Item	Symbol	Description	Item	Symbol	Description
1		Optical drive	6		Headphone connector
2		5.25-inch drive bay	7		USB 2.0 (Universal Serial Bus) ports
3		Diskette drive (optional)	8		Hard drive activity light
4		IEEE-1394a connector	9		Power button
5		Microphone connector	10		Power on light

* Refer to the *Service and Technical Reference Guide* for your workstation for specific front panel component information.

Rear panel components

Figure 2–4 is for reference only and show examples of rear panel connectors that might be located on your workstation. Your HP workstation has some combination of these connectors, depending upon workstation model and configuration.

Figure 2-4 Workstation connector and control examples

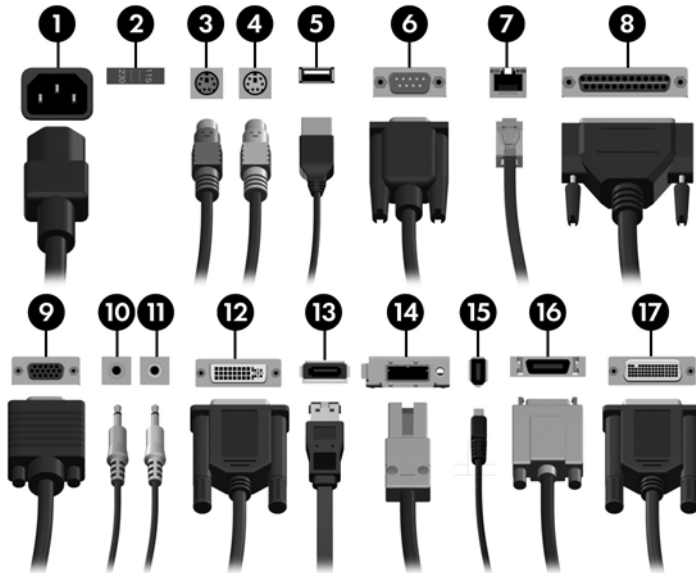


Table 2-2 Rear panel connector and control description









Item	Symbol	Description	Item	Symbol	Description
1		Power cord connector	10		Audio line-out connector
2		Voltage Select Switch	11		Audio line-in connector
3		PS/2 Mouse connector (green) NOTE: Might not be available on all workstations.	12	DVI	DVI-D Monitor Connector NOTE: Your workstation might have a DVI-I Monitor Connector instead. This connector will have two additional pins above and two below the horizontal flat blade to carry integrated analog signals.
4		PS/2 Keyboard connector (purple) NOTE: Might not be available on all workstations.	13		e-SATA Connector NOTE: Might not be available on all workstations.
5		USB 2.0 ports	14		Mini SAS Connector NOTE: Might not be available on all workstations.
6	IOIOI	Serial connector	15		IEEE-1394a connector NOTE: Might not be available on all workstations.

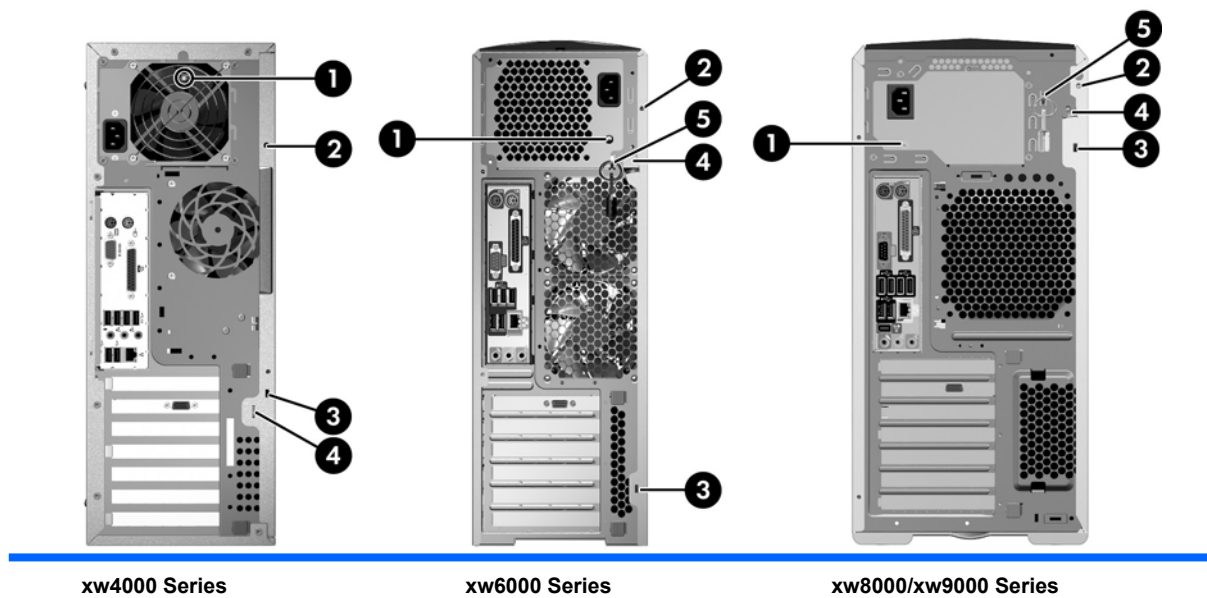
Table 2-2 Rear panel connector and control description (continued)

Item	Symbol	Description	Item	Symbol	Description
7		RJ-45 network connector	16		SAS Connector NOTE: Might not be available on all workstations.
8		Parallel connector * NOTE: Might not be available on all workstations.	17		DMS-59 high density graphics connector NOTE: Might not be available on all workstations.
9		SVGA Monitor Connector			

* Refer to the *Service and Technical Reference Guide* for your workstation for specific rear panel component information. The rear panel connectors are labeled with industry-standard icons and colors to assist you in connecting your peripheral devices.

Additional rear panel components can include those shown in the examples in Figure 2–5. Your workstation has some combination of these components, depending upon workstation model and configuration.

Figure 2-5 Additional rear panel component examples



Item	Description
1	Built-in Self Test (BIST) LED
2	Universal chassis clamp opening
3	Cable lock slot
4	Padlock loop

5 Access panel key

NOTE: Not all workstations models have the key lock.

6 PCI expansion slot access openings (each slot opening typically covered with blank filler panel when not use).

Product recycling

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries.

For information about recycling HP components or products, see <http://www.hp.com/go/recycle>.

3 Setting up the operating system

This chapter provides setup and update information for the workstation operating system. It includes these topics:

Topics

[Setting up the Microsoft operating system on page 15](#)

[Setting up Red Hat Enterprise Linux on page 16](#)


[Setting up Novell SLED on page 17](#)

[Updating the workstation on page 17](#)


This chapter also includes information on how to determine that you have the latest BIOS, drivers, and software updates installed on the workstation.

-
- △ **CAUTION:** Do not add optional hardware or third-party devices to the HP workstation until the operating system is successfully installed. Adding hardware might cause errors and prevent the operating system from installing correctly.
-

Setting up the Microsoft operating system

 **NOTE:** If you ordered a downgrade from Windows 7 or Windows Vista to Windows XP Professional operating system, your system will be preinstalled with Windows XP Professional operating system. With this configuration, you will receive recovery media for the Windows 7 or Windows Vista operating system only. In case you need to restore or recover the Windows XP Professional operating system in the future, it is important that you create recovery media disks for Windows XP Professional operating system after first boot.

When you first apply power to the workstation, the operating system is installed. This process takes approximately 5 to 10 minutes. Carefully follow the instructions on the screen to complete the installation.

 **CAUTION:** After installation has started, do *not* turn off the workstation until the process is complete. Turning off the workstation during installation can damage the installation and operation of the software.

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

Installing or upgrading device drivers

To install hardware devices after the operating system is installed, you must install the appropriate device drivers before you install the devices. Follow the installation instructions that came with the device. In addition, for optimum performance, your operating system must have the most recent updates, patches, and software fixes. For additional driver and software update information, refer to [Upgrading device drivers on page 19](#).

Transferring files and settings to your Windows workstation

The Microsoft Windows operating system offers data migration tools that helps you choose and transfer files and data from a Windows computer to your Windows 7, Windows Vista, or Windows XP Professional operating system workstation.

For instructions on how to use these tools, see the documents at <http://www.microsoft.com>.

Setting up Red Hat Enterprise Linux

HP offers an HP Installer Kit for Linux (HPIKL) to supplement Red Hat box sets and help HP Linux customers customize their system image. The HPIKL contains the HP driver CD and device drivers to successfully setup up the Red Hat Enterprise Linux (RHEL) operating system, The HP Installer Kit for Linux CDs are currently available for download at http://www.hp.com/support/workstation_swdrivers.

Installing with the HP driver CD

To install the HP driver CD, see “Installing with the HP Installer Kit for Linux” in the *HP Workstations for Linux* manual at http://www.hp.com/support/workstation_manuals.

Installing and customizing Red Hat-enabled workstations

Linux-enabled workstations require the HP Installer Kit and the purchase of a Red Hat Enterprise Linux box set. The Installer kit includes the HP CDs necessary to complete the installation of all versions of the Red Hat Enterprise Linux box set that have been qualified to work on an HP workstation.

To use the drivers in the HP Installer kit for Linux other than RHEL, you must manually extract the drivers from the HP Driver CD and install them. HP does not test the installation of these drivers on other Linux distributions nor does HP support this operation.


Verifying hardware compatibility

To see which Linux versions have been qualified to work on HP Workstations visit http://www.hp.com/support/linux_hardware_matrix.

Setting up Novell SLED

To set up the SUSE Linux Enterprise Desktop (SLED) on systems preloaded with the operating system:

1. Boot the workstation.
2. Start the Installation Settings and enter the password, network, graphics, time, keyboard settings, and Novell Customer Center Configuration for the workstation.

 **NOTE:** During Installation Settings after the first time after booting the system the Novell subscription can be activated from the Novell Customer Center Configuration screen. Visit the full Novell Customer Center documentation at <http://www.novell.com/documentation/ncc/>.

Updating the workstation

HP is constantly working on improving your total workstation experience. To ensure that the workstation leverages the latest enhancements, HP recommends that you install the latest BIOS, driver, and software updates on a regular basis.

Updating the workstation after first boot

After successfully booting the workstation for the first time, you should follow these guidelines to ensure that the workstation is up-to-date:

- Ensure that you have the latest system BIOS loaded. See [Upgrading the BIOS on page 17](#) for instructions.
- Ensure that you have the latest drivers for your system. See [Upgrading device drivers on page 19](#) for instructions.
- Become familiar with your available HP resources.
- Consider a subscription to Driver Alerts at <http://www.hp.com/go/subscriberschoice>.

Upgrading the BIOS

For optimum performance, determine the BIOS revision on the workstation, and upgrade it if necessary.

Determining current BIOS

To determine the current BIOS of the workstation during system power up:

1. Wait for F10=setup to appear on the lower right corner of the screen.
2. Press **F10** to enter the F10 Setup utility.

The F10 Setup utility displays the workstation BIOS version under **File > System Information**.

3. Note the workstation BIOS version so that you can compare it with the BIOS versions that appear on the HP website.

Upgrading BIOS

To find and download the latest available BIOS, which includes the latest enhancements:

1. Go to <http://www.hp.com/go/workstationsupport>.
2. Select **Download Drivers and Software** from the left menu column under Tasks.
3. Follow the instructions to locate the latest BIOS available for the workstation.
4. If the BIOS on the Web site is the same as the version on your system, no further action is required.
5. If the BIOS on the Web site is a version later than the one on your system, download the appropriate version for the workstation. Follow the instructions in the release notes to complete the installation.

Upgrading device drivers

If you install a peripheral device (such as a printer, display adapter, or network adapter), confirm you have the latest device drivers loaded. If you purchased your device through HP, visit the HP Web site to download the latest drivers for your device. These drivers have been tested to ensure the best compatibility between your device and your HP workstation.

If you did not purchase your device from HP, HP recommends visiting the HP Web site first to see if your device and its drivers have been tested for HP workstation compatibility. If no driver is available, visit the device manufacturer's Web site to download the latest drivers.

To upgrade device drivers:

1. Go to <http://www.hp.com/go/workstationsupport>.
2. Select **Download Drivers and Software** from the left menu column under Tasks.
3. Follow the instructions to find the latest drivers available for the workstation.

If a needed driver is not found, see the Web site of the manufacturer of the peripheral device.

4 Restoring the operating system

This chapter describes how to restore the Windows or Linux operating system. It includes these topics:

Topics

[Restore methods on page 20](#)

[Ordering backup software on page 21](#)

[Restoring Windows 7 or Windows Vista on page 21](#)

[Restoring Windows XP Professional on page 22](#)

[Restoring Novell SLED on page 24](#)

Restore methods

The Windows 7 or Windows Business Vista operating system can be reinstalled using the HP RestorePlus! process. The Windows XP Professional operating system can be reinstalled using the RestorePlus! process or the HP Backup and Recovery Manager.

- RestorePlus!

The RestorePlus! process reinstalls the Windows operating system and device drivers (for devices included with the system) to a near-factory state. The process does not back up or recover data on the hard drive. Some application software might not be restored using this process and must be installed from the appropriate application CD.

- HP Backup and Recovery Manager (HPBR) Recovery Point

The HP Backup and Recovery Manager application can be used to capture and restore the contents of the system partition. It captures a snapshot of the system partition and stores it in a Recovery Point. Everything on the system partition at the time the recovery point was made is saved.

 **NOTE:** HP Backup and Restore is only supported on the HP xw6600 and xw8600 Workstations.

The Recovery Point is saved to the hard drive and can be burned to media for safekeeping.

△ **CAUTION:** These methods restore the operating system, but not data. Data must be backed up regularly to avoid loss.

Ordering backup software

If you cannot create system recovery CDs or DVDs, you can order a recovery disk set from the HP support center. To obtain the support center telephone number for your region see <http://www.hp.com/support/contactHP>.

Restoring Windows 7 or Windows Vista


This section describes how to restore Windows 7 or Windows Vista.


Ordering the RestorePlus! media

If you ordered restore media with your workstation, the media is included with your workstation components.

If you did not order restore media, call HP Support and request a RestorePlus! media kit. For worldwide technical support phone numbers, see <http://www.hp.com/support>.

Restoring the operating system

 **NOTE:** Windows 7 and Windows Vista provide a backup and restore application as well. To learn more about this application, see the Microsoft Web site.

 **CAUTION:** Before you restore the operating system, back up your data.

When you run RestorePlus! from media, the process deletes all information on the primary hard drive, including all partitions.


To restore Windows 7 or Windows Vista:

1. Boot from the RestorePlus! DVD to start the RestorePlus! process. You must start from the RestorePlus! DVD to install device drivers and settings.
2. Follow the prompts to restore your operating system.

Some application software might not be restored using this process. If software is not restored, install it from the appropriate application DVD.

Restoring Windows XP Professional

This section describes how to restore the Windows XP Professional operating system.


 **NOTE:** The workstation must have a CD or DVD writer installed to create the media set.

Creating RestorePlus! media

The RestorePlus! kit can be created using the files contained on the hard drive. To create the restore media:

1. Boot the workstation.
2. During boot up, an HP Backup and Recovery Manager screen is displayed prompting you to create Recovery CDs or DVDs. Select **Now**.
3. An Initial Recovery Point (IRP) of the system is captured. This is a snapshot of the system hard drive. The capture can take more than 10 minutes.
4. After the IRP is created, you can create a set of backup CDs or DVDs.


To create a RestorePlus! media set including the Windows XP operating system CD, select **RestorePlus! > Microsoft Windows XP operating system > Supplemental media**.

 **NOTE:** Depending on the options, there might be additional DVDs you can create.


5. Follow the prompts to create RestorePlus!, operating system, and HPBR media.

If you are unable to create CD/DVDs on your workstation, call HP Support and request a RestorePlus! media kit. For worldwide technical support phone numbers, see <http://www.hp.com/support>.

Creating HP Backup and Recovery (HPBR) media

 **NOTE:** HPBR is only supported on Windows XP systems. For details, refer to the documentation on the Supplemental Software - *HP Backup and Recovery* CD included with the workstation. The documentation can be accessed during installation.

The Initial Recovery Point can be burned to optical media and used to recover a system. This section describes making the media.

 **NOTE:** The workstation must have a CD or DVD writer to create the media set.

To create HPBR recovery media:

1. The Initial Recovery Point was captured when the RestorePlus! media set was created previously.
If the IRP was not created, start the HP Backup and Recovery Manager and create recovery points using the Expert mode. Follow the HPBR online documentation for instructions.
2. Burn the IRP to media from HPBR.
Select **HPBR Start > All Programs > HP Backup & Recovery > HP Backup and Recovery Manager**.
3. Select **Next** at the first screen.
Select **Create recovery CDs or DVDs to recover the system**, and then select **Next**.
4. Choose **Next** to display a list of available CD image and the recovery points.
5. Check the box next to Initial Recovery Point, and then select **Next**.
6. Follow the instructions to create the media.

Restoring the operating system

△ **CAUTION:** Before you restore the operating system, back up your data.

When you run RestorePlus! from media, the process deletes all information on the primary hard drive, including all partitions. If you run RestorePlus! from the recovery partition, only the root (C:) partition is affected.

Using RestorePlus!

To restore with RestorePlus!:

1. Boot the workstation from the RestorePlus! DVD. You must start from the RestorePlus! DVD for device drivers and settings to be installed.
2. Follow the prompts to restore the operating system.

Some application software might not be restored using this process. If software is not restored, install it from the appropriate application DVD.

Using HPBR

To restore with the HPBR Initial Recovery Point media:

1. Boot the workstation from the Initial Recovery Point media.
2. Follow the prompts to restore the system to the state when the IRP was created.

Using the recovery partition

A system that shipped with Windows XP includes a recovery partition. You can boot the system from that recovery partition.

From the recovery partition you can perform a system restore using the HPBR Initial Recovery Point, if it was created. If it was not, you can use a RestorePlus! install.

To restore using the recovery partition:

1. Boot the workstation.
2. When prompted on the boot screen to enter the Recovery Manager, press **F11**.

💡 **TIP:** The opportunity to press F11 during the boot process is small. It comes about the time the F10 prompt appears.

📄 **NOTE:** To ensure that the recovery processes reinstall on the correct hard drive, do not disconnect the target drive during the recovery process.


3. Follow the prompts to restore the system to factory-like condition.

Restoring Novell SLED

The SLED restore media is required to restore the Linux operating system.

Creating restore media

THE SUSE Linux Enterprise Desktop preload includes a SUSE ISO icon on the desktop. You can click this icon to go to the `/iso` directory. The `/iso` directory contains all iso images used to preload your workstation. To recover or restore the original image, follow the instructions in the readme file in the `/iso` directory to copy the ISO image file onto CDs.

 **NOTE:** Make copies of the ISO recovery images on CD as backup files in case your workstation experiences a hard drive failure.

5 Troubleshooting

This chapter provides information on:

- Self-Troubleshooting with HP Vision Diagnostics
- Self-troubleshooting with HP Insight Diagnostics
- HP troubleshooting resources and tools
- Power-On Self Test (POST) error messages
- Basic troubleshooting tables
- Calling technical support

Self-troubleshooting with HP Vision Diagnostics

Hewlett-Packard Vision Field Diagnostics let you view information about the hardware configuration and perform hardware troubleshooting for HP Desktop and Workstation systems. These tools let you isolate potential issues and determine if problems relate to the operating system or the hardware. These diagnostics run outside the operating system by DVD, CD, or USB flash drive, making them easy to access and use.

HP Vision Diagnostics offer these benefits:

- Ability to capture complete system configuration information that can be shared as an HTML file, including:
 - System serial number
 - System product number
 - System BIOS revision
 - Memory size and configuration
 - Processor information
 - Storage device information and configuration
 - Graphics / audio / communications information and configuration
 - And more...
- Comprehensive list of diagnostic test available with new added features:
 - Highly configurable testing options: quick / complete / custom / interactive / non-interactive
 - Specific failing memory DIMM identification
 - Tests video card memory
 - Launches DST Smart tests for both SATA and SAS drives
 - Many other tests and diagnostics
- Diagnostic Failure Code Output – A unique warranty code is generated for each failure which can be used to validate diagnostic use for a specific system

- Easy to use - uses similar user interface as previous field diagnostics, HP Insight Diagnostics
- True End2End diagnostics – same diagnostics modules used in factory
- Easy to obtain:
 - Download from Web
 - Bootable via USB flash drive, DVD, or CD
 - Included with restore media

Please run Vision diagnostics on supported products when attempting to troubleshoot system issues.

Overview

The HP Vision Diagnostics utility lets you view information about the hardware configuration of the workstation and perform hardware diagnostic tests on subsystems. The utility simplifies the process of effectively identifying, diagnosing, and isolating hardware issues.

Invoke HP Vision Diagnostics to display the Survey tab. This tab shows the current configuration of the workstation. From the Survey tab, you can access several categories of information about the workstation. Other tabs provide additional information, including diagnostic test options and test results.

Use HP Vision Diagnostics to determine if the system recognizes all the devices installed on the workstation and if the devices function properly. HP recommends that you run these tests after you install or connect new devices.

You can save the information from each diagnostic screen to an HTML file. You should run tests, save the test results, and print them so that you have a report available before placing a call to the Customer Support Center.




NOTE: HP Vision Diagnostics may not detect third-party devices..


Downloading and accessing HP Vision Diagnostics

Follow these steps to download the HP Vision Diagnostics utility from the HP Web site to a CD, DVD, or USB flash drive. Then use the disk or drive to perform diagnostics on the workstation:

1. Go to <http://www.hp.com>.
2. Select the **Support & Drivers** link.
3. Select the **Download driver and software** radio button.
4. Enter your product number in the text box, and then press **Enter**.
5. Select your operating system.
6. Select the **Diagnostic** link.
7. Locate **HP Vision Diagnostics** and select **Download**.
8. After the *.iso* file is downloaded, save the file to a USB flash drive (recommended for faster performance) or use CD-ROM burning software to copy the *.iso* file to an optical medium.
9. Insert the disk or USB drive into the workstation while it is turned on.
10. Shut down the workstation.
11. Turn on the workstation. The system boots into HP Vision Diagnostics.

 **NOTE:** If the system does not boot to the CD in the optical drive or the USB flash drive, you may need to change the boot order. You may use the Computer Setup (F10) utility to change the boot order, or press F9 to select the appropriate boot device.

12. At the boot menu, select either the **HP Vision Diagnostics** utility to test the various hardware components in the computer or the **HP Memory Test** utility to test memory only.

 **NOTE:** The HP Memory Test, a comprehensive memory diagnostic utility, runs as a stand-alone application, outside of HP Vision Diagnostics.

If the workstation boots from a CD, you must use a separate boot CD to run the memory diagnostic. Hence, HP recommends that you use a USB key to boot the diagnostic utilities. It is faster than using a CD or DVD, and it accommodates both Memory and Vision diagnostics.


13. If you run HP Vision Diagnostics, select the appropriate language and click **Continue**.
14. In the End User License Agreement page, select **Agree** if you agree with the terms. The HP Vision Diagnostics utility launches and displays the Survey tab.

Accessing HP Vision Diagnostics on the workstation

The following procedures describe how to access the HP Vision Diagnostics utilities included in the workstation software.

Creating and using a bootable USB key

This section describes how to use a USB key to access the HP Vision Diagnostics.

 **NOTE:** Using a USB key is the most convenient method to access the HP Vision Diagnostics.

1. In the C:\VisionDiagnostics\ directory, double-click on VisionDiagUSB.exe. A setup menu appears.
2. Follow the setup prompts to create a bootable ISO image of the diagnostic utilities on a USB key.
3. Use the operating system to turn off the workstation.
4. Restart the workstation with the USB key installed. The workstation boots to the USB key and initiates HP Vision Diagnostics.
5. Follow the prompts to troubleshoot the workstation.


Creating and using a bootable DVD

This section describes how to use a DVD to access the HP Vision Diagnostics.

1. In the C:\VisionDiagnostics\ directory, double-click on the VisionDiagISO.exe file. A setup menu appears.
2. Follow the setup prompts to create a bootable ISO image of the diagnostic utilities on a DVD.
3. Enable a workstation boot from DVD.
4. Use the operating system to turn off the workstation.
5. Restart the workstation with the with the DVD installed in the optical drive. The workstation boots to the DVD and initiates HP Vision Diagnostics.
6. Follow the HP Vision Field Diagnostic prompts to troubleshoot the workstation.

Using the HP Memory Test utility

This section describes how to access the HP Memory Test utility.

 **NOTE:** The HP Memory Test is a comprehensive memory diagnostic utility that is run as a stand-alone application, outside of HP Vision Diagnostics.

If the workstation is booted from a CD, a separate boot CD will be required to use the memory diagnostic. Hence, HP recommends that a USB key be used to boot the diagnostic utilities. It is faster than using a CD, and it accommodates both Memory and Vision diagnostics.

1. In the C:\VisionDiagnostics\ directory, double-click on the MemoryDiagISO.exe file. A setup menu appears.
2. Follow the setup prompts to create a bootable ISO image of the memory diagnostic utility on a DVD.
3. Use the operating system to turn off the workstation.
4. Restart the workstation with the with the DVD installed in the optical drive. The workstation boots to the DVD and initiates the memory diagnostic utility.
5. Follow the diagnostic prompts to troubleshoot workstation memory.

User interface

The HP Vision Diagnostics application provides six major functions, accessible through Tabs. These functions are:

- **Survey** — Your current system hardware information.
- **Test** — List all diagnostics available for your system. Tests are started there.
- **Status** — This screen shows progress and status of currently running diagnostics.
- **History** — All past diagnostics runs and status are listed there.
- **Errors** — All past diagnostics failures are listed there.
- **Help** — User help about HP Vision Diagnostics.

There are also some common operations that are part of the utility. They include:

- **Exit Diagnostics** button — This button will close HP Vision Diagnostic application and reboot your system. Any running test will be aborted.
- **Reload** button — If available, this button will rescan your system hardware and reload the diagnostics without the need to restart your entire system.
- **Save** button — If available, save your system survey, test history or error data as an HTML file to a floppy disk or a USB key drive.

Survey tab

The Survey tab shows your system hardware information, organized into eleven Categories (for example "Processors") and device instances (for example "Processor 1").

The amount of information displayed can be controlled by selecting a combination of View Level and Category.

The **View Levels** include:

- **Overview** — shows high level summary of the system hardware. This is the default view level.
- **Summary** — gives limited configuration data for each specific Category.
- **Advanced** — offers more technical and low-level data for the computer-savvy user.

The **Categories Levels** include:

- **All** — Shows all Categories.
- **Architecture** — Shows system architecture information such as high level PCI devices, low level SMBIOS, CMOS and PCI configuration space data.
- **Audio** — Shows all embedded and add-on audio devices.
- **Asset Control** — Shows asset control related information such as product name, serial number, asset tag, and universal unique ID information.
- **Communication** — Shows communication devices such as serial, parallel, USB, network, Firewire, modem, and Bluetooth ports and devices.
- **Graphics** — Shows all embedded and add-on video cards.
- **Input Devices** — Shows user input devices such as all connected mice and keyboards.
- **Memory** — Shows system memory information.

- **Miscellaneous** — List any devices or data that don't belong to any other Category.
- **Processors** - Shows system processors.
- **Storage** — Shows mass storage devices such as floppy drives, optical drives, SATA, SAS hard disk drives and controllers, as well as any RAID arrays.
- **System** — Shows information about system board devices such as fans and cables.

Test tab


The Test tab lists all available diagnostics. The lists have been tailored according to your system configuration. You can select or unselect different Test Modes:

- **Quick** — Performs quick-performance tests that cover your entire hardware. You cannot change test parameters.
- **Complete** — Performs all available tests but may take a long time to complete. You cannot change test parameters.
- **Custom** — Offers all available tests, and you can change test parameters to fit your specific needs. For advanced users only!

By default, the three test modes do not display prompts and require no interaction. Errors are displayed when testing is complete.

To add interactive tests,

To add interactive tests, click the **Include interactive tests** box under Test Mode. Interactive tests give you maximum control over the testing process. The diagnostic software prompts you for input during tests.


 **NOTE:** Memory can not be tested from within the HP Vision Diagnostics application. To test the memory in your workstation, exit HP Vision Field Diagnostic, boot to either the CD or USB flash drive and select **HP Memory Test** from the boot menu.

The **Duration of Test** options control the duration of the test sequence. The following options are available:

- **Number of loops** — A test selection will run once by default. Enter a positive number to make a test selection run many times.
- **Total test time (hours:minutes)** — Alternatively, the test selection can be set to run for a specified amount of time. This does not guarantee that all tests will run if the entered time is less than the necessary time to run all the tests
- **Stop at first error**— Check this option to stop test execution as soon as one error is encountered.

The following **Test Controls** exist:

- **Select All, Unselect All** button — This button toggles to select or unselect all the tests from the test selection tree.
- **Expand, Collapse** button — This button toggles to expand or collapse the test selection tree.
- **Start Test** button — Click this button to start executing all selected tests. HP Vision Diagnostics will automatically switch to the Status tab in order to keep track of the test execution and status.

 **WARNING!** Once started, do not reboot or power off your computer until all the tests have been completed.

To begin testing:

1. Select the Test tab.
2. Select the type of tests you want to run: **Quick**, **Complete**, or **Custom**.
3. Include optional interactive tests by selecting **Include interactive tests**.
4. Choose how you want the test to be executed, either **Number of Loops** or **Total Test Time**. When choosing to run the test over a specified number of loops, enter the number of loops to perform. If you want the diagnostic test for a specified time period, enter the amount of time in minutes.

5. Click the **Start Test** button to begin the testing. This displays the Status tab, which lets you monitor the progress of the tests. When the tests finish, the Status tab shows whether the devices passed or failed.
6. If errors are found, go to the Errors tab to display detailed information and recommended actions.

Status tab

The Status tab shows the overall progress and status of the test scenario as well as the progress and status of each test. The color coded status are black, blue, green, red, and orange.

The Status tab colors are:

- **Waiting** (black) — when no test is running
- **Running** (blue) — when at least one test is currently running
- **Passed** (green) — when all tests have run successfully, meaning that no hardware error or defect has been detected
- **Failed** (red) — when three tests have detected at least one error with your system
- **Canceled** (orange) — when the test scenario has been explicitly canceled, in which case no pass or fail conclusion can be drawn

The available data is:

- **Current Loop** — Shows the current execution loop out of total number of loops specified in the Test panel.
- **Test Time** — Shows the total time elapsed since the beginning of the test execution.
- **Test Complete** — Shows the number of tests successfully completed out of the total number of test to execute.
- **Cancel** button — Push the Cancel button to immediately terminate all currently running tests.

History tab

The History tab shows the history of the past test executions.

The History Log displays all tests that have been executed, the number of times of execution, the number of times failed, the date each test was executed, and the time it took to complete each test. The **Clear History** button will clear the contents of the History Log.

The contents of the History Log may be saved as a HTML file to either floppy or USB flash drive by clicking the **Save** button.

Errors tab

The Errors tab displays detailed information about any errors found, as well as any recommended actions.

The Error Log displays the tests for devices that have failed during the diagnostic testing and includes the following columns of information.

- The Device section displays the device tested.
- The Test section displays the type of test run.
- The Times Failed is the number of times the device has failed a test.
- The Defect Code provides a numerical code for the failure. The error codes are defined in the Help tab.
- The Description section describes the error that the diagnostic test found.
- The Reason section describes the likely cause of the error.

- The Recommended Repair will give a recommended action that should be performed to resolve the failed hardware.
- The Warranty ID is a unique error code associated with the specific error on your computer. When contacting the HP Support Center for assistance with a hardware failure, please be prepared to provide the Warranty ID.
- The Clear Errors button will clear the contents of the Error Log.

The contents of the Error Log may be saved as a HTML file to either floppy or USB flash drive by clicking the **Save** button.

Help tab

The Help tab contains a Vision Help section, and a Test Components section. This tab includes search and index features. You may also review the HP End User License Agreement (EULA), as well as the HP Vision Field Diagnostic application version information on this tab.


The various sections located here are:

- The Vision Help section contains information on the major functions of HP Vision Diagnostics.
- The Test components section provides a description of each test, as well as the parameters that may be adjusted when running in Custom test mode.
- The Defect codes section contains information on the numerical error code that may appear in the Errors tab.
- The Memory test tab section provides information on the HP Memory Test application that may be launched from the boot menu.
- The HP Support section provides information on obtaining technical support from HP.


Saving and printing information in HP Vision Diagnostics

You can save the information displayed in the HP Vision Diagnostics Survey, History and Errors tabs to a diskette or a USB flash drive. You can not save to the hard drive. The system will automatically create an html file that has the same appearance as the information displayed on the screen.

1. Insert a diskette or USB flash drive if running HP Vision Diagnostics from CD.
2. Click **Save** in the bottom on any of the Survey, History or Errors tabs. All three log files will be saved regardless of from which tab the Save button was clicked.
3. Select the drive onto which you will save the log files and click the **Save** button. Three html files will be saved to the inserted diskette or USB flash drive.

 **NOTE:** Do not remove the diskette or USB key until you see a message indicating that the html files have been written to the media.

4. Print the desired information from the storage device used to save it.

 **NOTE:** To exit HP Vision Diagnostics, click the **Exit Diagnostics** button at the bottom of the screen. Be sure to remove the USB flash drive or CD from the optical drive.

Self-troubleshooting with HP Insight Diagnostics (only available for the HP xw9400 Workstation)

HP Insight Diagnostics is an offline diagnostic utility that allows you to perform system testing. With this utility, you can test your system hardware and view the hardware configuration information for your system.

For the latest diagnostics utility, visit www.hp.com/go/workstationsupport. Select your product, click **Download drivers and software**, select your operating system, and then choose **Diagnostic** from the list of possible downloads.


For more information on using HP Insight Diagnostics when running the application, click the **Help** tab or see the *Service and Technical Reference Guide* at http://www.hp.com/support/workstation_manuals.

HP troubleshooting resources and tools

This section provides information on the HP Help and Support Center, E-support, and Helpful Hints for troubleshooting.

HP Help and Support Center

The HP Help and Support Center is a customized HP user interface that enhances the Windows XP Help and Support Center Help feature. This customized utility allows you to access specific information about your HP Workstation such as configuration information by clicking **Start > Help and Support Center**. The interface also provides customized help and support links to the HP Web site related to your HP Workstation.

 **NOTE:** The customized HP Help and Support Center is not available on Windows XP Professional x64 Edition or on Linux.

E-support

Online access and support resources include Web-based troubleshooting tools, technical knowledge databases, driver and patch downloads, online communities, and product change notification services.

The following Web sites are also available to you:

- <http://www.hp.com>—Provides useful product information.
- http://www.hp.com/support/workstation_manuals—Provides the latest online documentation.
- <http://www.hp.com/go/workstationsupport>—Provides technical support information for your workstation.
- <http://www.hp.com/support>—Provides a listing of the worldwide technical support phone numbers. Access the telephone numbers by visiting the Web site, then select your region, and click **Contact HP** in the upper-left corner.
- http://www.hp.com/support/workstation_swdrivers—Provides access to software and drivers for your workstation.

Troubleshooting a problem

To help you troubleshoot problems with your system, HP provides the Business Support Center (BSC). The BSC is a portal to an extensive selection of online tools. To access BSC and troubleshoot a problem with your workstation, complete the following:


1. Visit <http://www.hp.com/go/workstationsupport>.
2. Under the **Business Support Center** menu on the left, select **Troubleshoot a problem**.
3. Under **Select your product** (center window), select **Workstations** (under **personal computing**).
4. Under **Select your product**, continue with selections as appropriate to your workstation series and model, and to the problem you are troubleshooting.

Instant Support and Active Chat

HP Instant Support is a set of Web-based support tools that automate and speed up the resolution of desktop computing, tape storage, and printing problems.

Active Chat enables you to electronically submit a support ticket to HP over the Web. When you submit a support ticket, Active Chat collects information about the computer and pass it to an online support specialist. The collection of information might take up to 30 seconds depending on the computer configuration. When you submit a support ticket, you receive a confirmation message containing your case ID, the support hours for your location, and the estimated time of response.

For more information about HP Instant Support and Active Chat and how to use them, visit http://www.hp.com/hps/hardware/hw_professional.html.

 **NOTE:** This feature is not available on Windows XP Professional x64 Edition or on Linux.

Customer Advisories, Customer and Security Bulletins, and Customer Notices

To find advisories, bulletins, and notices:

1. Visit <http://www.hp.com/go/workstationsupport>.
2. Select the desired product (for example, HP Workstation xw6000).
3. Under **Resources for <your selected product>** (for example, HP Workstation xw6000), select **See more...**
4. Under **Self-Help resources:** in the center of the window, choose the desired action and appropriate information in the scroll list to view the index.

Product Change Notifications

Product Change Notifications (PCNs) are proactive notifications for product changes occurring within a 30-60 day window of the effective date of the change in the manufacturing process. PCNs give customers advanced notice of changes to their product, such as an updated BIOS version that they may need to qualify prior to the change taking place. The latest PCNs are located at: <http://www.hp.com/go/workstationsupport>.

Helpful hints

If you encounter a problem with your workstation, monitor, or software, the following provides a list of general suggestions that help you isolate and focus on the problem before taking further action.

At startup

- Verify that the workstation and monitor are plugged into a working electrical outlet.
- Remove all diskettes from your system before turning it on.
- Verify that the workstation is turned on and the green power light is 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 by visiting <http://www.hp.com/go/quickspecs>.
- Verify that the monitor is turned on and the green monitor light is on.
- Turn up the brightness and contrast controls of the monitor if the monitor is dim.
- If your workstation has multiple video sources and only a single monitor, the monitor must be connected to the source selected as the primary VGA adapter. During startup, the other monitor connectors are disabled; if the monitor is connected to one of these ports, it will not function after Power-on Self Test (POST). You can select the default VGA source in Computer Setup (F10).

During operation

- Look for blinking LEDs on the front of the workstation. The blinking lights are error codes that will help you diagnose the problem. Refer to the *Diagnostic lights and audible (beep) codes* section of this document for information on interpreting diagnostic lights and audible codes.
- Press and hold any key. If the system beeps, then your keyboard is operating correctly.
- Check all cables for loose or incorrect connections.
- Wake the workstation by pressing any key on the keyboard or the power button. If the system remains in suspend mode, shut down the system by pressing and holding the power button for at least four seconds, then press the power button again to restart the system. If the system does not shut down, unplug the power cord, wait a few seconds, then plug it in again. If it does not restart, press the power button to start the workstation.
- Reconfigure your workstation after installing a non–plug and play expansion board or other option. Refer to the *Hardware installation problems* section of this document for instructions.
- Be sure that all required device drivers have been installed. For example, if you have connected a printer, you must install a printer driver.
- If you are working on a network, plug another workstation with a different cable into the network connection. There might be a problem with the network plug or cable.
- If you recently added new hardware, remove the hardware and verify if the workstation functions properly.

- If you recently installed new software, uninstall the software and verify if the workstation functions properly.
- If the screen is blank, plug the monitor into a different video port on the workstation if one is available. Alternatively, replace the monitor with a monitor that you know is working properly.
- Upgrade the BIOS. A new release of the BIOS might have been released that supports new features or fixes your problem.
- For more detailed information, see the troubleshooting chapter in the *Service and Technical Reference Guide* at http://www.hp.com/support/workstation_manuals.

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 the desktop, then click **Properties** to change display settings. For more information, see the online documentation provided with the graphics controller utility or the documentation that came with your monitor.

Power-On Self Test error messages

The POST is a series of diagnostic tests that runs automatically when the system is turned on. Audible, visual, or both message occur before the operating system boots if the POST encounters a problem. POST checks the following items to ensure that the workstation system is functioning properly:

- Keyboard
- Memory modules
- Diskette drives
- All mass storage devices
- Processors
- Controllers
- Fans
- Temperature sensors
- Cables (front/rear panels, audio, and USB ports)

Find additional information about POST error messages in the *Service and Technical Reference Guide*, which is available at http://www.hp.com/support/workstation_manuals.

Basic troubleshooting

This section provides guidance on troubleshooting problems that you might encounter during the initial setup process. Additional troubleshooting information is available in the *Service and Technical Reference Guide* at http://www.hp.com/support/workstation_manuals.

General problems

You might 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, contact an HP customer care center, or contact an authorized dealer or reseller. For a list of support telephone numbers for your region, visit <http://www.hp.com/support>, select your region, and click **Contact HP** in the upper-left corner.

Table 5-1 General installation 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 shuts down and you might lose your data.
Workstation date and time display is incorrect.	RTC (real-time clock) battery might need to be replaced. NOTE: Connecting the workstation to a live AC outlet prolongs the life of the RTC battery.	Reset the date and time using Computer Setup (F10). If the problem persists, replace the RTC battery. See the <i>Service and Technical Reference Guide</i> for instructions on installing a new battery, or contact an authorized dealer or reseller for RTC battery replacement.
Workstation pauses 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 might 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 systems, 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. (This solution not applicable to the xw8000/xw9000 series.)
	The panel is locked (xw6000/xw8000/xw9000 series).	Use the key located on the back of the unit to unlock the panel.
Poor performance is experienced.	Processor is hot.	<ol style="list-style-type: none"> 1. Make sure the airflow to and from the workstation is not blocked. 2. Make sure the fans are connected and working properly. 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.
	The user has memory installed in a single channel instead of in both channels.	Ensure DIMMs are matched and installed in both memory channels for best performance.

Table 5-1 General installation problems (continued)

Problem	Cause	Solution
System does not power on and the LEDs on the front of the workstation are not blinking.	System unable to power on with power applied.	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <p>To resolve this problem, choose one of the following:</p> <p>A. Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none">1. Remove the expansion cards one at a time and try holding the power button again for less than 4 seconds.2. The problem might be on the system board. Contact HP for assistance. <p>B. Press and hold the power button for less than 4 seconds. If the hard drive LED does not illuminate green:</p> <ol style="list-style-type: none">1. Verify that unit is plugged into a working AC power outlet.2. Open the access panel and verify the power button harness is properly connected to the system board.3. Verify that all power supply cables are properly connected to the system board.4. Check the power supply functionality.<ol style="list-style-type: none">a. Disconnect the AC power.b. Disconnect ALL internal power supply cables from the system board.c. Plug in the AC power. <p>If the power supply fan spins and the BIST* LED lights, the power supply is functional. The problem might be on the system board. Contact HP for assistance.</p> <p>If the power supply fan does not spin or the BIST* LED does not light, the problem might be in the power supply. Contact HP for assistance.</p>

* For BIST information, see the *Service and Technical Reference Guide* for your workstation.

Hardware installation problems

You might need to reconfigure the workstation when you add or remove hardware, such as an additional optical 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.

Table 5-2 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.
	Cables of new external device are loose or power cables are unplugged.	
	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 might 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.
Workstation will not start.	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	<ol style="list-style-type: none"> Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation. If you still cannot resolve the issue, contact Customer Support. Observe the beeps and LED lights on the front of the workstation. See Diagnostic lights and audible (beep) codes on page 42 to determine possible causes.
Workstation will not shut down.	Proper steps were not followed.	<ol style="list-style-type: none"> Shut down the operating system software. Manually turn off power to the workstation by pressing and holding the power button for four seconds. CAUTION: 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). <p>For more information about using Computer Setup, refer to the <i>Service and Technical Reference Guide</i>, which is available through a link on the <i>Documentation and Diagnostics</i> CD (http://www.hp.com/support/workstation_manuals).</p>

Diagnostic lights and audible (beep) codes

This section describes the front panel light (LED) error and operation codes as well as the audible codes that might occur before or during the POST.

Table 5-3 Diagnostic lights and audible codes

Activity	Possible cause	Recommended action
Green Power LED On. No beeps.	Workstation on.	
Green Power LED blinks every two seconds.** No beeps.	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	
Green Power LED is off.** No beeps.	Workstation in Suspend to Disk or "Hibernate" mode.	None
Green Power LED blinks three times, once per second.** No beeps	Workstation in Suspend to RAM mode (select models only) or normal Suspend mode.	
Green Power LED blinks four times, once per second.** No beeps.	Workstation in Suspend to Disk or "Hibernate" mode.	
NOTE: ** — The BIOS option you select controls the green LED function during these suspend modes.		
For the following LED activity and beeps, the beeps are heard through the chassis speaker. Blinks and beeps repeat for 5 cycles, after which, only the blinks continue to repeat.		
Red Power LED blinks two times, once every second, followed by a two-second pause. Two beeps.	<p>Processor thermal protection activated by either of the following methods:</p> <ul style="list-style-type: none"> • A fan might be blocked or not turning. • The heatsink and fan assembly is not properly attached to the processor. 	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <ol style="list-style-type: none"> 1. Ensure that the workstation air vents are not blocked and the cooling fan is running. 2. Open the access panel, press power button, and verify that the processor fan is spinning. If the processor fan is not spinning, make sure the fan cable is plugged into the system board header. Ensure the fan is fully and properly seated or installed. 3. If fan is plugged in and seated properly, but is not spinning, the problem might be in the processor fan. Contact HP for assistance. 4. Verify that the fan assembly is properly attached. If problems persist, there might be a problem with the processor heatsink. Contact HP for assistance.
Red Power LED blinks three times, once every second, followed by a two-second pause. Three beeps.	Processor not installed (not an indicator of bad processor).	<ol style="list-style-type: none"> 1. Verify that the processor is present. 2. Reseat the processor.
Red Power LED blinks four times, once every second, followed by a two-second pause. Four beeps.	Power failure (power supply is overloaded)	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <ol style="list-style-type: none"> 1. Open the access panel and ensure the following connections are secure on the system board: <ul style="list-style-type: none"> ◦ 24-pin main power (all systems) ◦ 4-pin CPU (xw4000 series) ◦ 8-pin CPU (xw6000/xw8000/xw9000 series) ◦ 4-pin memory (xw8000/xw9000 series)

Table 5-3 Diagnostic lights and audible codes (continued)

Activity	Possible cause	Recommended action
Red Power LED blinks five times, once every second, followed by a two-second pause. Five beeps.	Pre-video memory error	<p>NOTE: Memory connector pin configurations vary, and can have either a 4-pin, 6-pin, or 8-pin configuration, depending on workstation series and model.</p> <ol style="list-style-type: none"> 2. 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, power off and replace one device at a time; 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. 3. Check the power supply functionality. <ol style="list-style-type: none"> a. Disconnect the AC power. b. Disconnect ALL internal power supply cables. c. Plug in the AC power. <p>If the power supply fan spins and the BIST* LED lights, the power supply is functional. The problem might be on the system board. Contact HP for assistance.</p> <p>If the power supply fan does not spin or the BIST* LED does not light, the problem might be in the power supply. Contact HP for assistance.</p>
Red Power LED blinks six times, once every second, followed by a two-second pause. Six beeps.	Pre-video graphics error.	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <ol style="list-style-type: none"> 1. Reseat DIMMs. 2. Replace DIMMs one at a time to isolate faulty module. 3. Replace third-party memory with HP memory. 4. The problem might be on the system board. Contact HP for assistance.
Red Power LED blinks seven times, once every second, followed by a two-second pause. Seven beeps.	System board failure (ROM detected failure prior to video).	<ol style="list-style-type: none"> 1. Clear CMOS. <p>NOTE: Refer to the <i>Service and Technical Reference Guide</i> for your workstation model for detailed information on clearing CMOS.</p> 2. The problem might be on the system board. Contact HP for assistance.

Table 5-3 Diagnostic lights and audible codes (continued)


Activity	Possible cause	Recommended action
Red Power LED blinks eight times, once every second, followed by a two-second pause. Eight beeps.	Invalid ROM based on bad checksum.	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <ol style="list-style-type: none"> 1. Clear CMOS. <p>NOTE: Refer to the <i>Service and Technical Reference Guide</i> for your workstation model for detailed information on clearing CMOS.</p> <ol style="list-style-type: none"> 2. Upgrade the ROM using SoftPaq, either from your hard drive, CD, diskette, or USB removable device (for example., HP Drive Key). See the ROM Flash section of the <i>Service and Technical Reference Guide</i> at http://www.hp.com/support/workstation_manuals. SoftPaq is a self-extracting executable, which contains instructions for its use, that enables you to upgrade your ROM. To download the Softpaq executable, visit http://www.hp.com/go/workstationsupport. 3. The problem might be on the system board. Contact HP for assistance.
Red Power LED blinks nine times, once every second, followed by a two-second pause. Nine beeps.	System powers on but does not boot.	<ul style="list-style-type: none"> • The problem might be on the system board. Contact HP for assistance. • The problem might be in the processor. Contact HP for assistance.
System does not power on and LEDs are not blinking. No beeps.	System unable to power on.	<p>CAUTION: Internal components might be powered even when the system is off. To prevent damage, disconnect the workstation power cord before you remove a component.</p> <p>To resolve the problem, choose one of the following options:</p> <p>Press and hold the power button for less than 4 seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none"> 1. Remove the expansion cards one at a time and try holding the power button again for less than 4 seconds. 2. The problem might be on the system board. Contact HP for assistance. <p>Press and hold the power button for less than 4 seconds. If the hard drive LED does not turn on green then:</p> <ol style="list-style-type: none"> 1. Check that unit is plugged into a working AC outlet. 2. Open the access panel and check that the power button harness is properly connected to the system board. 3. Check that all power supply cables are properly connected to the system board. 4. Check the power supply functionality <ol style="list-style-type: none"> a. Disconnect the AC power. b. Disconnect all internal power supply cables. c. Plug in the AC power. <p>If the power supply fan spins and the BIST* LED lights, the power supply is functional. The problem might be on the system board. Contact HP for assistance.</p> <p>If the power supply fan does not spin or the BIST* LED does not light, the problem might be in the power supply. Contact HP for assistance.</p>

* Some workstation models (such as the xw4550) do not have the BIST LED functionality. * For BIST information, see the Service and Technical Reference Guide.

Calling technical support

At times you might encounter an issue that requires technical support. When you call technical support:

- Have your workstation readily accessible.
- Write down the workstation serial numbers, product numbers, model names, and model numbers and have them in front of you.
- Note any applicable error messages.
- Note any add-on options.
- Note the operating system.
- Note any third-party hardware or software.
- Note the details of any blinking LEDs on the front of the workstation.
- Note the applications you were using when you encountered the problem.
- Note the power supply BIST status, if applicable.

 **NOTE:** When calling in for service or support, you might be asked for the Product Number (example: PS988AV) 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 [Ventilation, COA label, and serial number label information on page 8](#) for the location of the Serial Number label on your workstation. On most models, the serial number and product number label are located at the rear of the workstation.

For a listing of all worldwide technical support phone numbers, visit <http://www.hp.com/support>, select your region, and click **Contact HP** in the upper-left corner.

Locating warranty information

To locate base warranty information, see <http://www.hp.com/support/warranty-lookuptool>.

To locate an existing Care Pack, see <http://www.hp.com/go/lookuptool>.

To extend a standard product warranty, visit <http://www.hp.com/hps/carepack>. HP Care Pack Services offer upgraded service levels to extend and expand a standard product warranty.