User Guide

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.

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1 Getting information

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● Set up your computer	*Setup Instructions* or *Quick Setup* poster – or – See Setting up your computer on page 3.
● Connect to the Internet	See Connecting to the Internet (select products only) on page 4.
● Recover factory settings	See Backing up, restoring, and recovering on page 15.
● See how-to videos about using the features of your computer	Go to http://www.hp.com/supportvideos (English only).
● Learn how to use the Windows® operating system ● Find Windows password information ● Find links to driver updates ● Read frequently asked questions	Get started app: Select the **Start** button, and then select the **Get started** app.
● Troubleshoot the most common computer hardware and software issues	See Troubleshooting on page 9.
● Find electronic user guides and specifications for your computer model ● Order parts and find additional troubleshooting help	Go to http://welcome.hp.com/country/us/en/wwcontact_us.html.
● Upgrade or replace components of your computer	Go to http://welcome.hp.com/country/us/en/wwcontact_us.html.
● Find computer warranty information	*HP Worldwide Limited Warranty and Technical Support* guide: 1. Type support in the taskbar search box, and then select the **HP Support Assistant** app. – or – Click the question mark icon in the taskbar. 2. Select **My PC**, and then select **Warranty and services**. – or – Go to http://www.hp.com/go/orderdocuments.
● Get up-to-date information and help from the Windows community	Go to http://www.hp.com/support/consumer-forum.
● Connect to a TV (select products only)	Go to http://welcome.hp.com/country/us/en/wwcontact_us.html.
● Maintain your computer	HP Support Assistant maintains your computer performance and resolves problems quickly by using automated updates, diagnostic tools, and guided assistance. ▲ Type support in the taskbar search box, and then select the **HP Support Assistant** app. – or – Click the question mark icon in the taskbar.

Tasks	Instructions
	– or –
	See Maintenance on page 21.
● Find safety and regulatory notices	*Regulatory, Safety and Environmental Notices*:
	To access this document:
	1. Type support in the taskbar search box, and then select the **HP Support Assistant** app.
	– or –
	Click the question mark icon in the taskbar.
	2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.
	– or –
	Go to http://welcome.hp.com/country/us/en/wwcontact_us.html.
● Find ergonomic information	*Safety & Comfort Guide*:
	1. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.
	Type support in the taskbar search box, and then select the **HP Support Assistant** app.
	– or –
	Click the question mark icon in the taskbar.
	2. Select **My PC**, select the **Specifications** tab, 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.

      Select the **Start** button, select **Settings**, select **System**, and then click **About**.

   b. Open your internet browser, and then go to http://welcome.hp.com/country/us/en/wwcontact_us.html.

   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.

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 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 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.

For more information about wireless technology, see the information and Website links provided in the Get started app. Select the **Start** button, and then select the **Get started** app.

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.

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.

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

Icon	Description
	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.
	Initiates Sleep, which saves your information in system memory. The display and other system components turn off and power is conserved. To exit Sleep, briefly press the power button. **CAUTION:** To reduce the risk of information loss, save your work before initiating Sleep.
	Mutes or restores speaker sound.

Icon	Description
◀−	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 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 A *password* 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 ● 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://welcome.hp.com/country/us/en/wwcontact_us.html, and then search for your computer model.

Computer does not start

Symptom	Possible solution

Error message: hard drive error	1. Restart the computer.
	
	   a. Press ctrl+alt+delete.
	
	   b. Select the **Power** icon in the lower-right corner of the screen, and then select **Restart**.
	
	   – or –
	
	   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.
	
	2. If Windows opens, immediately back up all important data to a backup hard drive.
	
	3. Contact support (regardless of whether Windows started or not).

Computer will not turn on or start	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.
	Be sure that the operating voltage of the electrical outlet is appropriate for the electrical voltage of the computer.
	Test the AC outlet by plugging a different electrical device into it.
	If possible, remove any outlet filters and stabilizers, then insert the power plug directly into the electrical outlet.
	Disconnect all peripheral devices, then press and hold the power button down for at least 15 seconds. Press the power button to turn on the computer.
	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) (select products only) on page 10.
Computer is not responding	1. Press ctrl+alt+delete. 2. Select **Task Manager**. 3. Select any programs that are not responding, and then click **End task**. If closing programs does not resolve the problem, restart the computer. 1. Press ctrl+alt+delete. 2. Select the **Power** icon in the lower-right corner of the screen, and then select **Restart**. – or –

Symptom	Possible solution
	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	• 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 22. NOTE: If your computer has an internal fan, be sure that the internal fan is running.

Display (monitor) (select products only)

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 products only), or esc, to resume from Sleep mode.
	Press the power button to turn on the computer.
	Inspect the monitor cable for bent pins. • 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. 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.
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	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	• Be sure that you are using the wireless keyboard or wireless mouse within range of the transceiver, 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.

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	1. Type control panel in the taskbar search box, and then select **Control Panel**. Select **System and Security**. 2. Under **Security and Maintenance**, select **Troubleshoot common computer problems**, and then select **Troubleshoot audio playback**.
	Be sure that you connected powered speakers and that they are turned on.
	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.

Symptom	Possible solution
	To resume from Sleep mode, press the Sleep button (select products only), or press esc.
	Unplug headphones if they are connected to your computer (or speaker system).

Internet access

Symptom	Possible solution
Cannot connect to the Internet	1. Type `control panel` in the taskbar search box, and then select **Control Panel**. 2. Under **Network and Sharing Center**, select **Connect to a network**.
	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.
	Run the wireless setup wizard. 1. Type `control panel` in the taskbar search box, and then 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.
	If your system has an external antenna, try moving the antenna to a better position. If the antenna is internal, try moving the computer.
	Try to connect again later, or contact your ISP for assistance.
Cannot connect to the Internet but there is no error message	1. Right-click the network status icon in the notification area, at the far right of the taskbar. 2. Select **Troubleshoot problems**.
No network connection icon in the notification area	1. Type `repair` in the taskbar search box, and then Select **Identify and repair network problems**. 2. Follow the on-screen instructions.

Software troubleshooting

Symptom	Possible solution
To resolve software problems, try these methods:	● 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 Backing up, restoring, and recovering on page 15.
Software programs are slow to respond	● Close unnecessary software programs. ● Run virus scans and other system tools when the computer is not in use.

	Stop startup applications (such as messaging software and multimedia applications) from loading.
	
	1. Type `msconfig` in the taskbar search box, and then select **msconfig**.
	
	   NOTE: If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
	
	2. From the **General** tab, select **Selective startup**.
	
	3. Click the **Startup** tab, and then click **Open Task Manager**.
	
	4. Select the startup items that you want to prevent from loading, and then click **Disable**.
	
	   NOTE: If you are unsure about an item, do not disable it.
	
	5. If prompted, click **Restart** to restart the computer.
	
	NOTE: To enable a program to load at startup, restart the computer and reverse these steps.

	Disable nonessential graphics capabilities. 1. Type `file explorer` in the taskbar search box, and then select **File Explorer**. 2. Click the **Computer** menu, and then select **Properties**. 3. Click **Advanced system settings**. **NOTE:** If you are prompted for an administrator password or confirmation, type the password or provide confirmation. 4. Under Performance, click **Settings**. 5. From the **Visual Effects** tab, select **Adjust for best performance**, and then click **OK**.

Updating device drivers	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.
	
	1. Type `device manager` in the taskbar search box, 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.
	
	   – or –
	
	   To revert to an earlier version of a driver, select **Roll Back Driver**, and then follow the on-screen instructions.

Symptom	Possible solution
Microsoft System Restore	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.
	IMPORTANT: Always use this System Restore procedure before you use the System Recovery program.
	For more information and steps, see the Get started app.
	▲ Select the **Start** button, and then select the **Get started** app.
Software program and hardware driver reinstallation	If any of your factory-installed software programs or hardware drivers are damaged, you can reinstall them by using HP Recovery Manager (select products only).
	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.
	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).
	NOTE: Some features might not be available on systems that are shipped without a version of Microsoft Windows.
	To check the list of installable programs or to reinstall a program in HP Recovery Manager:
	▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
	For information and steps to uninstall a program, see the Get started app.
	▲ Select the **Start** button, and then select the **Get started** app.

6   Backing up, restoring, and recovering

This chapter provides information about the following processes. The information in the chapter is standard procedure for most products.

- Creating recovery media and backups

- Restoring and recovering your system

For additional information, refer to the HP support assistant app.

▲ Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Click the question mark icon in the taskbar.

IMPORTANT: If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning any recovery process.

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the available method according to your computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see Creating HP Recovery media (select products only) on page 15. For information on the recovery options that are available using the recovery media, see Using Windows tools on page 16.

- Use Windows tools to create system restore points and create backups of personal information.

    For more information, see Recovering using HP Recovery Manager on page 17.

    NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

Creating HP Recovery media (select products only)

If possible, check for the presence of the Recovery partition and the Windows partition. From the **Start** menu, select **File Explorer**, and then select **My computer**.

- If your computer does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

You can use Windows tools to create system restore points and create backups of personal information, see Using Windows tools on page 16.

- If your computer does list the Recovery partition and the Windows partition, you can use HP Recovery Manager to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

  ◦ Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.

  ◦ HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.

  ◦ To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.

  ◦ If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

  ◦ Be sure that the computer is connected to AC power before you begin creating the recovery media.

  ◦ The creation process can take an hour or more. Do not interrupt the creation process.

  ◦ If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Type recovery in the taskbar search box, and then select **HP Recovery Manager**.

2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see Recovering using HP Recovery Manager on page 17.

Using Windows tools

You can create recovery media, system restore points, and backups of personal information using Windows tools.

NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see the Get started app.

▲ Select the **Start** button, and then select the **Get started** app.

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

IMPORTANT: Not all methods are available on all products.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.

  ▲ Select the **Start** button, and then select the **Get started** app.

- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.

  ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.

- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see Recovering using HP Recovery Manager on page 17. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 15.

- On select products, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see Recovering using HP Recovery Manager on page 17.

- On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

  For more information, see Removing the HP Recovery partition (select products only) on page 20.

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 15.

What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.

  IMPORTANT: Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 15.

- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see Creating HP Recovery media (select products only) on page 15.

- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP

website. Go to http://www.hp.com/support, select your country or region, and follow the on-screen instructions.

IMPORTANT: HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you want to retain.

Using HP Recovery media, you can choose from one of the following recovery options:

NOTE: Only the options available for your computer display when you start the recovery process.

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.

- Factory Reset—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

The HP Recovery partition allows you to perform a system recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can be used only if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select products only).

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.

   - or-

   For computers or tablets with keyboards attached, press f11 while the computer boots, or press and hold f11 as you press the power button.

   For tablets without keyboards:

   Turn on or restart the tablet, and then quickly hold down the volume down button; then select f11.

   - or -

   Turn on or restart the tablet, and then quickly hold down the Windows button; then select f11.

2. Select **Troubleshoot** from the boot options menu.

3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.

2. Insert the HP Recovery media, and then restart the computer.

   NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See Changing the computer boot order on page 19.

3. Follow the on-screen instructions.

Changing the computer boot order

If your computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection to an optical drive or a USB flash drive.

To change the boot order:

IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1.   Insert the HP Recovery media.

2.   Access BIOS:

   For computers or tablets with keyboards attached:

   ▲   Turn on or restart the computer or tablet, quickly press esc, and then press f9 for boot options.

   For tablets without keyboards:

   ▲   Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f9**.

   - or -

   Turn on or restart the tablet, and then quickly hold down the Windows button; then select **f9**.

3.   Select the optical drive or USB flash drive from which you want to boot.

4.   Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

IMPORTANT: After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see Creating HP Recovery media (select products only) on page 15.

NOTE: The Remove Recovery Partition option is only available on products that support this function.

Follow these steps to remove the HP Recovery partition:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.

2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

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	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.
		To run Disk Cleanup:
		1. Type `disk` in the taskbar search box, and then select **Free up disk space by deleting unnecessary files** or **Uninstall apps to free up disk space**.
		2. Follow the on-screen instructions.
	Defragmenting and optimizing	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.
		To run Disk Defragmenter:
		1. Connect the computer to AC power.
		2. Type `defragment` in the taskbar search box, and then select **Defragment and optimize your drives**.
		3. Follow the on-screen instructions.
	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 cleaning	Thoroughly clean the outside of your computer.
	Software updates	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.
	Windows Update	Run **Windows Update** to install updates.
Yearly	System Recovery	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 Backing up, restoring, and recovering on page 15 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 drive.

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.

NOTE: To start BIOS on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached to your tablet. The on-screen keyboard, which displays in tablet mode, cannot access BIOS.

To start HP PC Hardware Diagnostics UEFI:

1.   Start BIOS:

     ●   Computers or tablets with keyboards:

          ▲   Turn on or restart the computer, quickly press esc.

     ●   Tablets without keyboards:

          ▲   Turn on or restart the tablet, and then quickly hold down the volume down button.

               - or -

          Turn on or restart the tablet, and then quickly hold down the Windows button.

2.   Press or tap 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 24.

     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. On a tablet, press the volume down button to stop a diagnostic test.

NOTE: If you need to stop a diagnostic test on computers or tablets with a keyboard, press esc.

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

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, click the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to http://www.hp.com/support, and then select your country. The HP Support page is displayed.

2. Click **Drivers & Downloads**.

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, 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	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 15000 ft

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.

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.

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

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.

NOTE: Support is in English only.

12 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. Type `support` in the taskbar search box, and then select **HP Support Information**.

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

Where to get help

- Use the Get started app for help with hardware and software questions. Select the **Start** button, and then select the **Get started** app.
- Use HP Support Assistant. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

  – or –

  Click the question mark icon in the taskbar.

  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://welcome.hp.com/country/us/en/wwcontact_us.html.

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* or *Quick Setup* 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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