



# Getting Started

HP Notebook

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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.


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For any further information or for requesting a full refund of the computer, please contact your local point of sale (the seller).

## Safety warning notice

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

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# 1 Welcome

After you set up and register the computer, it is important to take the following steps:


1. Set up your wired or wireless network. For more information, see [Networking on page 14](#).
2. Update your antivirus software. For more information, see the *HP Notebook Reference Guide*. For instructions on finding this guide, see [Finding information on page 3](#).
3. Create recovery discs or a recovery flash drive. For more information, see [Backing up, restoring, and recovering on page 30](#).
4. Get to know your computer. For more information, see [Getting to know your computer on page 5](#) and [Keyboard and pointing devices on page 17](#) for additional information.
5. Discover the software that is already installed on the computer by selecting **Start > All Programs**.

# What's new?

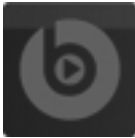

## Beats Audio

Beats Audio is an enhanced audio profile that provides a deep, controlled bass while maintaining a clear sound. Beats Audio is enabled by default.

▲ To enable or disable the Beats Audio bass settings, press **fn+b**.

 **NOTE:** You can also view and control the bass settings through the Windows® operating system. Select **Start > Control Panel > Hardware and Sound > Beats Audio Control Panel** to view and control the bass properties.

The following table shows and describes the Beats Audio icons that appear when you press **fn+b**.

Icon	Description
	Beats Audio is enabled.
	Beats Audio is disabled.

# Finding information

The computer comes with several resources to help you perform various tasks.

Resource	Contents
Instructions for setting up the computer	<ul style="list-style-type: none"><li>• How to set up the computer</li><li>• Identification of computer components</li></ul>
<i>Getting Started</i>	<ul style="list-style-type: none"><li>• Computer features</li></ul>
To access this guide: Select <b>Start &gt; Help and Support &gt; User Guides</b> .	<ul style="list-style-type: none"><li>• Instructions for the following:<ul style="list-style-type: none"><li>◦ Connecting to a wireless network</li><li>◦ Using the keyboard and pointing devices</li><li>◦ Replacing or upgrading the hard drive and memory modules</li><li>◦ Performing a backup and a recovery</li><li>◦ Contacting support</li></ul></li><li>• Computer specifications</li></ul>
<i>HP Notebook Reference Guide</i>	<ul style="list-style-type: none"><li>• Power management features</li></ul>
To access this guide: Select <b>Start &gt; Help and Support &gt; User Guides</b> .	<ul style="list-style-type: none"><li>• Instructions for the following:<ul style="list-style-type: none"><li>◦ Maximizing battery life</li><li>◦ Using the multimedia features of the computer</li><li>◦ Protecting the computer</li><li>◦ Caring for the computer</li><li>◦ Updating the software</li></ul></li></ul>
Help and Support	<ul style="list-style-type: none"><li>• Operating system information</li></ul>
To access Help and Support, select <b>Start &gt; Help and Support</b> . <b>NOTE:</b> For U.S. support, go to <a href="http://www.hp.com/go/contactHP">http://www.hp.com/go/contactHP</a> . For worldwide support, go to <a href="http://welcome.hp.com/country/us/en/wwcontact_us.html">http://welcome.hp.com/country/us/en/wwcontact_us.html</a> .	<ul style="list-style-type: none"><li>• Software, driver, and BIOS updates</li><li>• Troubleshooting tools</li><li>• Instructions for contacting support</li></ul>
<i>Regulatory, Safety and Environmental Notices</i>	<ul style="list-style-type: none"><li>• Regulatory and safety information</li></ul>
To access this guide: Select <b>Start &gt; Help and Support &gt; User Guides</b> .	<ul style="list-style-type: none"><li>• Battery disposal information</li></ul>
<i>Safety &amp; Comfort Guide</i>	<ul style="list-style-type: none"><li>• Proper workstation setup</li></ul>
To access this guide: Select <b>Start &gt; Help and Support &gt; User Guides</b> . – or – Go to <a href="http://www.hp.com/ergo">http://www.hp.com/ergo</a> .	<ul style="list-style-type: none"><li>• Guidelines for posture and work habits that maximize your comfort and decrease your risk of injury</li><li>• Electrical and mechanical safety information</li></ul>

Resource	Contents
<p><i>Worldwide Telephone Numbers</i> booklet</p> <p>This booklet is provided with your computer.</p>	HP support telephone numbers
<p>HP website</p> <p>For U.S. support, go to <a href="http://www.hp.com/go/contactHP">http://www.hp.com/go/contactHP</a>. For worldwide support, go to <a href="http://welcome.hp.com/country/us/en/wwcontact_us.html">http://welcome.hp.com/country/us/en/wwcontact_us.html</a>.</p>	<ul style="list-style-type: none"> <li>• Support information</li> <li>• Information for ordering parts</li> <li>• Software, driver, and BIOS updates</li> <li>• Information about accessories for the computer</li> </ul>
<p><i>Limited Warranty*</i></p> <p>To access the warranty:</p> <p>Select <b>Start &gt; Help and Support &gt; User Guides</b>.</p> <p>– or –</p> <p>Go to <a href="http://www.hp.com/go/orderdocuments">http://www.hp.com/go/orderdocuments</a>.</p>	Warranty information
<p>*You can find the expressly provided HP Limited Warranty applicable to your product located with the electronic guides on your computer and/or on the CD/DVD provided in the box. In some countries/regions, HP may provide a printed HP Limited Warranty in the box. For some countries/regions where the warranty is not provided in printed format, you may request a printed copy from <a href="http://www.hp.com/go/orderdocuments">http://www.hp.com/go/orderdocuments</a> or write to:</p> <ul style="list-style-type: none"> <li>• <b>North America:</b> Hewlett-Packard, MS POD, 11311 Chinden Blvd., Boise, ID 83714, USA</li> <li>• <b>Europe, Middle East, Africa:</b> Hewlett-Packard, POD, Via G. Di Vittorio, 9, 20063, Cernusco s/Naviglio (MI), Italy</li> <li>• <b>Asia Pacific:</b> Hewlett-Packard, POD, P.O. Box 200, Alexandra Post Office, Singapore 911507</li> </ul> <p>When you request a printed copy of your warranty, please include your product number, warranty period (found on your service label), name, and postal address.</p> <p><b>IMPORTANT:</b> Do NOT return your HP product to the addresses above. For U.S. support, go to <a href="http://www.hp.com/go/contactHP">http://www.hp.com/go/contactHP</a>. For worldwide support, go to <a href="http://welcome.hp.com/country/us/en/wwcontact_us.html">http://welcome.hp.com/country/us/en/wwcontact_us.html</a>.</p>	

## 2 Getting to know your computer

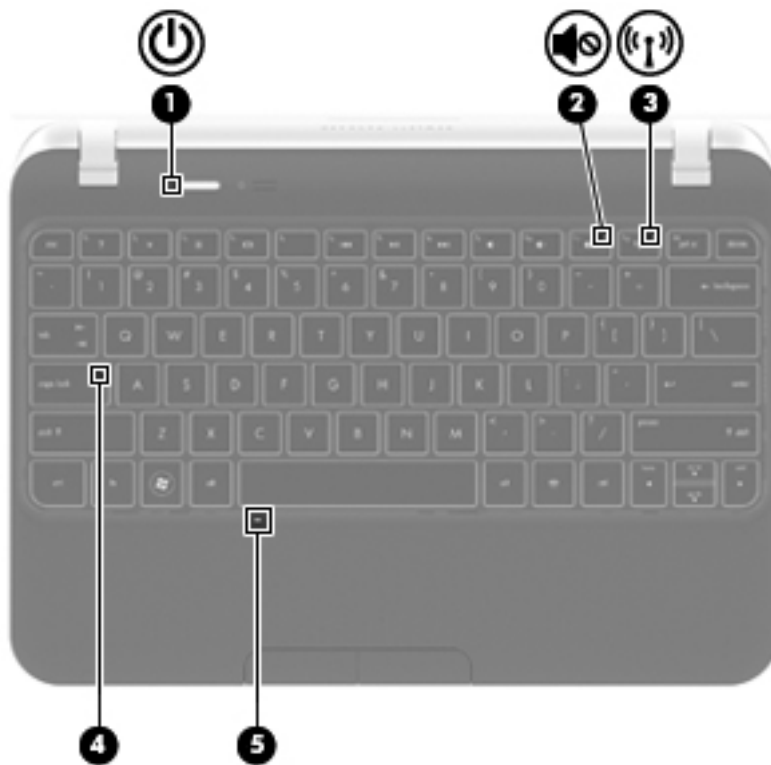
### Top




#### TouchPad



Component	Description
(1) TouchPad light	<ul style="list-style-type: none"><li>• On: The TouchPad is off.</li><li>• Off: The TouchPad is on.</li></ul>
(2) TouchPad on/off button	Turns the TouchPad on and off. Quickly double-tap the TouchPad on/off button to turn the TouchPad on and off.
(3) TouchPad zone	Moves the pointer and selects or activates items on the screen.
(4) Left TouchPad button	Functions like the left button on an external mouse.
(5) Right TouchPad button	Functions like the right button on an external mouse.



## Lights



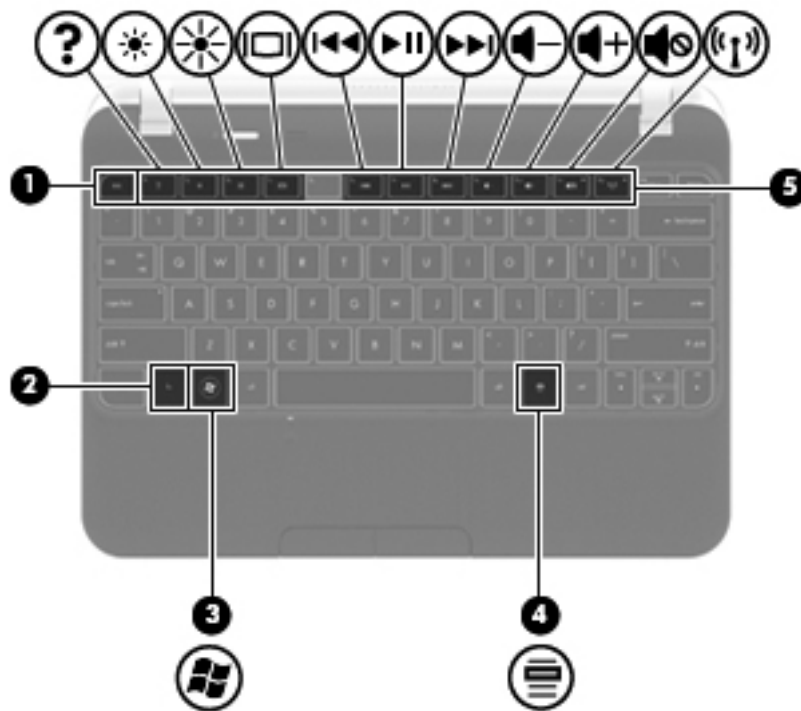
Component	Description
(1)  Power light	<ul style="list-style-type: none"><li>• White: The computer is on.</li><li>• Blinking white: The computer is in the Sleep state.</li><li>• Off: The computer is off or in Hibernation.</li></ul>
(2)  Mute light	<ul style="list-style-type: none"><li>• Amber: Computer sound is off.</li><li>• Off: Computer sound is on.</li></ul>
(3)  Wireless light	<ul style="list-style-type: none"><li>• White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.</li><li>• Amber: All wireless devices are off.</li></ul>
(4) Caps lock light	On: Caps lock is on.
(5) TouchPad light	<ul style="list-style-type: none"><li>• On: The TouchPad is off.</li><li>• Off: The TouchPad is on.</li></ul>



## Buttons



Component	Description
(1)  Power button	<ul style="list-style-type: none"><li>• When the computer is off, press the button to turn on the computer.</li><li>• When the computer is on, press the button briefly to initiate Sleep.</li><li>• When the computer is in the Sleep state, press the button briefly to exit Sleep.</li><li>• When the computer is in Hibernation, press the button briefly to exit Hibernation.</li></ul> <p><b>CAUTION:</b> Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows® shutdown procedures are ineffective, press and hold the power button for at least 5 seconds to turn off the computer.</p> <p>To learn more about your power settings, select <b>Start &gt; Control Panel &gt; System and Security &gt; Power Options</b>, or see the <i>HP Notebook Reference Guide</i>.</p>
(2)  Web browser button	When the computer is in Microsoft Windows, press the button to open the default Web browser.

## Keys



Component	Description
(1) <code>esc</code> key	Displays system information when pressed in combination with the <code>fn</code> key.
(2) <code>fn</code> key	Executes frequently used system functions when pressed in combination with the <code>b</code> key or the <code>esc</code> key.
(3)  Windows logo key	Displays the Windows Start menu.
(4)  Windows applications key	Displays a shortcut menu for items beneath the cursor.
(5) Action keys	Execute frequently used system functions.

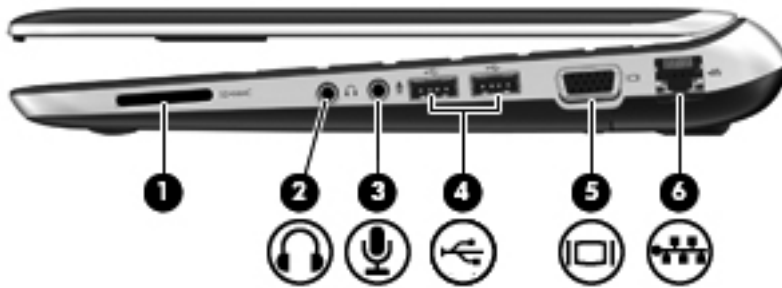







# Front



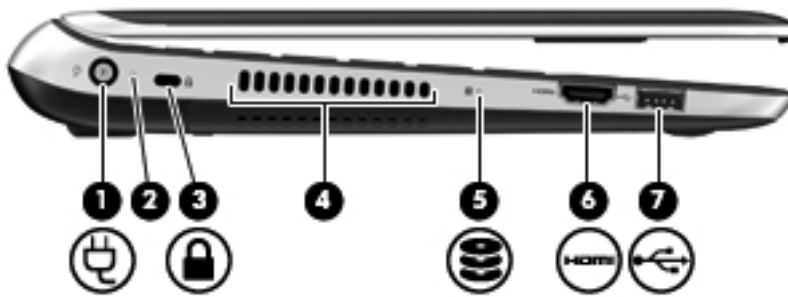
Component	Description
Speakers (2)	Produce sound.






## Right side



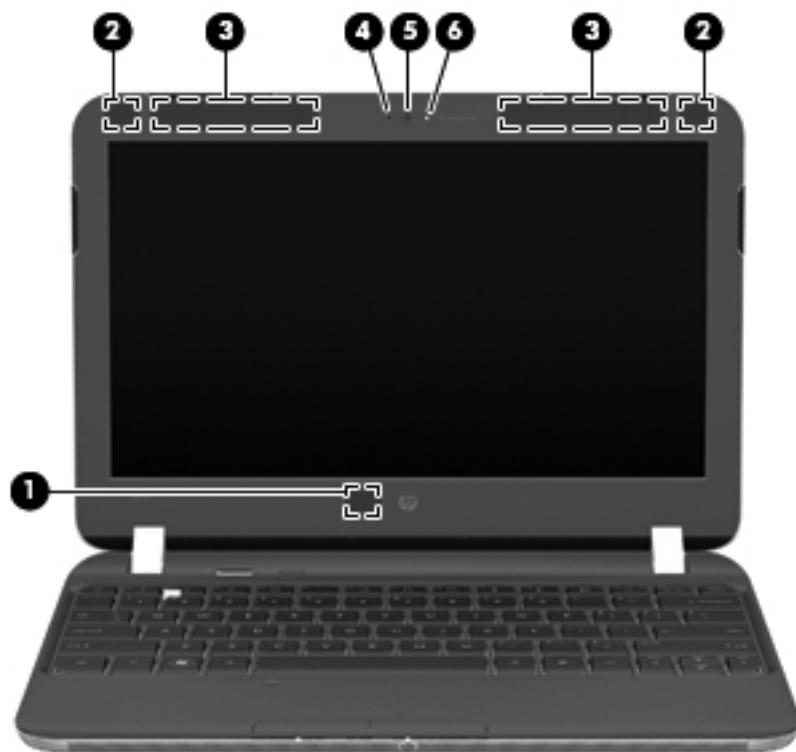
Component	Description
(1) Digital Media Slot	Supports the following digital card formats: <ul style="list-style-type: none"><li>• MultiMediaCard</li><li>• Secure Digital (SD) Card</li><li>• Secure Digital High-Capacity (SDHC) Card</li><li>• Secure Digital Extended Capacity (SDxC) Card</li></ul>
(2)  Audio-out (headphone) jack	Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio.  <b>WARNING!</b> To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety and Environmental Notices</i> .  <b>NOTE:</b> When a device is connected to the headphone jack, the computer speakers are disabled.
(3)  Audio-in (microphone) jack	Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.
(4)  USB 2.0 ports (2)	Connect optional USB 2.0 devices.
(5)  External monitor port	Connects an external VGA monitor or projector.
(6)  RJ-45 (network) jack	Connects a network cable.

## Left side



Component	Description
(1)  Power connector	Connects an AC adapter.
(2) AC adapter/battery light	<ul style="list-style-type: none"> <li>• White: The computer is connected to external power. If a battery installed, the battery is fully charged.</li> <li>• Amber: The computer is connected to external power and the battery is charging.</li> <li>• Off: The computer is not connected to external power.</li> <li>• Blinking: The computer is in the Sleep state.</li> </ul>
(3)  Security cable slot	Attaches an optional security cable to the computer.  <b>NOTE:</b> The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.
(4) Vent	Enables airflow to cool internal components.  <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5)  Hard drive light	<ul style="list-style-type: none"> <li>• Blinking white: The hard drive is being accessed.</li> <li>• Amber: HP 3D DriveGuard has temporarily parked the hard drive.</li> </ul> <b>NOTE:</b> For information on HP 3D DriveGuard, see the <i>HP Notebook Reference Guide</i> .
(6)  HDMI port	Connects an optional video or audio device, such as a high-definition television, or any compatible digital or audio component.
(7)  USB 3.0 port	Connects an optional USB 3.0 device and provides enhanced USB power performance.

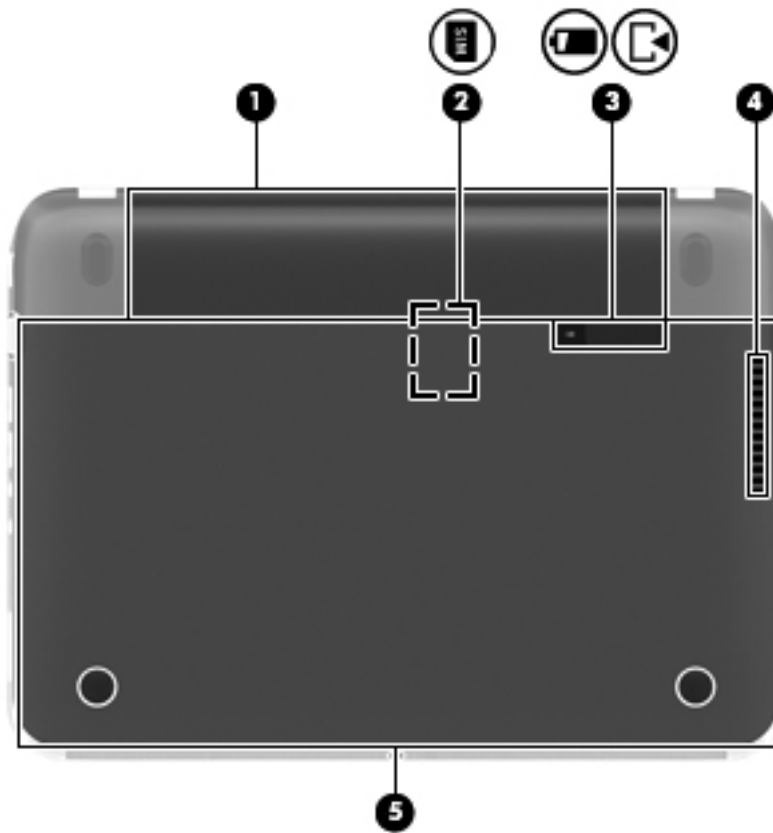
## Display





Component	Description
(1) Internal display switch	Turns off the display or initiates Sleep if the display is closed while the power is on.  <b>NOTE:</b> The display switch is not visible from the outside of the computer.
(2) WLAN antennas (2)*	Send and receive wireless signals to communicate with wireless local area networks (WLAN).
(3) WWAN antennas (2)* (select models only)	Send and receive wireless signals to communicate with wireless wide-area networks (WWAN).
(4) Internal microphone	Records sound.
(5) Webcam	Records video and captures still photographs.  To use the webcam, select <b>Start &gt; All Programs &gt; Communication and Chat &gt; CyberLink YouCam</b> .
(6) Webcam light	On: The webcam is in use.

\*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. To see wireless regulatory notices, see the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

# Bottom




Component	Description
(1) Battery bay	Holds the battery.
(2) SIM slot (select models only)	Supports a wireless subscriber identity module (SIM). The SIM slot is located inside the battery bay. For more information, see the <i>HP Notebook Reference Guide</i> .
(3)  Battery/service door latch	Releases the battery from the battery bay and the service door from the computer.
(4)  Vent	Enables airflow to cool internal components. <b>NOTE:</b> The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(5) Service door	Provides access to the hard drive bay, a memory module slot, the subscriber identity module (SIM) slot (select models only), and the wireless local area network (WLAN) module.

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## 3 Networking

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 **NOTE:** Internet hardware and software features vary depending on computer model and your location.

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Your computer may support one or both of the following types of Internet access:

- **Wireless**—For mobile Internet access, you can use a wireless connection. See [Connecting to an existing WLAN on page 15](#) or [Setting up a new WLAN network on page 16](#).
- **Wired**—You can access the Internet by connecting to a wired network. For information on connecting to a wired network, see the *HP Notebook Reference Guide*.

### Using an Internet service provider (ISP)

Before you can connect to the Internet, you must establish an account with an Internet service provider (ISP). To purchase Internet service and a modem, contact a local ISP. The ISP will help set up the modem, install a network cable to connect your wireless computer to the modem, and test the Internet service.

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 **NOTE:** Your ISP will give you a user ID and password to access the Internet. Record this information and store it in a safe place.

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The following features will help you set up a new Internet account or configure the computer to use an existing account:

- **Internet Services & Offers (available in some locations)**—This utility assists with signing up for a new Internet account and configuring the computer to use an existing account. To access this utility, select **Start > All Programs > Shopping and Services > Get Online**.
- **ISP-provided icons (available in some locations)**—These icons may be displayed either individually on the Windows desktop or grouped in a desktop folder named Online Services. To set up a new Internet account or configure the computer to use an existing account, double-click an icon, and then follow the on-screen instructions.
- **Windows Connect to the Internet Wizard**—You can use the Windows Connect to the Internet Wizard to connect to the Internet in any of these situations:
  - You already have an account with an ISP.
  - You do not have an Internet account and want to select an ISP from the list provided within the wizard. (The list of ISP providers is not available in all regions.)
  - You have selected an unlisted ISP, and the ISP has provided you with information such as a specific IP address and POP3 and SMTP settings.

To access the Windows Connect to the Internet Wizard and instructions for using it, select **Start > Control Panel > Network and Internet > Network and Sharing Center**.

 **NOTE:** If you are prompted within the wizard to choose between enabling or disabling Windows Firewall, choose to enable the firewall.

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## Connecting to a wireless network

Wireless technology transfers data across radio waves instead of wires. Your computer may be equipped with one or more of the following wireless devices:

- Wireless local area network (WLAN) device
- HP Mobile Broadband Module, a wireless wide area network (WWAN) device
- Bluetooth device

For more information on wireless technology and connecting to a wireless network, see the *HP Notebook Reference Guide* and the information and website links provided in Help and Support.

## Connecting to an existing WLAN


1. Turn on the computer.
2. Be sure that the WLAN device is on.
3. Click the network icon in the notification area, at the far right of the taskbar.
4. Select a network to connect to.
5. Click **Connect**.
6. If required, enter the security key.

## Setting up a new WLAN network

Required equipment:

- A broadband modem (either DSL or cable) **(1)** and high-speed Internet service purchased from an Internet service provider (ISP)
- A wireless router (purchased separately) **(2)**
- Your new wireless computer **(3)**

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 **NOTE:** Some modems have a built-in wireless router. Check with your ISP to determine what type of modem you have.

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The illustration shows an example of a completed WLAN network installation that is connected to the Internet. As your network grows, additional wireless and wired computers can be connected to the network to access the Internet.




## Configuring a wireless router

For help in setting up a WLAN, see the information provided by your router manufacturer or your ISP.

The Windows operating system also provides tools to help you set up a new wireless network. To use the Windows tools to set up your network, select **Start > Control Panel > Network and Internet > Network and Sharing Center > Set up a new connection or network > Set up a new network**. Then follow the on-screen instructions.

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 **NOTE:** It is recommended that you initially connect your new wireless computer to the router by using the network cable provided with the router. When the computer successfully connects to the Internet, you can disconnect the cable, and then access the Internet through your wireless network.

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## Protecting your WLAN

When you set up a WLAN or access an existing WLAN, always turn on security features to protect your network from unauthorized access.

For information on protecting your WLAN, see the *HP Notebook Reference Guide*.



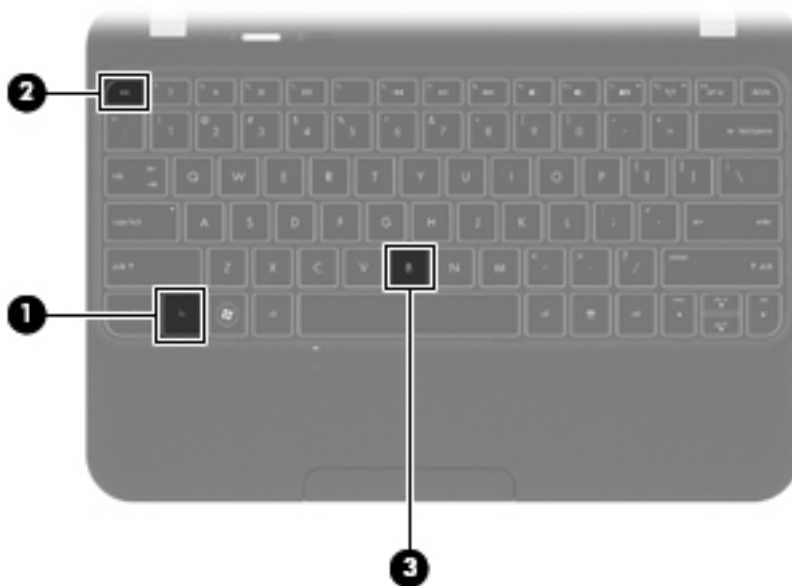
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# 4 Keyboard and pointing devices

## Using the keyboard

### Identifying the hot keys

A hot key is a combination of the **fn** key (1) and either the **esc** key (2) or the **b** key (3)



To use a hot key:

- ▲ Briefly press the **fn** key (1), and then briefly press the second key of the hot key combination.

---

Hot key combination	Description
<b>fn+esc</b>	Displays system information.
<b>fn+b</b>	Enables or disables the Beats Audio bass settings (select models only).  Beats Audio is an enhanced audio profile that provides a deep, controlled bass while maintaining a clear sound. Beats Audio is enabled by default.  You can view and control the bass settings through the Windows operating system. To view and control the bass properties:  Select <b>Start &gt; Control Panel &gt; Hardware and Sound &gt; Beats Audio Control Panel</b> .

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## Using the action keys

An action key performs an assigned function. The icon on each of the **f1** through **f4** and **f6** through **f12** keys illustrates the assigned function for that key.









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




The action key feature is enabled at the factory. You can disable this feature in Setup Utility (BIOS). See the “Setup Utility (BIOS) and System Diagnostics” chapter in the *HP Notebook Reference Guide* for instructions on opening Setup Utility (BIOS), and then follow the instructions at the bottom of the screen.

To activate the assigned function after disabling the action key feature, you must press the **fn** key in combination with the appropriate action key.

**CAUTION:** Use extreme care when making changes in Setup Utility. Errors can prevent the computer from operating properly.




Icon	Key	Description
	<b>f1</b>	Opens Help and Support, which provides information about your Windows operating system and computer, answers to questions and tutorials, and updates to your computer.  Help and Support also provides automated troubleshooting tools and access to support.
	<b>f2</b>	Decreases the screen brightness level incrementally as long as you hold down this key.
	<b>f3</b>	Increases the screen brightness level incrementally as long as you hold down this key.
	<b>f4</b>	Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, pressing this key alternates the screen image from the computer display to the monitor display to a simultaneous display on both the computer and the monitor.  Most external monitors receive video information from the computer using the external VGA video standard. This action key can also alternate images among other devices that are receiving video information from the computer.
	<b>f6</b>	Plays the previous track of an audio CD or the previous section of a DVD or a BD.
	<b>f7</b>	Plays, pauses, or resumes a track of an audio CD or a section of a DVD or a BD.
	<b>f8</b>	Plays the next track of an audio CD or the next section of a DVD or a BD.
	<b>f9</b>	Decreases speaker volume incrementally as long as you hold down this key.

Icon	Key	Description
	f10	Increases speaker volume incrementally as long as you hold down this key.
	f11	Mutes or restores speaker sound.
	f12	Turns the wireless feature on or off.

**NOTE:** A wireless network must be set up before a wireless connection is possible.

## Using pointing devices


 **NOTE:** In addition to the pointing devices included with your computer, you can use an external USB mouse (purchased separately) by connecting it to one of the USB ports on the computer.

### Setting pointing device preferences

Use Mouse Properties in Windows® to customize pointing device settings, button configuration, click speed, and pointer options.

To access Mouse Properties, select **Start > Devices and Printers**. Then right-click the listing that represents your computer, and select **Mouse settings**.


### Using the TouchPad

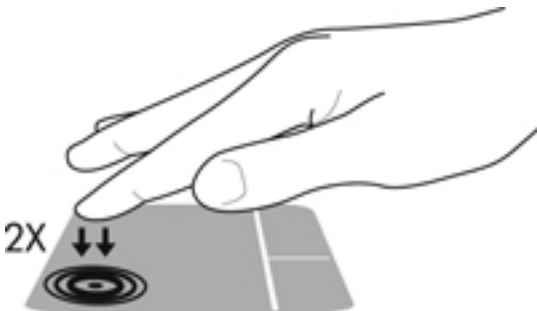
 **NOTE:** The TouchPad on your computer may look slightly different from the illustrations in this section. See [Getting to know your computer on page 5](#) for specific information about the TouchPad on your computer.

To move the pointer, slide one finger across the TouchPad in the direction you want the pointer to go. Use the left and right TouchPad buttons as you would use the buttons on an external mouse.



### Turning the TouchPad off and on

To turn the TouchPad off and on, quickly double-tap the TouchPad on/off button.

 **NOTE:** The TouchPad light is off when the TouchPad is on.

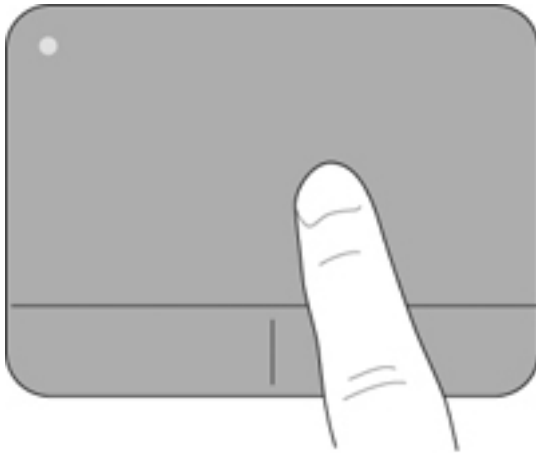


The TouchPad light and on-screen display icons indicate the TouchPad status when the TouchPad is turned off or on. The following table shows and describes the TouchPad display icons.

	Icon	Description
Amber		Indicates that the TouchPad is off.
Off		Indicates that the TouchPad is on.

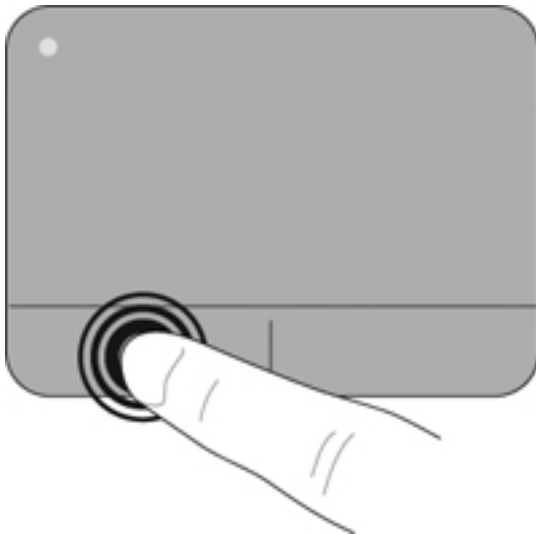
## Navigating

To move the pointer, slide one finger across the TouchPad in the direction you want the pointer to go.



## Selecting


Use the left and right TouchPad buttons as you would use the corresponding buttons on an external mouse.



## Using TouchPad gestures

The TouchPad supports a variety of gestures. To use TouchPad gestures, place two fingers on the TouchPad at the same time.

---

 **NOTE:** TouchPad gestures are not supported in all programs.

---

To view the demonstration of a gesture:

1. Select **Start > Control Panel > Hardware and Sound > Synaptics > Settings**.
2. Click a gesture to activate the demonstration.


To turn the gestures on or off:

1. Select **Start > Control Panel > Hardware and Sound > Synaptics > Settings**.
2. Select the check box next to the gesture that you want to turn on or off.
3. Click **Apply**, and then click **OK**.


## Scrolling

Scrolling is useful for moving up, down, or sideways on a page or image. To scroll, place two fingers slightly apart on the TouchPad, and then drag them across the TouchPad in an up, down, left, or right motion.

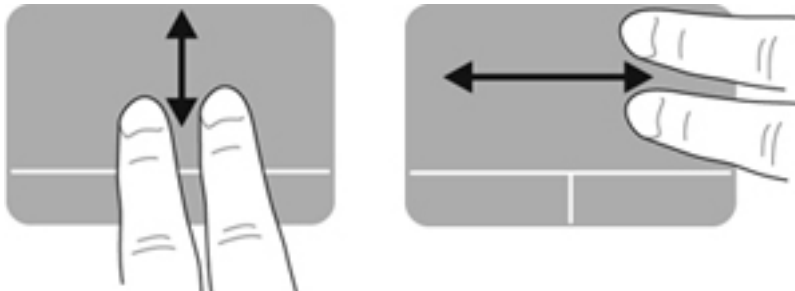
---

 **NOTE:** Scrolling speed is controlled by finger speed.

---

 **NOTE:** Two-finger scrolling is enabled at the factory.

---




## Pinching/Zooming

Pinching allows you to zoom in or out on images or text.

- Zoom in by placing two fingers together on the TouchPad, and then moving them apart.
- Zoom out by placing two fingers apart on the TouchPad, and then moving them together.

---

 **NOTE:** Pinching/zooming is enabled at the factory.


---



---

# 5 Maintenance

## Inserting or removing the battery

 **NOTE:** For additional information on using the battery, see the *HP Notebook Reference Guide*.

---

### Inserting the battery


To insert the battery:

- ▲ Align the battery **(1)** with the outer edge of the battery bay, and then rotate the battery **(2)** into the battery bay until it is firmly seated.



### Removing the battery

To remove the battery:

 **CAUTION:** Removing a battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work and initiate Hibernation or shut down the computer through Windows before removing the battery.

---

1. Slide the battery/service door latch **(1)** to release the battery.

2. Pivot the battery (2) upward, and then remove the battery (3) from the computer.



## Replacing or upgrading the hard drive

**CAUTION:** To prevent information loss or an unresponsive system:

Shut down the computer before removing the hard drive from the hard drive bay. Do not remove the hard drive while the computer is on, in the Sleep state, or in Hibernation.

If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

### Removing the hard drive

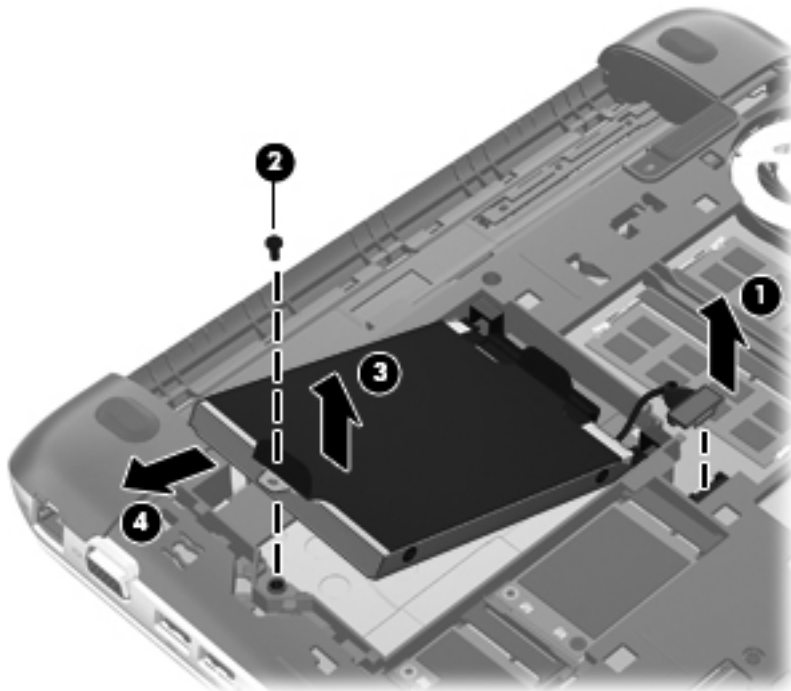
1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Unplug the power cord from the AC outlet and remove the battery.
4. With one hand, slide the battery/service door latch (1) to release the service door, and at the same time, use the other hand to press down on the service door, and then slide the service door toward the front of the computer (2).



5. Lift the door to remove it (3).

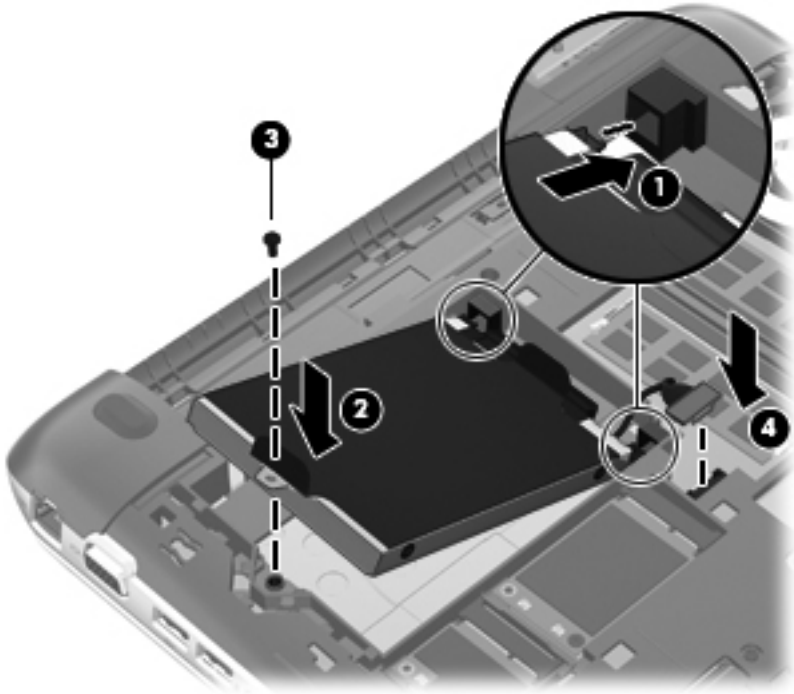


6. Lift the hard drive cable connector (1) until it disconnects from the computer.
7. Remove the Phillips screw (2) that secures the hard drive to the computer.
8. Pull up the hard drive tab (3), and then remove the hard drive (4) from the hard drive bay at an angle.



## Installing a hard drive

1. Insert the rubber spacers on the drive into the openings **(1)** on the hard drive bay.
2. Insert the hard drive into the hard drive bay **(2)**.
3. Replace the Phillips screw **(3)**.
4. Connect the hard drive cable connector **(4)**.



5. Lower the service door onto the computer **(1)**, and then slide the door **(2)** toward the battery bay until the battery/service door latch snaps into place.





6. Replace the battery.
7. Reconnect external power and external devices.
8. Turn on the computer.


## Adding or replacing memory modules

The computer has two memory module slots. The capacity of the computer can be upgraded by adding a memory module to the vacant expansion memory module slot or by upgrading the existing memory module in the primary memory module slot.

---

 **WARNING!** To reduce the risk of electric shock and damage to the equipment, unplug the power cord and remove all batteries before installing a memory module.


 **CAUTION:** Electrostatic discharge (ESD) can damage electronic components. Before beginning any procedure, ensure that you are discharged of static electricity by touching a grounded metal object.

 **NOTE:** To use a dual-channel configuration when adding a second memory module, be sure that both memory modules are identical.

---

To add or replace a memory module:

---

 **CAUTION:** To prevent information loss or an unresponsive system:

Shut down the computer before adding or replacing memory modules. Do not remove a memory module while the computer is on, in the Sleep state, or in Hibernation.

If you are not sure whether the computer is off or in Hibernation, turn the computer on by pressing the power button. Then shut down the computer through the operating system.

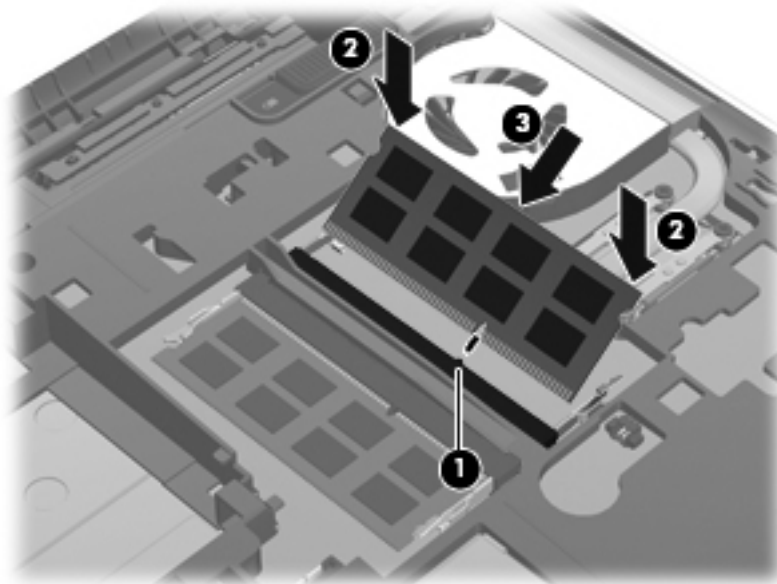
---

1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Unplug the power cord from the AC outlet and remove the battery.
4. Remove the service door (see [Removing the hard drive on page 24](#)).
5. If you are replacing a memory module, remove the existing memory module:
  - a. Pull away the retention clips **(1)** on each side of the memory module. The memory module tilts up.



- c. Gently press the memory module **(3)** down, applying pressure to both the left and right edges of the memory module, until the retention clips snap into place.

**⚠ CAUTION:** To prevent damage to the memory module, be sure that you do not bend the module.



7. Replace the service door (see [Installing a hard drive on page 26](#)).
8. Replace the battery.
9. Reconnect external power and external devices.
10. Turn on the computer.

---

# 6 Backing up, restoring, and recovering

Your computer includes tools provided by the operating system and HP to help you safeguard your information and retrieve it if ever needed.

## Creating backups

1. Use HP Recovery Manager to create recovery media immediately after you set up the working computer.
2. As you add hardware and software programs, create system restore points.
3. As you add photos, video, music, and other personal files, create a backup of your system and personal information.

## Creating recovery media to recover the original system

After you successfully set up the computer, you should create recovery discs or a recovery flash drive using HP Recovery Manager. You will need these recovery discs or recovery flash drive to perform a system recovery should the hard drive become corrupted. A system recovery reinstalls the original operating system, and then configures the settings for the default programs.

### What you need to know

- 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 flash drive or the number of blank DVD discs that will be required.

Use DVD-R, DVD+R, DVD-R DL, DVD+R DL discs or a flash drive. Do not use rewriteable discs such as CD±RW, DVD±RW, double-layer DVD±RW, and BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software.

- If your computer does not include an integrated optical drive, you can use an optional external optical drive (purchased separately) to create recovery discs, or you can obtain recovery discs for your computer from the HP website. If you use an external optical drive, it must be connected directly to a USB port on the computer, not to a USB port on an external device, such as a USB hub.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take up to an hour or more. Do not interrupt the creation process.

- Store the recovery media in a safe location, separate from the computer.
- If necessary, you can exit the program before you have finished creating the recovery media. The next time you open HP Recovery Manager, you will be prompted to continue the process.

### Creating the recovery media

1. Select **Start** and type `recovery` in the search field. Select **Recovery Manager** from the list. Allow the action to continue, if prompted.
2. Click **Recovery Media Creation**.
3. Follow the on-screen instructions to continue.

To recover, see [Recovering the original system using HP Recovery Manager on page 33](#).

### Creating system restore points

A system restore point is a snapshot of certain hard drive contents saved by Windows System Restore at a specific time. A restore point contains information such as registry settings that Windows uses. Restoring to a previous restore point allows you to reverse changes that have been made to the system since the restore point was created.

Restoring to an earlier system restore point does not affect data files saved or emails created since the last restore point, but it does affect software you may have installed.

For example, if you download a photo from a digital camera and then restore the computer to the state it was on the previous day, the photo remains on the computer.

However, if you install photo viewing software and then restore your computer to the state it was on the previous day, the software will be uninstalled, and you won't be able to use it.

### What you need to know

- If you restore to a restore point and then change your mind, you can undo the restoration.
- You should create system restore points:
  - Before you add or change software or hardware
  - Periodically, whenever the computer is running normally
- System Restore also saves shadow copies of files that have been changed since the last restore point was created. For more information about using shadow copies to restore, see Help and Support.

### Creating a system restore point

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Click **Create**, and follow the on-screen instructions.

To restore, see [Restoring to a previous system restore point on page 33](#).

## Backing up system and personal information

Your computer stores information that is important to you, such as files, emails, and photos, and you will want to keep that information even if you download a virus or the system stops working properly. How completely you are able to recover your files depends on how recent your backup is. As you add new software and data files, you should create backups on a regular basis.

### Tips for a successful backup

- Number backup discs before inserting them into the optical drive.
- Store personal files in the Documents, Music, Pictures, and Videos libraries, and back up these folders periodically.
- Save customized settings in a window, toolbar, or menu bar by taking a screen shot of your settings. The screen shot can be a time-saver if you have to re-enter your preferences.

To create a screen shot:

1. Display the screen you want to save.

2. Copy the screen image:

To copy only the active window, press **alt+prt sc**.

To copy the entire screen, press **prt sc**.

3. Open a word-processing document or graphics editing program, and then select **Edit > Paste**. The screen image is added to the document.

4. Save and print the document.

### What you need to know


- You can back up your information to an optional external hard drive, a flash drive, a network drive, or discs.
- Connect the computer to AC power during backups.
- Allow enough time for the backup. Depending on files sizes, it may take more than an hour.
- Verify the amount of free space on your backup storage device before you back up.
- You should back up:
  - Before adding or changing software or hardware.
  - Before the computer is repaired or restored.
  - On a regular schedule to be sure you have recent copies of personal information.
  - After you add many files—for example, if you saved videos from a birthday party.
  - Before using antivirus software to remove a malicious program.
  - After adding information that is hard to replace, such as pictures, videos, music, project files, or data records.



## Creating a backup using Windows Backup and Restore

Windows allows you to back up files using Windows Backup and Restore. You can select the level you want to back up, from individual folders to drives. The backups are compressed to save space. To back up:

1. Select **Start > Control Panel > System and Security > Backup and Restore**.
2. Follow the on-screen instructions to schedule and create a backup.

 **NOTE:** Windows includes the User Account Control feature to improve the security of the computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. See Help and Support for more information.

---

To restore, see [Restoring specific files using Windows Backup and Restore on page 33](#).

## Restore and recovery

### Restoring to a previous system restore point

Sometimes installing a software program causes your computer or Windows to behave unpredictably. Usually uninstalling the software fixes the problems. If uninstalling does not fix the problems, you can restore the computer to a previous system restore point (created at an earlier date and time).

To restore to a previous system restore point, when the computer was running correctly:

1. Select **Start > Control Panel > System and Security > System**.
2. In the left pane, click **System Protection**.
3. Click the **System Protection** tab.
4. Click **System Restore**, and follow the on-screen instructions.


### Restoring specific files

If files are accidentally deleted from the hard disk and they can no longer be restored from the Recycle Bin, or if files become corrupt, restoring specific files is useful. Restoring specific files is also useful if you ever choose to recover the original system using HP Recovery Manager. You can only restore specific files that you have backed up before.

### Restoring specific files using Windows Backup and Restore

Windows allows you to restore files that were backed up using Windows Backup and Restore:

1. Select **Start > Control Panel > System and Security > Backup and Restore**.
2. Follow the on-screen instructions to restore your backup.

 **NOTE:** Windows includes the User Account Control feature to improve the security of the computer. You may be prompted for your permission or password for tasks such as installing software, running utilities, or changing Windows settings. See Help and Support for more information.

---

### Recovering the original system using HP Recovery Manager

HP Recovery Manager software allows you to repair or recover the computer to its original factory state.

## What you need to know

- 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 disc provided by the manufacturer.
- A system recovery should be used as a final attempt to correct computer issues. If you have not already tried restore points (see [Restoring to a previous system restore point on page 33](#)) and partial restores (see [Restoring specific files on page 33](#)), try them before using HP Recovery Manager to recover your system.
- A system recovery must be performed if the computer hard drive fails or if all attempts to correct any functional computer issues fail.
- If the recovery media do not work, you can obtain recovery discs for your system from the HP website.
- The Minimized Image Recovery option is recommended for advanced users only. All hardware-related drivers and software are re-installed, but other software applications are not. Do not interrupt the process until it is complete, otherwise the recovery will fail.

## Recovering using HP Recovery partition (select models only)

The HP Recovery partition (select models only), allows you to restore your system without the need for recovery discs or a recovery flash drive. This type of recovery can only be used if the hard drive is still working.

To check for the presence of a recovery partition, select **Start**, right-click **Computer** then select **Manage > Disk Management**. If the recovery partition is present, a Recovery drive is listed in the window.



**NOTE:** Recovery discs have been included if your computer did not ship with a recovery partition.

1. Access HP Recovery Manager in either of the following ways:
  - Select **Start** and type `recovery` in the search field. Select **Recovery Manager** from the list.
  - or –
  - Turn on or restart the computer, and then press `esc` while the “Press the ESC key for Startup Menu” message is displayed at the bottom of the screen. Then press `f11` while the “F11 (System Recovery)” message is displayed on the screen.
2. Click **System Recovery** in the **HP Recovery Manager** window.
3. Follow the on-screen instructions.

## Recovering using the recovery media

1. If possible, back up all personal files.
2. Insert the first recovery disc into the optical drive on your computer or an optional external optical drive, and then restart the computer.

– or –

Insert the recovery flash drive into a USB port on your computer, 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 35](#).

3. Press **f9** at system bootup.
4. Select the optical drive or the flash drive.
5. Follow the on-screen instructions.

## Changing the computer boot order

To change the boot order for recovery discs:

1. Restart the computer.
2. Press **esc** while the computer is restarting, and then press **f9** for boot options.
3. Select **Internal CD/DVD ROM Drive** from the boot options window.

To change the boot order for a recovery flash drive:

1. Insert the flash drive into a USB port.
2. Restart the computer.
3. Press **esc** while the computer is restarting, and then press **f9** for boot options.
4. Select the flash drive from the boot options window.

# 7 Customer support

## Contacting customer support

If the information provided in this user guide, in the *HP Notebook Reference Guide*, or in Help and Support does not address your questions, you can contact 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](http://welcome.hp.com/country/us/en/wwcontact_us.html)

Here you can:

- Chat online with an HP technician.



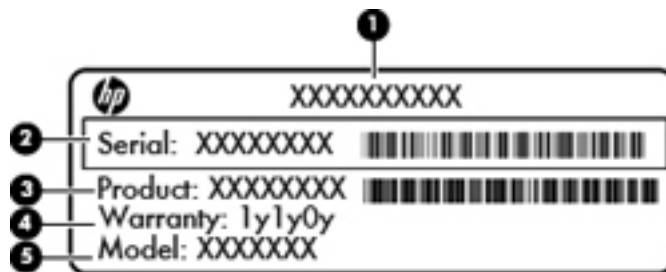
**NOTE:** When support chat is not available in a particular language, it is available in English.

- Email support.
- Find support worldwide telephone numbers.
- Locate an HP service center.

## Labels

The labels affixed to the computer provide information you may need when you troubleshoot system problems or travel internationally with the computer:

- Service label—Provides important information, including the following:



Component	
(1)	Product name
(2)	Serial number
(3)	Part number/Product number

Component	
(4)	Warranty period
(5)	Model description (select models only)

Have this information available when you contact support. Depending on your computer model, a service label is either affixed to the bottom of the computer or is located inside the battery bay or beneath the service door.

- Microsoft® Certificate of Authenticity—Contains the Windows Product Key. You may need the Product Key to update or troubleshoot the operating system. The Microsoft Certificate of Authenticity is located inside the battery bay.
- Regulatory label—Provides regulatory information about the computer. The regulatory label is located inside the battery bay.
- Wireless certification label or labels (select models only)—Provide information about optional wireless devices and the approval markings of some of the countries or regions in which the devices have been approved for use. You may need this information when traveling internationally. If your computer model includes one or more wireless devices, one or more certification labels are included with your computer. Wireless certification labels are located under the service door.
- SIM (subscriber identity module) label (select models only)—Provides the ICCID (Integrated Circuit Card Identifier) of the SIM. This label is located under the service door.
- HP Mobile Broadband Module serial number label (select models only)—Provides the serial number of the HP Mobile Broadband Module. This label is located under the service door.

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# 8 Specifications

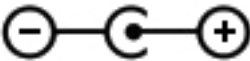
## Input power

The power information in this section may be helpful if you plan to travel internationally with the computer.


The computer operates on DC power, which can be supplied by an AC or a DC power source. The AC power source must be rated at 100–240 V, 50–60 Hz. Although the computer can be powered from a standalone DC power source, it should be powered only with an AC adapter or a DC power source supplied and approved by HP for use with this computer.


The computer can operate on DC power within the following specifications.

---

Input power	Rating
Operating voltage and current	18.5 V dc @ 3.5 A - 65 W
DC plug of external HP power supply	

---

 **NOTE:** This product is designed for IT power systems in Norway with phase-to-phase voltage not exceeding 240 V rms.

 **NOTE:** The computer operating voltage and current can be found on the system regulatory label.

---

## Operating environment

Factor	Metric	U.S.
<b>Temperature</b>		
Operating	<b>5°C to 35°C</b>	41°F to 95°F
Nonoperating	<b>-20°C to 60°C</b>	-4°F to 140°F
<b>Relative humidity</b> (noncondensing)		
Operating	<b>10% to 90%</b>	10% to 90%
Nonoperating	<b>5% to 95%</b>	5% to 95%
<b>Maximum altitude</b> (unpressurized)		
Operating	<b>-15 m to 3,048 m</b>	-50 ft to 10,000 ft
Nonoperating	<b>-15 m to 12,192 m</b>	-50 ft to 40,000 ft

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