

# User Guide

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## Product notice

This guide describes features that are common to most products. Some features may not be available on your computer.

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software, or BIOS update to take full advantage of Windows functionality. Go to <http://www.microsoft.com> for details.

To access the latest user guides or manuals for your product, go to <http://www.hp.com/support>, and select your country. Select **Find your product**, and then follow the on-screen instructions.


## Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a full refund subject to the refund policy of your seller.

For any further information or to request a full refund of the price of the computer, please contact your seller.

## Safety warning notice

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 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to come into contact with the skin or a soft surface, such as pillows or rugs or clothing, during operation. The computer and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950-1).

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# 1 Getting information

Tasks	Instructions
<ul style="list-style-type: none"> <li>Set up your computer</li> </ul>	<p>Setup Instructions or Quick Setup poster</p> <p>– or –</p> <p>See <a href="#">Setting up your computer on page 3</a>.</p>
<ul style="list-style-type: none"> <li>Connect to the Internet</li> </ul>	See <a href="#">Connecting to the Internet (select products only) on page 4</a> .
<ul style="list-style-type: none"> <li>Recover factory settings</li> </ul>	See <a href="#">System recovery on page 15</a> .
<ul style="list-style-type: none"> <li>See how-to videos about using the features of your computer</li> </ul>	Go to <a href="http://www.hp.com/support/videos">http://www.hp.com/support/videos</a> (English only).
<ul style="list-style-type: none"> <li>Learn how to use the Windows® operating system</li> <li>Find Windows password information</li> <li>Find links to driver updates</li> <li>Read frequently asked questions</li> </ul>	<p>▲ Select <b>Start</b>, and then select <b>Help and Support</b>.</p>
<ul style="list-style-type: none"> <li>Troubleshoot the most common computer hardware and software issues</li> </ul>	See <a href="#">Troubleshooting on page 9</a> .
<ul style="list-style-type: none"> <li>Find electronic user guides and specifications for your computer model</li> </ul>	To access the latest user guides or manuals for your product, go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> , and select your country. Select <b>Find your product</b> , and then follow the on-screen instructions.
<ul style="list-style-type: none"> <li>Order parts and find additional troubleshooting help</li> <li>Upgrade or replace components of your computer</li> <li>Connect to a TV (select products only)</li> </ul>	For HP support, go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> .
<ul style="list-style-type: none"> <li>Get up-to-date information and help from the Windows community</li> </ul>	Go to <a href="http://www.hp.com/support/consumer-forum">http://www.hp.com/support/consumer-forum</a> .
<ul style="list-style-type: none"> <li>Maintain your computer</li> </ul>	<p>HP Support Assistant maintains your computer performance and resolves problems quickly by using automated updates, diagnostic tools, and guided assistance.</p> <p>▲ To access HP Help and Support, select <b>Start</b>, select <b>All Programs</b>, and then select <b>HP Help and Support</b>.</p> <p>– or –</p> <p>See <a href="#">Maintenance on page 19</a>.</p>
<ul style="list-style-type: none"> <li>Find safety and regulatory notices</li> </ul>	<p><i>Regulatory, Safety, and Environmental Notices</i></p> <p>To access the user guide, select <b>Start</b>, select <b>All Programs</b>, select <b>HP Help and Support</b>, and then select <b>HP Documentation</b>.</p>
<ul style="list-style-type: none"> <li>Find ergonomic information</li> </ul>	<p><i>Safety &amp; Comfort Guide</i></p> <p>To access the user guide, select <b>Start</b>, select <b>All Programs</b>, select <b>HP Help and Support</b>, and then select <b>HP Documentation</b>.</p>

Tasks	Instructions
	<p>– or –</p> <p>Go to <a href="http://www.hp.com/ergo">http://www.hp.com/ergo</a>.</p>
<ul style="list-style-type: none"> <li>Find computer warranty information</li> </ul>	<p><i>Limited Warranty*</i></p> <p>To access the Limited Warranty, select <b>Start</b>, select <b>All Programs</b>, select <b>HP Help and Support</b>, select <b>HP Documentation</b>, and then select <b>View Warranty Information</b>.</p> <p>– or –</p> <p>Go to <a href="http://www.hp.com/go/orderdocuments">http://www.hp.com/go/orderdocuments</a>.</p>
<p>*You can find your HP Limited Warranty located with the user guides on your product and/or on the CD or DVD provided in the box. In some countries or regions, HP may provide a printed warranty in the box. For countries or regions where the warranty is not provided in printed format, you can request a copy from <a href="http://www.hp.com/go/orderdocuments">http://www.hp.com/go/orderdocuments</a>. For products purchased in Asia Pacific, you can write to HP at POD, PO Box 161, Kitchener Road Post Office, Singapore 912006. Include your product name, and your name, phone number, and postal address.</p>	



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## 2 Setting up your computer

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 **WARNING!** To reduce the risk of electrical shock or damage to your equipment:

- Place the computer in a location away from water, dust, moisture, and soot. These environmental factors can increase the temperature inside your computer or cause fire or electrocution.
- Do not disable the power cord grounding pin. The grounding pin is an important safety feature.
- Plug the power cord into an AC outlet that is easily accessible at all times.
- Disconnect power from the equipment by unplugging the power cord from the AC outlet. To prevent direct exposure to the laser beam, do not try to open the enclosure of the CD or DVD drive.
- The power supply is preset for the country or region in which you purchased your computer. If you move, check the voltage requirements for your new location before plugging the computer into an AC outlet.


To reduce the risk of serious injury read the *Safety & Comfort Guide*. To access this guide, go to <http://www.hp.com/ergo>.


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1. Place the computer so that all ventilation openings are unobstructed and cabling is not in a walkway or where it can be stepped on or damaged by placing furniture on it.
2. When connecting all power cords from the monitor, computer, and accessories to an uninterruptible power supply (UPS), it is recommended that you use a power surge protection device. If the computer has a television tuner, or a modem or telephone connection, protect the computer by using surge protection with these signal inputs as well. Connect the television cable or the telephone line cord to the surge protection device, and then connect the device to the computer.
3. Download and install operating system updates.
  - a. Find out what operating system and version your computer is currently running.  
Select **Start**, type `system` in the search field, and then select **System Information**.
  - b. Open your internet browser, and then go to <http://www.hp.com/support>.
  - c. If necessary, select your country and language, and then select **Get software and drivers**.
  - d. Enter your computer model name and number in the entry field, and then select **Find my product**.
  - e. Select your computer operating system.
  - f. Select **Download** next to each update you wish to download.
  - g. Follow the on-screen instructions to install each downloaded update.
4. Look in the computer box for additional printed details or updates.

After you complete the initial computer setup, you might want to install additional hardware devices or software. Check the operating system, memory, and other requirements listed for these items before purchasing them for your computer. Follow the software manufacturer's directions to install the new software.

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 **NOTE:** Use only licensed original software. Installing copied software could result in an unstable installation, infect the computer with a virus, or be illegal.

 **NOTE:** A security solution is designed as a deterrent, but it might not be able to prevent theft, mishandling, or software attacks.

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## Connecting to the Internet (select products only)

To connect to a wireless network:



**NOTE:** To set up a wireless local area network (WLAN) and connect to the Internet, you need a broadband modem (either DSL or cable) (purchased separately), high-speed Internet service purchased from an Internet service provider, and a wireless router (purchased separately).

1. Be sure that the WLAN device is on.
2. Select the network status icon in the taskbar, and then connect to one of the available networks.

If the WLAN is a security-enabled WLAN, you are prompted to enter a security code. Enter the code, and then select **Next** to complete the connection.



**NOTE:** If no WLANs are listed, you may be out of range of a wireless router or access point.



**NOTE:** If you do not see the WLAN you want to connect to, right-click or double-tap the network status icon in the taskbar, and then select **Open Network and Sharing Center**. Select **Set up a new connection or network**. A list of options is displayed, allowing you to manually search for and connect to a network or to create a new network connection.

3. Follow the on-screen instructions to complete the connection.

After the connection is made, select the network status icon in the notification area, at the far right of the taskbar, to verify the name and status of the connection.

To connect to a wired network:

1. Plug an 8-pin, RJ-45 (network) cable into the network jack on the computer.
2. Plug the other end of the network cable into a network wall jack or router.




**NOTE:** If the network cable contains noise suppression circuitry, which prevents interference from TV and radio reception, orient the circuitry end of the cable toward the computer.

If you have issues connecting to the Internet, see [Internet access on page 12](#).

## Shutting down (turning off) the computer

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 **CAUTION:** Unsaved information is lost when the computer shuts down. Be sure to save your work before shutting down the computer.

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The Shut down command closes all open programs, including the operating system, and then turns off the display and computer.

Shut down the computer under any of the following conditions:

- When you need to access components inside the computer
- When you are connecting an external hardware device that does not connect to a USB or video port or to a headphone or microphone jack
- When the computer will be unused and disconnected from external power for an extended period

Although you can turn off the computer with the power button, the recommended procedure is to use the Windows Shut down command.

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 **NOTE:** If the computer is in the Sleep state or in Hibernation, first exit Sleep or Hibernation by briefly pressing the power button.

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1. Save your work and close all open programs.
2. Select the **Start** button, and then select **Shut down**.

# 3 Navigating the screen

You can navigate the computer screen in the following ways:


- Using touch gestures (select products only)
- Using the keyboard and mouse

Select computer models have special action keys or hot key functions on the keyboard to perform routine tasks.

## Using touch gestures


You can customize the touch gestures by changing settings, button configurations, click speed, and pointer options.

Type `control panel` in the taskbar search box, and then select **Control Panel**. Select **Hardware and Sound**. Under **Devices and Printers**, select **Mouse**.

 **NOTE:** Touch gestures are not supported in all apps.

## Using the keyboard and mouse

The keyboard and mouse allow you to type, select items, scroll and to perform the same functions as you do using touch gestures. The keyboard also allows you to use action keys and hot keys to perform specific functions.

 **NOTE:** Depending on the country or region, the keys and keyboard functions of your keyboard may be different from those discussed in this section.

## Using the action keys or hot keys

You can quickly access information or perform functions by using certain keys and key combinations.



- Action keys—Perform an assigned function. The icons on the function keys at the top of the keyboard illustrate the assigned function for that key.











To use an action key function, press and hold the key.

- Hot keys—A combination of the **Fn** key and the **Esc** key, the **spacebar**, or the appropriate action key.

To use a hot key, briefly press the **Fn** key, and then briefly press the second key of the combination.

Depending on the computer model, your keyboard may support the following keys.

Icon	Description
	Opens Search.
	Plays the previous track of an audio CD or the previous section of a DVD or a BD.

Icon	Description
	Begins, pauses, or resumes playback of an audio CD, a DVD, or a BD.
	Plays the next track of an audio CD or the next section of a DVD or a BD.
	Stops audio or video playback of an audio CD, a DVD, or a BD.
	Opens the Print Options window.
	Pastes the contents of the Clipboard.
	<p>Initiates Sleep, which saves your information in system memory. The display and other system components turn off and power is conserved.</p> <p>To exit Sleep, briefly press the power button.</p> <p><b>CAUTION:</b> To reduce the risk of information loss, save your work before initiating Sleep.</p>
	Mutes or restores speaker sound.
	Decreases speaker volume incrementally as long as you hold down the key.
	Increases speaker volume incrementally as long as you hold down the key.
	Displays options for a selected object.

## 4 Protecting your computer

Your computer contains features that help protect the integrity of your system and its data from unauthorized access. Review these features to ensure proper use.

### Computer security features

Computer risk	Computer feature
Unauthorized use of the computer or user account	User password <i>A password is a group of characters that you choose to secure computer information.</i>
Unauthorized access to Setup Utility, BIOS settings, and other system identification information	Administrator password
Computer viruses	Antivirus software <i>The free trial antivirus software that is preinstalled on your computer can detect most viruses, remove them, and, in most cases, repair damage caused by viruses. For protection against new viruses beyond the trial period, purchase an extended update service.</i>
Unauthorized access to data and ongoing threats to the computer	Firewall software <ul style="list-style-type: none"><li>Windows 7 includes firewall software preinstalled on the computer.</li><li>The antivirus software, which is preinstalled on the computer, includes firewall software.</li></ul>
	Windows 7 critical security updates <i>Microsoft continually updates the Windows 7 operating system.</i>

## 5 Troubleshooting

Refer to the documentation provided by the product manufacturer for information about peripheral-specific problems, such as issues with a monitor or a printer. The following tables present some issues you might encounter while installing, starting up, or using your computer and possible solutions.

For more information or for additional troubleshooting options, see the Quick Setup Guide that accompanies your computer, or visit <http://www.hp.com/support> and search for your computer model.

### Computer does not start

Symptom	Possible solution
Error message: Hard disk drive error.	<p>Restart the computer.</p> <ol style="list-style-type: none"><li>1. Press the <b>Ctrl+Alt+Delete</b> keys on the keyboard simultaneously.</li><li>2. Select the <b>Arrow</b> button next to the red <b>Shut Down</b> button, and then select <b>Restart</b>.</li></ol> <p><i>Or, press and hold the <b>Power</b> button on the computer for 5 or more seconds to turn off the computer, and then press the <b>Power</b> button to restart the computer.</i></p> <ol style="list-style-type: none"><li>3. If Windows opens, immediately back up all important data to a backup hard disk drive.</li><li>4. Contact Support, whether it was possible or not to start up Windows.</li></ol> <p>Either the hard disk drive or the system board may need to be replaced.</p>
Computer will not turn on or start.	<p>Ensure that the cables connecting the computer to the external power source are plugged in properly. When the cables connecting the computer to the external power source are plugged in properly, and the wall outlet is functioning, the green power supply light on the back of the computer should be on; if it is not, contact Support.</p> <p>If the display (monitor) is blank, the monitor might not be properly connected. Connect the monitor to the computer, plug it in, and turn it on. See <a href="#">Display (monitor) on page 10</a>.</p> <p>Test the wall outlet by connecting a different electrical device to it.</p>
Computer seems to be locked up and is not responding.	<p>Use the <b>Windows Task Manager</b> to close any programs not responding, or restart the computer:</p> <ol style="list-style-type: none"><li>1. Press the <b>Ctrl+Alt+Delete</b> keys on the keyboard simultaneously.</li><li>2. Select <b>Start Task Manager</b>.</li><li>3. Select the program that is not responding, and then select <b>End Task</b>.</li></ol> <p>If closing programs does not work, restart the computer:</p> <ol style="list-style-type: none"><li>1. Press the <b>Ctrl+Alt+Delete</b> keys on the keyboard simultaneously.</li><li>2. Select the <b>Arrow</b> button next to the red <b>Shut Down</b> button, and then select <b>Restart</b>.</li></ol> <p><i>Or, press and hold the <b>Power</b> button on the computer for 5 or more seconds to turn off the computer, and then press the <b>Power</b> button to restart the computer.</i></p>
Error message: Invalid system disk or Non-System disk or Disk error.	<p>When drive activity stops, remove the disc and press the <b>spacebar</b> on the keyboard. The computer should start up.</p>

## Power

Symptom	Possible solution
Computer does not turn off when the Power button is pressed.	Press and hold the <b>Power</b> button until the computer turns off. Check Power Settings.
Computer shuts down automatically.	<ul style="list-style-type: none"><li>• The computer might be in an exceedingly hot environment. Let it cool down.</li><li>• Ensure that computer air vents are not blocked and that the internal fan is running — see <a href="#">Keeping the computer free of dust, dirt, and heat on page 19</a> (Your computer might not have an internal fan.)</li></ul>

## Display (monitor)

Symptom	Possible solution
Screen is blank, and monitor power light is not lit.	Reconnect the power plug to the back of the monitor and to the wall outlet. Press the <b>Power</b> button on the monitor.
Screen is blank.	Press the <b>Space bar</b> on the keyboard or move the mouse to make the screen display visible again. Press the <b>Sleep</b> button (select models only), or <b>Esc</b> on the keyboard, to resume from Sleep mode. Press the <b>Power</b> button to turn on the computer. Inspect the monitor video connector for bent pins: <ul style="list-style-type: none"><li>• If any of the pins are bent, replace the monitor connector cable.</li><li>• If no pins are bent, reconnect the monitor connector cable to the computer.</li></ul>
Images on the screen are too large or too small, or the images are fuzzy.	Adjust the monitor resolution setting: <ol style="list-style-type: none"><li>1. Select <b>Start</b>, and then select <b>Control Panel</b>.</li><li>2. Under <b>Appearance and Personalization</b>, select <b>Adjust Screen Resolution</b>.</li><li>3. Adjust resolution as necessary, and then select <b>Apply</b>.</li></ol>

**NOTE:** In addition to the information listed here, also refer to the documentation that came with your monitor.



## Keyboard and mouse (with cable)

Symptom	Possible solution
Keyboard commands and typing are not recognized by the computer.	Use the mouse to turn off the computer, unplug and reconnect the keyboard to the back of your computer, and then restart your computer.
Mouse (with cable) does not work or is not detected.	Unplug and reconnect the mouse cable to your computer. If the mouse is still not detected, turn off the computer, unplug and reconnect the mouse cable, and then restart the computer.



Symptom	Possible solution
Cursor does not move using the arrow keys on the number keypad.	Press <b>Num Lock</b> on the keyboard to turn off <b>Num Lock</b> , so that the arrow keys on the number keypad can be used.
Cursor does not respond to mouse movement.	<p>Use the keyboard to save changes in all open programs, and then restart your computer:</p> <ol style="list-style-type: none"> <li>1. Press the <b>Alt+Tab</b> keys simultaneously to navigate to an open program.</li> <li>2. Press <b>Ctrl+S</b> simultaneously to save your changes in the selected program (<b>Ctrl+S</b> is the keyboard shortcut for Save on most—not all—programs).</li> <li>3. Repeat step 1 and step 2 to save changes in all open programs.</li> <li>4. After saving changes in all open programs, press the <b>Ctrl+Esc</b> keys on the keyboard simultaneously to display the Windows Start menu.</li> <li>5. Use the arrow keys to select the <b>Arrow</b> button that is next to <b>Shut Down</b>. Select <b>Shut Down</b>, and then press <b>Enter</b>.</li> <li>6. After the shutdown is complete, unplug and reconnect the mouse connector to the back of your computer, and then restart your computer.</li> </ol>

## Keyboard and mouse (wireless)

Symptom	Possible solution
Wireless keyboard or mouse does not work or is not detected.	<ul style="list-style-type: none"> <li>• Ensure that you are using the wireless keyboard or wireless mouse within range of the receiver, approximately 10 meters (32 feet) for normal use, and within 30 cm (12 inches) during initial setup or for re-synchronization.</li> <li>• Ensure that the mouse is not in Suspend mode, which occurs after 20 minutes of inactivity. Click the left mouse button to reactivate it.</li> <li>• Replace the batteries in the keyboard and mouse.</li> <li>• Re-synchronize the keyboard and mouse to the receiver using the following steps.</li> </ul> <p>The receiver, wireless keyboard, and wireless mouse shown in the following illustrations are examples; your models might vary. <b>IMPORTANT:</b> During these steps, place the wireless keyboard and wireless mouse on the same level as the receiver, within 30 cm (12 inches) of the receiver, and away from interference from other devices.</p> <ol style="list-style-type: none"> <li>1. Unplug the receiver from a USB connector on the computer, and then reconnect it. Your computer model might have a connector dedicated to the receiver. If you have a choice, use a USB connector on the front of the computer.</li> </ol>  <ol style="list-style-type: none"> <li>2. Check that the mouse is on <b>(A)</b>, and push and hold the <b>Connect</b> button <b>(B)</b> on the underside of the mouse for 5 to 10 seconds until the LED on the receiver lights or stops flashing. The receiver connection session times out after 60 seconds. To ensure that the connection was established, and that the receiver did not time out instead, move the mouse and check for response on the screen.</li> </ol>  <ol style="list-style-type: none"> <li>3. After the mouse connection is established, continue by using the steps that follow to repeat the procedure for the keyboard.</li> <li>4. Push and hold the <b>Connect</b> button <b>(C)</b> on the underside of the keyboard for 5 to 10 seconds until the LED on the receiver lights or stops flashing.</li> </ol>

Symptom	Possible solution
	

## Speakers and sound

Symptom	Possible solution
Volume is very low or unsatisfactory.	Ensure that you connected the speakers to the Audio Out (lime green) connector on the back of the computer. (Additional audio connectors are used for multiple-channel speakers.) Detached non-powered speakers (speakers without a separate power source, such as batteries or a power cord) do not produce satisfactory sound. Replace the non-powered speakers with powered speakers.
No sound is produced.	<ol style="list-style-type: none"> <li>1. Select <b>Start</b>, select <b>Control Panel</b>, select <b>System and Security</b>, select <b>Action Center</b>, and then select <b>Troubleshooting</b>.</li> <li>2. Under <b>Hardware and Sound</b>, select <b>Troubleshoot audio playback</b>.</li> </ol> <p>If you use a High-Definition Multimedia Interface (HDMI) connector on the graphics card (select models only) to connect your monitor to the computer, you should also connect analog speakers to the computer Audio Line Out connector if you want to hear sound during the initial setup of the computer. Refer to the Quick Setup booklet to connect analog speakers.</p> <p>If you are using built-in monitor speakers, use the monitor front-panel Volume button to adjust volume. Use the front-panel buttons to enter the on-screen display (OSD) and ensure that audio is enabled and that the volume is set appropriately.</p> <p>Ensure that you connected powered (active) speakers and that they are turned on.</p> <p>Turn off your computer, and then unplug and reconnect the speakers. Ensure that the speakers are connected to an audio connector, not a Line In or headphone connector.</p> <p>To resume from Sleep mode, press the <b>Sleep</b> button (select models only), or press <b>Esc</b>.</p> <p>Unplug headphones if they are connected to your computer (or speaker system).</p>

## Internet access

Symptom	Possible solution
Internet programs do not start automatically.	Log in to your ISP, and start the desired program.
I cannot connect to the Internet.	<ol style="list-style-type: none"> <li>1. Select <b>Start</b>, select <b>Control Panel</b>, select <b>System and Security</b>, select <b>Action Center</b>, and then select <b>Troubleshooting</b>.</li> <li>2. Under <b>Network and Internet</b>, select <b>Connect to the Internet</b>.</li> </ol> <p>Verify that you are using the proper cables for your Internet connection type. Your computer might have a dial-up modem and an Ethernet network adapter (also called a network interface card, or NIC). A modem uses a standard telephone cable, whereas the network adapter uses a network cable, to connect to a local area network (LAN). Do not connect a telephone cable to the network adapter, and do not plug a network cable into a telephone service line; doing so might damage the network adapter.</p> <p>Run the <b>wireless setup wizard</b>:</p>

Symptom	Possible solution
	<ol style="list-style-type: none"> <li>1. Select <b>Start</b>, select <b>Control Panel</b>, select <b>Network and Internet</b>, and then select <b>Network and Sharing Center</b>.</li> <li>2. In the <b>Network and Sharing Center</b> window, select <b>Set up a new connection or network</b> to open the wizard, and then follow the on-screen instructions.</li> </ol> <p>If your system has an external antenna, try to move the antenna to a better position. If the antenna is internal, try to move the computer.</p> <p>Try to connect again later, or contact your Internet service provider (ISP) for assistance.</p>

## Software troubleshooting

Symptom	Possible solutions
To repair software problems, try these methods:	<ul style="list-style-type: none"> <li>• Turn the computer off completely and then turn it on again. This is the easiest (and sometimes the best) way.</li> <li>• Update the drivers (see Updating device drivers, following).</li> <li>• Use Microsoft System Restore Software program and hardware driver reinstallation (see Microsoft System Restore, later in this table). — Restores your computer to a configuration that was in use before the software was installed.</li> <li>• Reinstall the software program or hardware driver (see Software program and hardware driver reinstallation, later in this table). — Restores the software (if it came with the product) or hardware driver to factory defaults.</li> <li>• System Recovery (see <a href="#">System recovery on page 15</a>) — Erase and reformat the hard disk drive, and then reinstall the operating system, programs, and drivers. This erases all data files you have created.</li> </ul>
Updating device drivers	<p>Complete the following procedure to update a driver, or to revert to an earlier version of the driver if the new one does not solve your problem:</p> <ol style="list-style-type: none"> <li>1. Select <b>Start</b>.</li> <li>2. Type <code>Device Manager</code> into the <b>Start Search</b> box, and then select <b>Device Manager</b> to open the <b>Device Manager</b> window.</li> <li>3. Select the arrow sign to expand the type of device you want to update or roll back. (For example, DVD/CD-ROM drives).</li> <li>4. Right-click or double-tap on the specific item (for example, HP DVD Writer 640b), and then select <b>Properties</b> from the pop-up menu.</li> <li>5. Select the <b>Driver</b> tab.</li> <li>6. To update a driver, select <b>Update Driver</b>, and then follow the on-screen instructions.</li> </ol> <p>Or, to revert to an earlier version of a driver, select <b>Rollback Driver</b>, and then follow the on-screen instructions.</p>
Microsoft System Restore	<p>If you have a problem that might be due to software that was installed on your computer, use System Restore to return the computer to a previous restore point. You can also set restore points manually.</p> <p><b>NOTE:</b> Always use this System Restore procedure before you use the System Recovery program.</p> <p>Some features might not be available on systems that are shipped without a version of Windows.</p> <p>To start a <b>System Restore</b>:</p> <ol style="list-style-type: none"> <li>1. Close all open programs.</li> <li>2. Select <b>Start</b>, right-click or double-tap <b>Computer</b>, and then select <b>Properties</b>.</li> <li>3. Select <b>System protection</b>, select <b>System Restore</b>, select <b>Next</b>, and then follow the on-screen instructions.</li> </ol> <p>To add restore points manually:</p> <ol style="list-style-type: none"> <li>1. Close all open programs.</li> <li>2. Select <b>Start</b>, right-click or double-tap <b>Computer</b>, select <b>Properties</b>, and then select <b>System protection</b>.</li> </ol>

Symptom	Possible solutions
	<ol style="list-style-type: none"> <li>Under <b>Protection Settings</b>, select the disk for which you want to create a restore point.</li> <li>Select <b>Create</b>, and then follow the on-screen instructions.</li> </ol>
Software program and hardware driver reinstallation	<p>If any of your factory-installed software programs or hardware drivers are damaged, you can reinstall it by using the Recovery Manager program (select models only).</p> <p><b>NOTE:</b> Do not use the Recovery Manager program to reinstall software programs that came on CDs or DVDs included in the computer box. Reinstall these programs directly from the CDs or DVDs.</p> <p>Before you uninstall a program, be sure you have a way to reinstall it. Check to be sure that it is still available from where you initially installed it (for example, discs or the Internet). Or check to be sure that the program is in the list of programs you can reinstall from the Recovery Manager.</p> <p><b>NOTE:</b> Some features might not be available on systems that are shipped without a version of Windows.</p> <p>To check the list of installable programs in the Recovery Manager:</p> <ol style="list-style-type: none"> <li>Select <b>Start, All Programs, Recovery Manager</b>, and then select <b>Recovery Manager</b>. If prompted, select <b>Yes</b> to allow the program to continue.</li> <li>Under <b>I need help immediately</b>, select <b>Software Program Reinstallation</b>.</li> <li>Select <b>Next</b> at the Welcome screen. A list of programs opens. Check whether your program is there.</li> </ol> <p>To reinstall a program using the <b>Recovery Manager</b>:</p> <ol style="list-style-type: none"> <li>Select <b>Start</b>, select <b>All Programs</b>, select <b>Recovery Manager</b>, and then select <b>Recovery Manager</b>.</li> <li>Select <b>Software Program Reinstallation</b>, and then select <b>Next</b> at the <b>Welcome</b> screen.</li> <li>Choose the program you want to install, select <b>Next</b>, and follow the on-screen instructions.</li> <li>When you have finished reinstalling, restart the computer. <b>Do not skip this last step.</b> You must restart the computer after recovering software programs or hardware drivers.</li> </ol> <p>To uninstall a program:</p> <ol style="list-style-type: none"> <li>Close all software programs and folders.</li> <li>Select <b>Start</b>, and then select <b>Control Panel</b>.</li> <li>Under <b>Programs</b>, select <b>Uninstall a program</b>.</li> <li>Select the program you want to remove, and then select <b>Uninstall</b>.</li> </ol>

## 6 System recovery

System Recovery completely erases and reformats the hard disk drive, deleting all data files you have created, and then reinstalls the operating system, programs, and drivers. However, you must reinstall any software that was not installed on the computer at the factory. This includes software that came on media included in the computer accessory box, and any software programs you installed after purchase.


 **NOTE:** Always use the System Restore procedure before you use the System Recovery program — see *Microsoft System Restore* under [Software troubleshooting on page 13](#).

Some features might not be available on systems that are shipped without a version of Windows.

### Choosing a system recovery method

You must choose one of the following methods to perform a System Recovery:

- **Recovery Image** — Run the System Recovery from a recovery image stored on your hard disk drive. The recovery image is a file that contains a copy of the original factory-shipped software. To perform a System Recovery from a recovery image, see [System Recovery from the Windows 7 Start Menu on page 15](#)

 **NOTE:** The recovery image uses a portion of the hard disk drive that cannot be used for data storage.


- **Recovery Media** — Run the System Recovery from recovery media that you create from files stored on your hard disk drive or purchased separately. To create recovery media, see [Creating recovery media on page 18](#).

### System Recovery options

You should attempt a **System Recovery** in the following order:

1. Through the hard disk drive, from the Start menu.
2. Through the hard disk drive, by pressing **F11** on the keyboard during system startup.
3. Through recovery media that you create.
4. Through recovery discs purchased from HP Support. To purchase recovery discs, visit <http://www.hp.com/support>.

### System Recovery from the Windows 7 Start Menu

 **CAUTION:** System Recovery deletes all data and programs you created or installed. Back up any important data to a removable disc or USB flash drive.

If the computer is working and Windows 7 is responding, use these steps to perform a **System Recovery**.

1. Turn off the computer.
2. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
3. Turn on the computer.

4. Select **Start**, select **All Programs**, select **Security and Protection**, select **Recovery Manager**, and then select **Recovery Manager**. If prompted, select **Yes** to allow the program to continue.
5. Under **I need help immediately**, select **System Recovery**.
6. Select **Yes**, and then select **Next**. Your computer restarts.



**NOTE:** If your system does *not* detect a recovery partition, it prompts you to insert recovery media. Insert the disc or USB flash drive, select **Yes**, and then select **Next** to restart the computer and run Recovery Manager from the recovery disc or USB flash drive. If using discs, insert the next system-recovery disc when prompted.

7. When the computer restarts, you see the Recovery Manager welcome screen again. Under **I need help immediately**, select **System Recovery**. If you are prompted to back up your files, and you have not done so, select **Back up your files first (recommended)**, and then select **Next**. Otherwise, select **Recover without backing up your files**, and then select **Next**.
8. System Recovery begins. After System Recovery is complete, select **Finish** to restart the computer.
9. Complete the registration process, and wait until you see the desktop.
10. Turn off the computer, reconnect all peripheral devices, and turn the computer back on.

## System Recovery at system startup



**CAUTION:** System Recovery deletes all data and programs you created or installed. Back up any important data to a removable disc or USB flash drive.

If Windows 7 is not responding, but the computer is working, follow these steps to perform a **System Recovery**.

1. Turn off the computer. If necessary, press and hold the **Power** button until the computer turns off.
2. Disconnect all peripheral devices from the computer, except the monitor, keyboard, and mouse.
3. Press the **Power** button to turn on the computer.
4. As soon as you see the initial company logo screen appear, repeatedly press **F11** on your keyboard until the **Windows is Loading Files...** message appears on the screen.
5. Under **I need help immediately**, select **System Recovery**.
6. If you are prompted to back up your files, and you have not done so, select **Back up your files first (recommended)**, and then select **Next**. Otherwise, select **Recover without backing up your files**, and then select **Next**.
7. System Recovery begins. After System Recovery is complete, select **Finish** to restart the computer.
8. Complete the registration process, and wait until you see the desktop.
9. Turn off the computer, reconnect all peripheral devices, and turn the computer back on.

## System Recovery from recovery media



**CAUTION:** System Recovery deletes all data and programs you created or installed. Back up any important data to a removable disc or USB flash drive.

To create recovery media, see [Recovery media on page 17](#).

To perform a **System Recovery** using recovery media:

1. If the computer is working, create a backup DVD or backup USB flash drive containing all the data files you want to save, and then remove the backup media from the drive tray.
2. If using recovery DVDs, insert recovery disc #1 into the DVD drive tray, and close the tray. If using a recovery USB flash drive, insert it into a USB port.
3. If the computer works, select **Start**, select the **Arrow** button next to **Shut Down**, and then select **Shut Down**. Or, if the computer is not responding, press and hold the **Power** button for approximately 5 seconds, or until the computer turns off.
4. Disconnect all peripheral devices from the computer except the monitor, keyboard, and mouse.
5. Press the **Power** button to turn on the computer. If you are using a recovery DVD, the computer automatically runs Recovery Manager from the disc. Skip to step 7.
6. If you are running System Recovery from a USB flash drive, press **Esc** as the computer is powering on to bring up the boot menu. Use the arrow keys to select the USB device and press **Enter** to boot from that device.
7. If you are prompted to choose between running System Recovery from media or from the hard drive, select media, and then select **Next**.
8. Under **I need help immediately**, select **Factory Reset**.
9. If you are prompted to back up your files, and you have not done so, select **Back up your files first (recommended)**, and then select **Next**. Otherwise, select **Recover without backing up your files**, and then select **Next**.
10. If you are prompted to insert the next recovery disc, do so.
11. When the Recovery Manager is finished, remove all recovery media from the system.
12. Select **Finish** to restart the computer.

## Recovery media

Recovery media can be created on either blank DVD discs or a USB flash drive (one or the other, but not both). Create recovery media from the recovery image stored on your hard disk drive. This image contains the operating system and software program files that were originally installed on your computer at the factory. You can create only one set of recovery media for your computer, and the media can be used *only* with this computer. Store the recovery media in a safe place.



**NOTE:** Some features might not be available on systems that are shipped without a version of Windows.

## Choosing recovery media

- To create recovery discs, your computer must have a DVD writer, and you must use only high-quality blank DVD+R or DVD-R discs.



**NOTE:** You *cannot* use CDs or DVD+RW, DVD-RW, DVD+RW DL, DVD-RW DL, DVD+R DL, or DVD-R DL discs to create recovery discs.

- If you are creating recovery discs, be sure to use high-quality discs to create your set of recovery discs. It is normal for discs to be rejected if they are not defect-free. You will be prompted to insert a new blank disc to try again.

- The number of discs in the recovery-disc set depends on your computer model (typically 1–3 DVD discs). The Recovery Disc Creator program will tell you the specific number of blank discs needed to make the set.
- You may choose to create a recovery USB flash drive instead, using a high-quality blank USB drive. If you are using a USB flash drive, the program will tell you the size of the drive required to store all the data (minimum of 8 GB).



**NOTE:** The process of creating recovery media takes some time to verify that the information written on the media is correct. You can quit the process at any time. The next time you run the program, it will resume where it left off.

---

## Creating recovery media

To create recovery discs:

1. Close all open programs.
2. Select **Start**, select **All Programs**, select **Security and Protection**, select **Recovery Manager**, and then select **Recovery Media Creation**. If prompted, select **Yes** to allow the program to continue.
3. Select **Create recovery media using blank DVD(s)**, and then select **Next**.
4. Follow the on-screen instructions. Label each disc as you make it (for example, Recovery 1, Recovery 2).

To create a recovery USB flash drive:

1. Close all open programs.
2. Insert the USB flash drive into a USB port on the computer.
3. Select **Start**, select **All Programs**, select **Security and Protection**, select **Recovery Manager**, and then select **Recovery Media Creation**.
4. Select **Create recovery media with a USB flash drive**, and then select **Next**.
5. Select the USB flash drive from the list of media. The program lets you know how much storage is required to create the recovery drive. If the USB flash drive does not have enough storage capacity (8 GB is the minimum), it is grayed out on the screen. Select **Next**.



**NOTE:** Recovery Media Creation formats the flash drive and deletes all on files on it.

---

6. Follow the on-screen instructions. Be sure to label the USB flash drive and store it in a secure place.



**NOTE:** Do not use media cards for creating recovery media. The system may not be able to boot up from a media card and you may not be able to run system recovery.

---



## 7 Maintenance

It is important that you perform simple maintenance of your computer to ensure that it works at peak performance.

### Schedules and tasks

Timeframe	Task	Description
Follow these instructions at the recommended intervals for proper maintenance.		
Weekly	Software cleanup	Use <b>Disk Cleanup</b> or safe third-party cleaning tools to remove junk files and temporary files that accumulate and slow down your system. Also, check for programs you no longer need and uninstall them.
	Defragmentation	Run <b>Disk Defragmenter</b> to keep your hard disk in good condition and improve system performance. Frequently performing this task does not harm your system.
	Virus scan	Perform a full virus scan every week to catch viruses that might have slipped through unnoticed. Most antivirus products have a scheduling feature to keep track of this automatically.
Monthly	Hardware cleanup	Thoroughly clean the inside and outside of your computer.
	Software updates	Use <b>Windows Update</b> to fix operating system bugs and improve performance. Also, be sure to check for driver updates for your hardware and new versions of your favorite programs.
	Windows Update	Run <b>Windows Update</b> monthly to install updates.
	Hard disk diagnostic	Sometimes a failing hard disk can be caught beforehand by using <b>Hard Disk Diagnostic</b> .
Yearly	System Recovery	In time, your system might still get bogged down, depending on the computer usage. Use <b>System Recovery</b> to wipe your Windows operating system installation clean, restoring it to the original configuration when you first started your system. <b>Make a backup of important data files before proceeding with a System Recovery.</b> See <a href="#">System recovery on page 15</a> for further details.
As needed	Backing up your data	Use CD or DVD recording software that is installed on your computer to create (or “burn”) backup discs of important information, including personal files, e-mail messages, and website bookmarks. You can also move data to an external hard disk drive.

### Keeping the computer free of dust, dirt, and heat

Keeping your computer system free of dust, dirt, and heat will prolong its life. Dust, pet hair, and other particles can build up, creating a blanket effect; as a result, components can overheat, or, in the case of the keyboard and mouse, not work smoothly and effectively. Check your system once a month for visible signs of dust and debris, and clean it about once every three months. Visit [www.hp.com/support](http://www.hp.com/support) for additional cleaning instructions.

## Cleaning the computer and monitor

Follow these steps to clean the computer and monitor:

1. Unplug the power to the computer and the monitor.
2. To clean the monitor screen, use a clean, dry cloth. **Do not use water on the monitor screen.** For more thorough cleaning, use a clean cloth and antistatic screen cleaner.
3. Use a clean, dry cloth to dust the computer case and the monitor case.



**NOTE:** To remove sticker residue or a spill on the computer or monitor case, use isopropyl (rubbing) alcohol and a lint-free cloth.

---

## Cleaning the computer vents

Air vents keep the computer cool. Keep these vents clean by using a small, battery-powered vacuum cleaner. (A battery-powered vacuum cleaner eliminates the risk of electric shock.)

1. Vacuum the vents on the computer case.
2. Remove any debris that has accumulated in and around the computer connectors (for example, the Ethernet and USB connectors).

## Cleaning the keyboard and mouse

When cleaning the keyboard keys, use a low setting on a battery-powered vacuum cleaner, to avoid removing key caps and springs.

1. Vacuum between the keys of the keyboard and along the grooves.
2. Use a clean, dry cloth and isopropyl (rubbing) alcohol to clean buildup on the keyboard keys and along its edges.
3. Wipe the body of the mouse and the mouse cord by using cleaning wipes.

If you have a roller-ball mouse, clean the ball and rollers inside:

1. Turn the mouse upside down, and rotate the ball-cover ring counterclockwise to remove the ring and release the roller ball.
2. Rinse the roller ball with soap and warm water.
3. Clean the rollers inside the mouse with a cotton swab dampened with isopropyl (rubbing) alcohol.
4. After the roller ball and rollers are completely dry, replace the ball and ball-cover ring.

## Cleaning the touch screen (select models only)



**CAUTION:** Do not spray or place the cleaner directly on the screen; spray the cleaner into the cloth, and then wipe the sides and surface of the touch screen.

Do not use an abrasive cleaner or cloth when cleaning the sides or the surface of the screen, because this could cause damage to the touch screen.

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Follow these steps to clean the touch screen:

1. Turn off the computer. Tap **Start**, and then tap **Shut Down**.
2. Disconnect the power cord from the wall.

3. Spray a small amount of mild glass cleaner on a soft cloth to clean the touch screen.
4. Wipe the surface and left and right side of the touch screen to remove any dirt, fingerprints, or other debris that could hinder the touch recognition of the screen.

## 8 Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

When HP PC Hardware Diagnostics (UEFI) detects a failure that requires hardware replacement, a 24-digit Failure ID code is generated. This ID code can then be provided to support to help determine how to correct the problem.



**NOTE:** To start diagnostics on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached.

To start HP PC Hardware Diagnostics (UEFI), follow these steps:

1. Turn on or restart the computer, and quickly press **Esc**.
2. Press **F2**.

The BIOS searches three places for the diagnostic tools, in the following order:

- a. Connected USB drive



**NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 22](#).

- b. Hard drive
- c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions.



**NOTE:** If you need to stop a diagnostic test, press **Esc**.

## Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



**NOTE:** The HP PC Hardware Diagnostics (UEFI) download instructions are provided in English only, and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are offered.

There are two options to download HP PC Hardware Diagnostics to a USB device.

### Download the latest UEFI version

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, select the **Download** link, and then select **Run**.

### Download any version of UEFI for a specific product

1. Go to <http://www.hp.com/support>.
2. Select **Get software and drivers**.

3. Enter the product name or number.

– or –

Select **Identify now** to let HP automatically detect your product.

4. Select your computer, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

## 9 Specifications

### Operating specifications



**NOTE:** To determine the exact electrical ratings of your computer, refer to the computer ratings label, located on the outside of the computer.

Factor	Metric	U.S.
Operating temperature	<b>5°C to 35°C</b>	41°F to 95°F
Storage temperature	<b>-20°C to 60°C</b>	-22°F to 149°F
Operating humidity	<b>15% to 80% @ 26°C</b>	15% to 80% @ 78°F
Operating altitude	<b>0 m to 2000 m</b>	0 ft to 6561 ft
Storage altitude	<b>0 m to 4572 m</b>	0 ft to 15000 ft

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## 10 Electrostatic Discharge

Electrostatic discharge is the release of static electricity when two objects come into contact—for example, the shock you receive when you walk across the carpet and touch a metal door knob.

A discharge of static electricity from fingers or other electrostatic conductors may damage electronic components.

To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

- If removal or installation instructions direct you to unplug the computer, first be sure that it is properly grounded.
- Keep components in their electrostatic-safe containers until you are ready to install them.
- Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.
- Use nonmagnetic tools.
- Before handling components, discharge static electricity by touching an unpainted metal surface.
- If you remove a component, place it in an electrostatic-safe container.

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# 11 Accessibility

HP designs, produces, and markets products and services that can be used by everyone, including people with disabilities, either on a stand-alone basis or with appropriate assistive devices.

## Supported assistive technologies

HP products support a wide variety of operating system assistive technologies and can be configured to work with additional assistive technologies. Use the Search feature on your device to locate more information about assistive features.

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 **NOTE:** For additional information about a particular assistive technology product, contact customer support for that product.

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## Contacting support

We are constantly refining the accessibility of our products and services and welcome feedback from users. If you have an issue with a product or would like to tell us about accessibility features that have helped you, please contact us at +1 (888) 259-5707, Monday through Friday, 6 a.m. to 9 p.m. North American Mountain Time. If you are deaf or hard-of-hearing and use TRS/VRS/WebCapTel, contact us if you require technical support or have accessibility questions by calling +1 (877) 656-7058, Monday through Friday, 6 a.m. to 9 p.m. North American Mountain Time.

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 **NOTE:** Support is in English only.

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