



User Guide

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Product notice

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

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

To access the latest user guide, go to <http://www.hp.com/support>, and select your country. Select **Drivers & Downloads**, 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

 **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).

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1 Getting information

Tasks	Instructions
<ul style="list-style-type: none">Set up your computer	<p><i>Setup Instructions</i> poster</p> <p>– or –</p> <p>See Setting up your computer on page 3.</p>
<ul style="list-style-type: none">Connect to the Internet	See Connecting to the Internet (select models only) on page 4 .
<ul style="list-style-type: none">Recover factory settings	See System Recovery on page 16 .
<ul style="list-style-type: none">See how-to videos about using the features of your computer	Go to http://www.hp.com/support/videos (English only).
<ul style="list-style-type: none">Learn how to use the Windows® operating systemFind Windows password informationFind links to driver updatesRead frequently asked questions	<p>Help and Support:</p> <p>From the Start screen, type <code>help</code>, and then select Help and Support. For U.S. support, go to http://www.hp.com/go/contactHP. For worldwide support, go to http://welcome.hp.com/country/us/en/wwcontact_us.html.</p>
<ul style="list-style-type: none">Troubleshoot the most common computer hardware and software issues	See Troubleshooting on page 9 .
<ul style="list-style-type: none">Find electronic user guides and specifications for your computer modelOrder parts and find additional troubleshooting help	Go to http://www.hp.com/go/contactHP .
<ul style="list-style-type: none">Upgrade or replace components of your computer	Go to http://www.hp.com/go/contactHP .
<ul style="list-style-type: none">Find computer warranty information	<p><i>HP Worldwide Limited Warranty and Technical Support</i> guide:</p> <p>From the Start screen, type <code>support</code>, and then select the HP Support Assistant app. Select My computer, and then select Warranty and services.</p>
<ul style="list-style-type: none">Get up-to-date information and help from the Windows community	Go to http://www.hp.com/support/consumer-forum .
<ul style="list-style-type: none">Connect to a TV (select models only)	Go to http://www.hp.com/go/contactHP .
<ul style="list-style-type: none">Maintain your computer	<p>From the Start screen, type <code>support</code>, and then select the HP Support Assistant app. HP Support Assistant maintains your computer performance and resolves problems quickly by using automated updates, diagnostic tools, and guided assistance.</p> <p>– or –</p> <p>See Maintenance on page 20.</p>
<ul style="list-style-type: none">Find safety and regulatory notices	<p><i>Regulatory, Safety and Environmental Notices</i>:</p> <p>From the Start screen, type <code>support</code>, and then select the HP Support Assistant app. Select My computer, and then select User guides.</p> <p>– or –</p>

Tasks	Instructions
	Go to http://www.hp.com/go/contactHP .
<ul style="list-style-type: none">Find ergonomic information	<i>Safety & Comfort Guide.</i> From the Start screen, type <code>support</code> , and then select the HP Support Assistant app. Select My computer , and then select User guides . – or – Go to http://www.hp.com/ergo .

2 Setting up your computer

 **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>.

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 detection 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.

From the Start screen, type `control panel`, select **Control Panel**, select **System and Security**, and then select **System**.
 - b. Open your internet browser, and then go to <http://www.hp.com/go/contactHP>.
 - c. If necessary, click your country and language, click **Support**, and then click **Download drivers**.
 - d. Enter your computer model name and number in the **Find by product field**, and then click **Go**.
 - e. If necessary, select your computer model from **Product search results**.
 - f. Select your computer operating system.
 - g. Click **Download** next to each update you wish to download.
 - h. Follow the on-screen instructions to install each downloaded update.
4. Look in the computer box for additional printed details or updates.

5. Read the *Regulatory, Safety and Environmental Notices*. From the Start screen, type `support`, and then select the **HP Support Assistant** app. Select **My computer**, and then select **User guides**.
6. Read the *Safety & Comfort Guide* provided with your user guides. It describes proper workstation setup, and proper posture, health, and work habits for computer users. The *Safety & Comfort Guide* also provides important electrical and mechanical safety information. To access the guide, from the Start screen, type `support`, and then select the **HP Support Assistant** app. Select **My computer**, and then select **User guides**, or go to <http://www.hp.com/ergo>.

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.

 **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.

Connecting to the Internet (select models only)

To connect to a wireless network:

- ▲ From the Start screen, type `wireless`, and then select **Connect to a 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).

For more information about wireless technology, see the information and Website links provided in Help and Support. From the Start screen, type `help`, and then select **Help and Support**.

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 13](#).

3 Navigating the screen

You can navigate the computer screen in the following ways:

- Using touch gestures (select models 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.

From the Start screen, type `control panel`, select **Control Panel**, and then 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.

 **TIP:** The Windows key  on the keyboard allows you to quickly return to the Start screen from an open app or the Windows desktop. Pressing the Windows key again will return you to the previous screen.

 **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
	Lists open apps.
	Snaps open apps.
	Switches between open apps.
	Shows the available commands in an open app.
	Shows or hides the desktop.
	Opens the Search charm.
	Opens the Share charm.
	Opens the Devices charm.
	Opens the Settings charm.
	Plays the previous track of an audio CD or the previous section of a DVD or a BD.
	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>CAUTION: 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.

Icon	Description
	Increases speaker volume incrementally as long as you hold down the key.
	Displays options for a selected object.

Using Windows shortcut keys

Windows provides shortcuts so that you can perform actions quickly. Press the Windows key  alone or in combination with a specific key to perform a designated action.

4 Protecting your computer

Your computer includes 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</i> is a group of characters that you choose. These characters must be entered to authorize access to your computer information.
Unauthorized access to Setup Utility, BIOS settings, and other system identification information	Administrator password
Computer viruses	Antivirus software 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 service.
Unauthorized access to data and ongoing threats to the computer	Firewall software <ul style="list-style-type: none">• Windows includes firewall software preinstalled on the computer.• The antivirus software, which is preinstalled on the computer, includes firewall software. Windows critical security updates Updates to the Windows operating system

5 Troubleshooting

If you have problems using any peripheral devices such as a monitor, or a printer, with your computer, for more extensive troubleshooting refer to the documentation provided by the product manufacturer. The following tables present some issues you might encounter while installing, starting up, or using your computer and suggest possible solutions.

For more information or for additional troubleshooting options, go to <http://www.hp.com/go/contactHP>, and then search for your computer model.

Computer does not start

Symptom	Possible solution
Error message: hard drive error	<ol style="list-style-type: none">Restart the computer.<ol style="list-style-type: none">Press ctrl+alt+delete.Select the Power icon in the lower-right corner of the screen, and then select Restart.<p>– or –</p>Press and hold the power button on the computer for 5 or more seconds to turn off the computer, and then press the button to turn on the computer.If Windows opens, immediately back up all important data to a backup hard drive.Contact support (regardless of whether Windows started or not).
Computer will not turn on or start	<p>Be sure that the cables connecting the computer to the AC outlet are plugged in properly. The green power supply light on the computer should be on. If it is not, try a different AC outlet. If you are still having trouble, contact support.</p> <p>If the display (monitor) is blank, the monitor might not be properly connected. Connect the monitor to the computer, plug the power cord into an AC outlet, and then turn the monitor on. See Display (monitor) on page 10.</p> <p>Test the AC outlet by plugging a different electrical device into it.</p>
Computer is not responding	<ol style="list-style-type: none">Press ctrl+alt+delete.Select Task Manager.Select any programs that are not responding, and then click End task. <p>If closing programs does not resolve the problem, restart the computer.</p> <ol style="list-style-type: none">Press ctrl+alt+delete.Select the Power icon in the lower-right corner of the screen, and then select Restart. <p>– or –</p> Press and hold the power button on the computer for 5 or more seconds to turn off the computer, and then press the power button to turn on the computer.
Error message: Invalid system disk or Non-System disk or Disk error	When drive activity stops, remove the optical disc inside the optical drive, and then press the spacebar on the keyboard.

Power

Symptom	Possible solution
Computer does not turn off when the power button is pressed	Press and hold the power button until the computer turns off. Then turn the computer on again.
Computer shuts down automatically	<ul style="list-style-type: none">• The computer might be in an exceedingly hot environment. Let it cool down.• Be sure that computer air vents are not blocked. See Cleaning your computer on page 21. <p>NOTE: If your computer has an internal fan, be sure that the internal fan is running.</p>

Display (monitor)

Symptom	Possible solution
Screen is blank, and monitor power light is not lit	Reconnect the power cable to the back of the monitor and to the AC outlet. Press the power button on the monitor.
Screen is blank	Press the space bar on the keyboard or move the mouse to redisplay the screen image. Press the Sleep button (select models only), or esc , to resume from Sleep mode. Press the power button to turn on the computer. Inspect the monitor cable for bent pins. <ul style="list-style-type: none">• If any of the pins are bent, replace the monitor cable.• If no pins are bent, reconnect the monitor cable to the computer.
Images on the screen are too large or too small, or the images are fuzzy	Adjust the monitor resolution setting in Windows. <ol style="list-style-type: none">1. Right-click an empty area of the desktop, and then click Screen resolution.2. Select a different resolution from the drop-down menu.3. Click Apply, and then click Keep changes.

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. Disconnect 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	Disconnect and reconnect the mouse cable to your computer. If the mouse is still not detected, turn off the computer, disconnect and reconnect the mouse cable, and then restart the computer.

Symptom	Possible solution
Cursor does not respond to the arrow keys on the number keypad	Press num lock on the keyboard to turn off num lock, so that the arrow keys on the number keypad can be used.
Cursor does not respond to mouse movement	<ol style="list-style-type: none">1. Press alt+tab to navigate to an open program.2. Press ctrl+s to save your changes in the selected program (ctrl+s is the keyboard shortcut for the Save command on most—not all—programs).3. Repeat step 1 and step 2 to save changes in all open programs.4. Press the power button to turn off the computer.5. After the shutdown is complete, disconnect and reconnect the mouse cable to the back of your computer, and then restart your computer.

Keyboard and mouse (wireless)

Symptom	Possible solution
Wireless keyboard or mouse does not work or is not detected	<ul style="list-style-type: none">• Be sure 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.• Be sure that the mouse is not in Suspend mode, which occurs after 20 minutes of inactivity. Click the left mouse button to reactivate the mouse.• Replace the batteries in the keyboard and/or mouse.• Re-synchronize the keyboard and mouse to the receiver using the following steps. <p>The receiver, wireless keyboard, and wireless mouse shown in the following illustrations are examples; your model might vary.</p> <p>IMPORTANT: 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">1. Disconnect the receiver from a USB port on the computer, and then reconnect it. Your computer model might have a port dedicated to the receiver. If you have a choice, use a USB port on the front of the computer.  <ol style="list-style-type: none">2. Confirm that the mouse is on (A), and then press and hold the Connect button (B) on the underside of the mouse for 5 to 10 seconds until the LED on the receiver lights up or stops flashing. The receiver connection session times out after 60 seconds. To confirm that the connection was established, and that the receiver did not time out, move the mouse, and then check for a response on the screen.  <ol style="list-style-type: none">3. If the keyboard is not responding, press and hold the Connect button (C) on the underside of the keyboard for 5 to 10 seconds, until the LED on the receiver lights up or stops flashing. 

Speakers and sound

Symptom	Possible solution
Volume is very low or unsatisfactory	Be sure that you connected the speakers to the audio-out (black) jack on the back of the computer. (Additional audio jacks 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">1. From the Start screen, type <code>control panel</code>, select Control Panel, and then select System and Security.2. Under Action Center, select Troubleshoot common computer problems, and then select Troubleshoot audio playback. <p>Be sure that you connected powered speakers and that they are turned on.</p> <p>Turn off your computer, and then disconnect and reconnect the speakers. Be sure that the speakers are connected to an audio jack, not a microphone or headphone jack.</p> <p>To resume from Sleep mode, press the Sleep button (select models only), or press <code>esc</code>.</p> <p>Unplug headphones if they are connected to your computer (or speaker system).</p>

Internet access

Symptom	Possible solution
Cannot connect to the Internet	<ol style="list-style-type: none">1. From the Start screen, type <code>control panel</code>, and then select Control Panel.2. Under Network and Internet, select Connect to the Internet. <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 connect a network cable to a telephone line; doing so might damage the network adapter.</p> <p>Run the wireless setup wizard.</p> <ol style="list-style-type: none">1. From the Start screen, type <code>control panel</code>, select Control Panel, select Network and Internet, and then select Network and Sharing Center.2. In the Network and Sharing Center window, select Set up a new connection or network to open the wizard, and then follow the on-screen instructions. <p>If your system has an external antenna, try moving the antenna to a better position. If the antenna is internal, try moving the computer.</p> <p>Try to connect again later, or contact your ISP for assistance.</p>

Software troubleshooting

Symptom	Possible solution
To resolve software problems, try these methods:	<ul style="list-style-type: none">• Turn the computer off completely, and then turn it on again.• Update the drivers. See "Updating device drivers," in the next entry.• Restore your computer to a configuration that was in use before the software was installed. See "Microsoft System Restore," in this table.• Reinstall the software program or hardware driver. See "Software program and hardware driver reinstallation," in this table.• Erase and reformat the hard drive, and then reinstall the operating system, programs, and drivers. This process erases all the data files that you have created. See System Recovery on page 16.
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">1. From the Start screen, type <code>device manager</code>, and then select Device Manager.2. Select the arrow to expand the list of the type of device you want to update or roll back (for example, DVD/CD-ROM drives).3. Double-click the specific item (for example, HP DVD Writer 640b).4. Select the Driver tab.5. To update a driver, select Update Driver, and then follow the on-screen instructions. <p>– or –</p> <p>To revert to an earlier version of a driver, select Roll Back Driver, and then follow the on-screen instructions.</p>
Microsoft System Restore	<p>If you have a problem that might be caused by software that you have 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>IMPORTANT: Always use this System Restore procedure before you use the System Recovery program.</p> <p>To start a system restore or to add restore points manually:</p> <ol style="list-style-type: none">1. Close all open programs.2. From the Start screen, type <code>control panel</code>, and then select Control Panel.3. Select System and Security, select System, and then select System protection.4. Select the System protection tab on the System Properties screen.5. Follow the on-screen instructions.

Symptom	Possible solution
Software program and hardware driver reinstallation	<p>If any of your factory-installed software programs or hardware drivers are damaged, you can reinstall them by using HP Recovery Manager (select models only).</p> <p>NOTE: Do not use HP Recovery Manager to reinstall software programs provided 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 that you have a way to reinstall it. Confirm that it is still available from the original source (for example, discs or the Internet). Or, confirm that the program is in the list of programs you can reinstall from HP Recovery Manager (see the steps directly below).</p> <p>NOTE: Some features might not be available on systems that are shipped without a version of Microsoft Windows.</p> <hr/> <p>To check the list of installable programs or to reinstall a program in HP Recovery Manager:</p> <ol style="list-style-type: none">1. From the Start screen, type <code>recovery</code>, and then select HP Recovery Manager. If prompted, click Yes to allow the program to continue.2. Select Drivers and Applications Reinstall. A list of programs opens. Check to see if the program you want to reinstall is listed. <hr/> <p>To uninstall a program:</p> <ol style="list-style-type: none">1. Close all software programs and folders.2. From the Start screen, type <code>control panel</code>, and then select Control Panel.3. Under Programs, select Uninstall a program.4. Select the program you want to remove, and then select Uninstall.

6 System Recovery

System Recovery completely erases and reformats the hard drive, deleting all data files you have created, and then reinstalls the operating system, programs, and drivers that were installed at the factory. Therefore, you must manually reinstall any software that was installed after the computer left the factory.

 **NOTE:** Always use the System Restore procedure before you use the System Recovery program. See “Microsoft System Restore,” under [Software troubleshooting on page 14](#).

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

Choosing a system recovery method

You must choose one of the following methods to perform a system recovery:

- **Recovery Image**—Run System Recovery from a recovery image stored on your hard 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 Start screen on page 16](#)

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

- **Recovery Media**—Run System Recovery from recovery media that you create from files stored on your hard 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 drive, from the Windows Start screen.
2. Through the hard drive, by pressing **f11** system startup.
3. Through recovery media that you create.
4. Through recovery discs purchased from HP. To purchase recovery discs, go to <http://www.hp.com/go/contactHP>.

System recovery from the Windows Start screen

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

If the computer is working and Windows 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. From the Start screen, type `recovery`, and then select **HP Recovery Manager**. If prompted, click **Yes** to allow the program to continue.
5. Select **Windows Recovery Environment**.
6. Follow the on-screen instructions.

 **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 click **Next** to restart the computer and run HP Recovery Manager from the recovery disc or USB flash drive. If using discs, insert the next system recovery disc when prompted.

7. When the recovery is complete, 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 have created or installed. Back up any important data to a removable disc or USB flash drive.

If Windows 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` until the **Windows is Loading Files** message appears on the screen.
5. Select **Windows Recovery Environment**.
6. Follow the on-screen instructions.
7. When the recovery is complete, turn off the computer, reconnect all peripheral devices, and then turn the computer back on.

System recovery from recovery media

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

To create recovery media, see [Creating recovery media on page 18](#).

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 computer.
2. If using recovery DVDs, insert recovery disc #1 into the DVD drive tray, and then close the tray. If you are using a recovery USB flash drive, insert the flash drive into a USB port.
3. If the computer works, from the Start screen, move your cursor to the lower-right corner of the screen to display the charms toolbar, select **Settings**, select the **Power** icon, 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 HP 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 then press **enter** to start 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 click **Next**.
8. Select **Factory Reset**.
9. Follow the on-screen instructions.

Recovery media

Recovery media can be created on either blank DVDs or a USB flash drive (one or the other, but not both). Create recovery media from the recovery image stored on your hard 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 Microsoft 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 one to three DVDs). 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 flash 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. From the Start screen, type `recovery`, and then select **HP Recovery Manager**. If prompted, click **Yes** to allow the program to continue.

3. Select **Recovery Media Creation**, 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. Connect the USB flash drive to a USB port on the computer.
3. From the Start screen, type `recovery`, and then select **HP Recovery Manager**. If prompted, click **Yes** to allow the program to continue.
4. Select **Recovery Media Creation**, 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 and you cannot continue. Click **Next**.



NOTE: Recovery Media Creation formats the flash drive and deletes all 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 start 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 be sure that it works at peak performance.

Schedules and tasks

Follow these instructions at the recommended intervals for proper maintenance.

Weekly	Software cleanup	<p>Use Disk Cleanup 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.</p> <p>To run Disk Cleanup:</p> <ol style="list-style-type: none">1. From the Start screen, type <code>disk</code>, and then select Uninstall apps to free up disk space.2. Follow the on-screen instructions.
	Defragmenting and optimizing	<p>Use Disk Defragmenter to defragment and optimize your hard drive to keep your hard disk in good condition and improve system performance. Frequently performing this task does not harm your system.</p> <p>To run Disk Defragmenter:</p> <ol style="list-style-type: none">1. Connect the computer to AC power.2. From the Start screen, type <code>disk</code>.3. Follow the on-screen instructions.
	Virus scan	<p>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.</p>
Monthly	Hardware cleaning	<p>Thoroughly clean the outside of your computer.</p>
	Software updates	<p>Use Windows Update 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.</p>
	Windows Update	<p>Run Windows Update to install updates.</p>
Yearly	System Recovery	<p>In time, your system might still slow down, depending on the computer usage. Use System Recovery to wipe your Windows operating system installation clean, restoring it to the original configuration when you first started your system. Make a backup of important data files before proceeding with a System Recovery. See System Recovery on page 16 for further details.</p>
As needed	Backing up your data	<p>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 drive.</p>

Cleaning your computer

Use the following products to safely clean your computer:

- Dimethyl benzyl ammonium chloride 0.3 percent maximum concentration (for example, disposable wipes, which come in a variety of brands)
- Alcohol-free glass-cleaning fluid
- Water with mild soap solution
- Dry microfiber cleaning cloth or a chamois (static-free cloth without oil)
- Static-free cloth wipes

⚠ CAUTION: Avoid strong cleaning solvents that can permanently damage your computer. If you are not sure that a cleaning product is safe for your computer, check the product contents to make sure that ingredients such as alcohol, acetone, ammonium chloride, methylene chloride, and hydrocarbons are not included in the product.

Fibrous materials, such as paper towels, can scratch the computer. Over time, dirt particles and cleaning agents can get trapped in the scratches.

Cleaning procedures

Follow the procedures in this section to safely clean your computer.

⚠ WARNING! To prevent electric shock or damage to components, do not attempt to clean your computer while it is turned on.

- Turn off the computer.
- Disconnect AC power.
- Disconnect all powered external devices.

⚠ CAUTION: To prevent damage to internal components, do not spray cleaning agents or liquids directly on any computer surface. Liquids dripped on the surface can permanently damage internal components.

Cleaning the display

⚠ CAUTION: Do not spray or place the cleaner directly on the screen.

Gently wipe the sides and the surface of the display using a soft, lint-free cloth moistened with an alcohol-free glass cleaner.

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 or mouse

⚠ WARNING! To reduce the risk of electric shock or damage to internal components, do not use a vacuum cleaner attachment to clean the keyboard. A vacuum cleaner can deposit household debris on the keyboard surface.

⚠ CAUTION: To prevent damage to internal components, do not allow liquids to drip between the keys.

- To clean the keyboard or mouse, use a soft microfiber cloth or a chamois moistened with one of the cleaning solutions listed previously or use an acceptable disposable wipe.
- To prevent keys from sticking and to remove dust, lint, and particles from the keyboard, use a can of compressed air with a straw extension.

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.

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.

To start HP PC Hardware Diagnostics UEFI:

1. Turn on or restart the computer, quickly press **esc**, and then 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 23](#).

- b. Hard drive

- c. BIOS

2. When the diagnostic tool opens, use the keyboard arrow keys to 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: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

1. Go to <http://www.hp.com>.
2. Point to **Support**, located at the top of the page, and then click **Download Drivers**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, click **HP UEFI Support Environment**.

– or –

Click **Download**, and then select **Run**.

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	5°C to 35°C	41°F to 95°F
Storage temperature	-20°C to 60°C	-22°F to 149°F
Operating humidity	15% to 80% @ 26°C	15% to 80% @ 78°F
Operating altitude	0 m to 2000 m	0 ft to 6561 ft
Storage altitude	0 m to 4572 m	0 ft to 15,000 ft

10 Support information

How to get help

HP support can help you get the most from your computer. You will find what you need with tools located on your computer and with information available on the Web, by phone, or through your local retailer.

Before contacting HP support, it's important to have the following information handy:

- Model number
- Product number
- Serial number
- Software build number
- Operating system
- Purchase date

Please take a moment to write down your product information for future reference.

The first four items on the list (model number, product number, serial number, and software build number) can be viewed by using HP Support Information. From the Start screen, type `support`, and then select **HP Support Information**.

Don't forget to register at <http://www.hp.com/apac/register>.

Where to get help

- Use Windows Help and Support for help with hardware and software questions. From the Start screen, type `help`, and then select **Help and Support**.
- Use HP Support Assistant. From the Start screen, type `support`, and then select **HP Support Assistant**. HP Support Assistant provides useful troubleshooting and diagnostics information and includes the following:
 - Online chat with an HP technician
 - Support telephone numbers
 - HP service center locations
- For help online, go to <http://www.hp.com/go/contactHP>.

Telephone assistance to get you up and running is covered for thirty (30) days from the time you purchase your computer. After thirty (30) days, there may be a charge, but the helpful support is still available.

Customer support for repairs

If your computer needs to be repaired, or to have parts replaced, you have two choices:

- You can easily replace many of your computer parts that are considered consumer replaceable. This is the fastest method of repair, because many times we can send the part directly to your home or business in a few days. (This option may not be available in all countries or regions.)
- If a repair is necessary, HP support will make arrangements to repair your computer.

These services are covered during the warranty period.

There are some limitations and exclusions to the warranty (as well as some important details), which are described in the *HP Worldwide Limited Warranty and Technical Support* guide.

Before upgrading your hardware

If you intend to upgrade any of your hardware, do it only after you set up your new computer. For instructions on setting up your computer, see the *Setup Instructions* poster or [Setting up your computer on page 3](#). If you have any problems setting up your system and turning it on, immediately contact HP support using the procedures given earlier in this chapter. This must be done first before attempting to upgrade your system.

By breaking the security seal on the back of the computer, you confirm that the computer was working properly before you attempted to upgrade your system. After the security seal has been broken, your computer is then, to the extent allowed by local law, covered under the terms and conditions listed in the *HP Worldwide Limited Warranty and Technical Support* guide.

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