



# ENVY

GETTING STARTED

# HP ENVY<sup>17</sup> Getting Started

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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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## **User Guides**

HP is committed to reducing the environmental impact of our products. As part of this effort, we provide user guides and learning centers on your computer hard drive in Help and Support. Additional support and updates to the user guides are available on the Web.



## 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 contact 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

The following sections are included in this chapter:

- [What's new](#)
- [Finding information](#)

Before you set up and register your computer, plug the AC adapter into the computer and connect to external power. With external power connected, press the power button to begin charging the battery, and then follow the on-screen instructions.

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 21](#).
2. Create recovery discs or a recovery flash drive. For instructions, see [Backup and recovery on page 49](#).
3. Get to know your computer. See [Getting to know your computer on page 11](#) and [Keyboard and pointing devices on page 25](#).
4. Discover the software that is already loaded on the computer by selecting **Start > All Programs**.

# What's new

## Audio

### Volume dial

Like the dial on a stereo, the integrated volume dial controls speaker volume on the computer.

- ▲ To increase speaker volume, rotate the dial clockwise.

–or–

- ▲ To decrease speaker volume, rotate the dial counter-clockwise.



## Beats Audio

Beats Audio is an enhanced audio feature that provides a deep, controlled bass while maintaining a clear sound.

### Accessing Beats Audio Control Panel

Beats Audio Control Panel allows you to view and manually control audio and bass settings.

To open Beats Audio Control Panel, do one of the following:

- ▲ Press the Beats Audio button  located in the center of the volume dial.

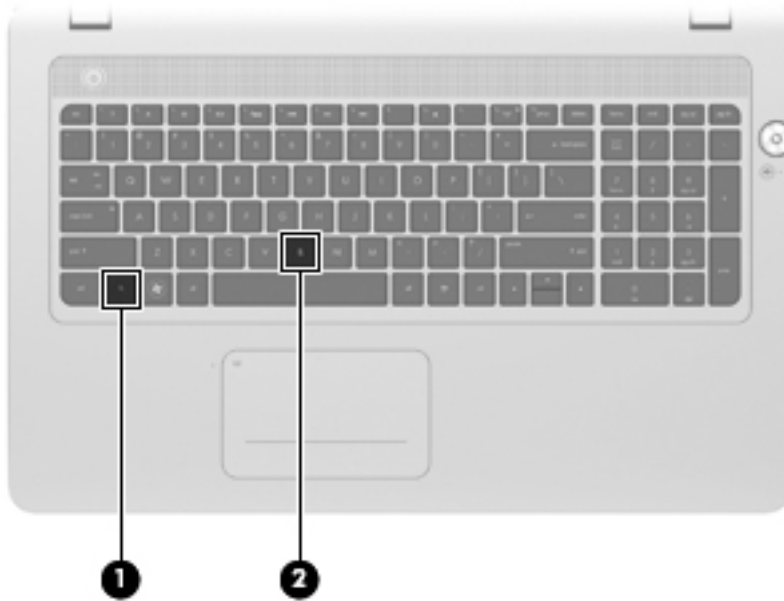


—or—



- ▲ Select **Start > Control Panel > Hardware and Sound > Beats Audio Control Panel**.

## Enabling and Disabling Beats Audio

- ▲ To enable or disable Beats Audio, press the **fn** key (1) and the **b** key (2).

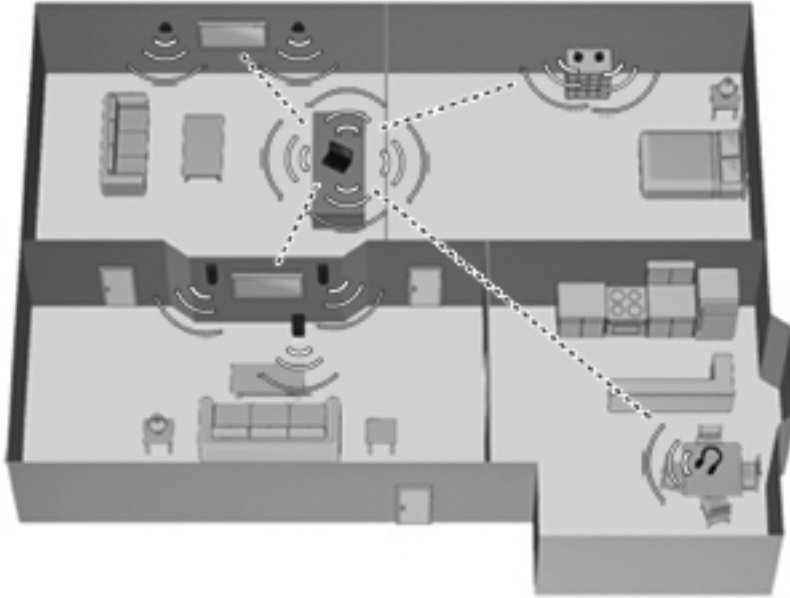


The following table explains the meaning of the Beats Audio icons that appear on the screen, when you press the Beats Audio hot key (**fn+b**).


Icon	Meaning
	Beats Audio is enabled.
	Beats Audio is disabled.

## HP Wireless Audio

HP Wireless Audio helps you set up a wireless sound system in your home that streams audio from your computer to a compatible set of wireless-enabled speakers or other audio devices. To add compatible wireless audio devices to your home sound system, use HP Wireless Audio.



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 **NOTE:** HP Wireless Audio uses KlearNet technology, and is not compatible with other wireless technologies. Your wireless audio devices must also be compatible with HP Wireless Audio and KlearNet technology. To purchase compatible wireless audio devices, go to <http://www.hp.com> or a retailer near you.

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## HP Wireless Audio Manager

With HP Wireless Audio Manager, you can add, remove, name, and group wireless-enabled devices in your home audio system.

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 **NOTE:** Before you start HP Wireless Audio Manager, be sure that the wireless device is turned on (the wireless light on the **f12** key is white).

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To access HP Wireless Audio Manager, do one of the following:

- ▲ Right-click the **HP Wireless Audio** icon in the notification area, at the far right of the task bar, and then click **Launch Manager**.

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 **NOTE:** If you are concerned about battery life, disable HP Wireless Audio when you are not using it. Right-click the icon in the notification area and select **Disable HP Wireless Audio**. To re-enable the software, right-click the icon in the notification area and select **Enable HP Wireless Audio**.

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–or–

- ▲ Select **Start > Control Panel > Hardware and Sound > HP Wireless Audio**.

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 **NOTE:** For more information on HP Wireless Audio, see the software Help.

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## Refreshing your software content (select models only)

When the computer is in the Sleep state, Intel® Smart Connect Technology periodically causes the computer to exit Sleep. Smart Connect then updates the content for certain open applications and reinitiates Sleep. As a result, your work is immediately available to you as soon as you exit Sleep. You do not have to wait while updates are downloaded.

- ▲ To open Intel Smart Connect to enable this feature or manually adjust the settings, select **Start > All Programs > Intel > Intel Smart Connect Technology**.

For additional information and a list of supported applications, see the software Help.

## Radiance backlight keyboard and proximity sensor


The radiance backlight keyboard feature, turned on at the factory, uses proximity sensor technology to automatically light up the keyboard when the sensors detect your presence in front of the computer. The proximity sensors, also turned on at the factory, automatically turn the radiance backlight keyboard feature on or off based on your location.

- ▲ To turn the radiance backlight keyboard feature off or on, press the [keyboard backlight](#) action key (f5).



- ▲ To switch between low, medium, or high brightness levels, press and hold the [keyboard backlight](#) action key (f5) in combination with either the up or down arrow key.
- ▲ To change the proximity sensor settings, select **Start > All Programs > HP > HP Proximity Sensor**.

## HP CoolSense

HP CoolSense  automatically detects when the computer is not in a stationary position and adjusts performance and fan settings to keep the surface temperature of your computer at the optimum level of comfort.

When HP CoolSense is off, the position of the computer is not detected and the performance and fan options remain at the factory setting. As a result, the surface temperature of the computer may be higher than it would be with HP CoolSense on.


To turn CoolSense off or on, follow these steps:

1. Select **Start > Control Panel > Hardware and Sound > HP CoolSense**.
2. Select **On** or **Off**.

## Intel Wireless Display

Intel Wireless Display allows you to view your computer content wirelessly on your TV using a wireless third-party TV adapter (purchased separately). For details about using the wireless adapter, see the device manufacturer's instructions.

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 **NOTE:** The computer wireless feature must be enabled and the computer graphics must be set to power-saving mode before you can use the wireless display.

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## Switching between graphics modes

The computer is equipped with switchable graphics and has two modes for processing graphics. When you switch from AC power to battery power, the computer can switch from using the high-performance mode to using the power-saving mode. Conversely, when you switch from battery power to AC power, the computer can switch back to the high-performance mode.

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 **NOTE:** In order to optimize the performance of the computer, the system may not allow you to switch modes, or it may prompt you to switch. You may need to close all programs before switching.

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When you switch between AC and battery power, you are notified that the computer is preparing to switch graphics modes. You can then choose to either continue to use the same graphics mode or to switch. If you choose to switch, the screen goes blank for a few seconds. When the switch is complete, a message appears in the notification area, and the screen image reappears.

## AMD Eyefinity Multi-Display technology

Your computer supports the new AMD™ Eyefinity technology, which provides the following features:

- You can connect up to 3 external displays, as long as at least one of the displays is connected to a DisplayPort on the computer.


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 **NOTE:** You cannot use an adapter on either DisplayPort.

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- You can span the screen image across as many as 3 external displays into a massive single large surface (SLS).


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 **NOTE:** When you do this, the computer display is turned off.

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## Example display configuration for SLS

In this example, 3 external displays are connected to the computer using the two DisplayPorts and the HDMI port.

 **NOTE:** External displays in an SLS must have identical resolution settings. Change the settings as needed to comply with this requirement.

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 **NOTE:** Windows 7 supports only 2 external displays. To configure 3 external displays in Windows 7, See [Using AMD Catalyst Control Center on page 8](#).

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## Switching the screen image

Press the [switch screen image](#) action key (**f4**) to open a dialog box that allows you to select one of 4 configuration choices.

- Computer only—Turns off any external displays and shows the image only on only the computer display.
- Duplicate—Clones the image on the computer display onto an external display that is connected to the computer.
- Extend—Extends the screen image across the computer display and all connected external displays.
- Projector only—Turns off the computer display and extends the screen image across all connected external displays.


 **NOTE:** To manage the video output devices and default output devices, use AMD Catalyst™ Control Center.

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## Using AMD Catalyst Control Center

To configure the display output and to manage AMD Eyefinity technology, you must use the AMD Catalyst Control Center.

- ▲ To open AMD Catalyst Control Center, right-click the desktop and click **Graphics Properties**.

 **NOTE:** For additional information about using the AMD Catalyst Control Center, see the software Help.

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# Finding information

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

Resources	For information about
Instructions for setting up the computer	<ul style="list-style-type: none"><li>• New computer features</li><li>• Help to identify 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; All Programs &gt; HP &gt; HP Documentation</b> . –or– 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 customer 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; All Programs &gt; HP &gt; HP Documentation</b> . –or– 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> .	<ul style="list-style-type: none"><li>• Software, driver, and BIOS updates</li><li>• Troubleshooting tools</li></ul>
<b>NOTE:</b> For country- or region-specific support, go to <a href="http://www.hp.com/support">http://www.hp.com/support</a> , select your country or region, and follow the on-screen instructions.	<ul style="list-style-type: none"><li>• Instructions for contacting customer 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; All Programs &gt; HP &gt; HP Documentation</b> . –or– Select <b>Start &gt; Help and Support &gt; User guides</b> .	<ul style="list-style-type: none"><li>• Battery disposal information</li></ul>

Resources	For information about
<p><i>Safety &amp; Comfort Guide</i></p> <p>To access this guide:</p> <p>Select <b>Start &gt; All Programs &gt; HP &gt; HP Documentation</b>.</p> <p>–or–</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/ergo">http://www.hp.com/ergo</a>.</p>	<ul style="list-style-type: none"> <li>• Proper workstation setup</li> <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>
<p><i>Worldwide Telephone Numbers</i> booklet</p> <p>This booklet is provided with your computer.</p> <p>HP Web site</p> <p>To access this Web site, go to <a href="http://www.hp.com/support">http://www.hp.com/support</a>.</p>	<p>HP customer support telephone numbers</p> <ul style="list-style-type: none"> <li>• Customer support information</li> <li>• Ordering parts and finding additional help</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; All Programs &gt; HP &gt; HP Documentation &gt; View Warranty Information</b>.</p> <p>–or–</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>	<p>Warranty information</p>
<p>*You can find the expressly provided HP Limited Warranty applicable to your product located with the user 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 serial number label), name, and postal address.</p> <p><b>IMPORTANT:</b> Do NOT return your HP product to the addresses above. For product support, see your product home page at <a href="http://www.hp.com/go/contactHP">http://www.hp.com/go/contactHP</a>.</p>	

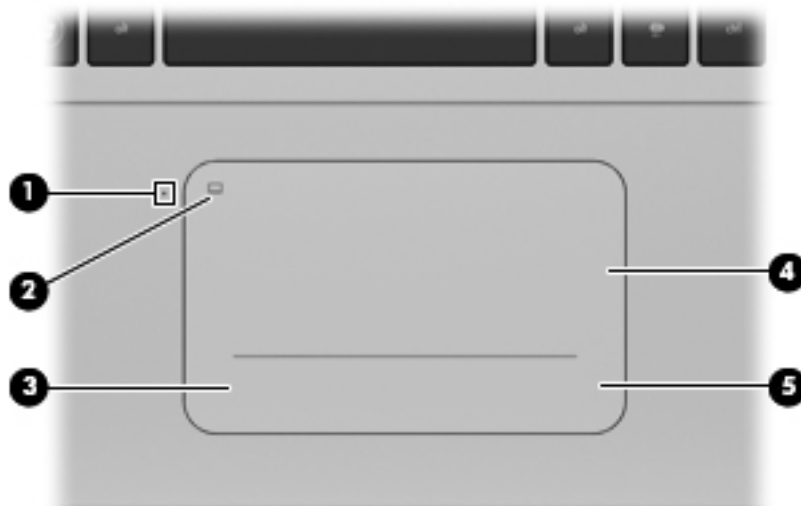
## 2 Getting to know your computer

The following sections are included in this chapter:

- [Top](#)
- [Front](#)
- [Right side](#)
- [Left side](#)
- [Display](#)
- [Bottom](#)

### Top

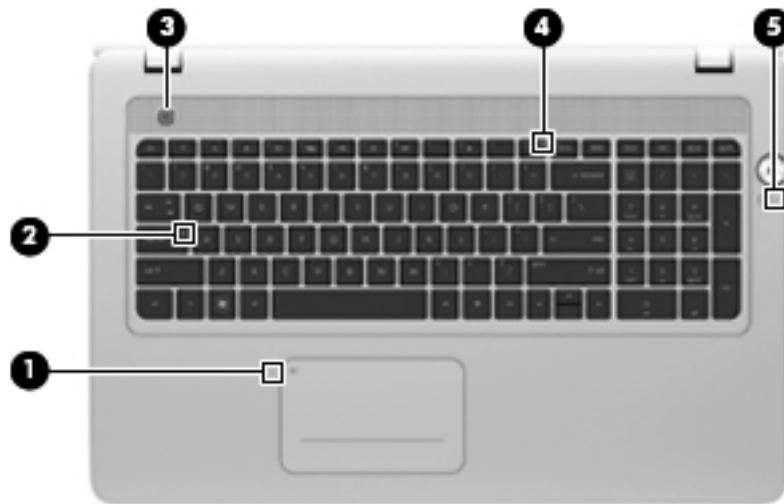
#### Imagepad






Component	Description
(1) Imagepad light	<ul style="list-style-type: none"><li>• Amber: The Imagepad is off.</li><li>• Off: The Imagepad is on.</li></ul>
(2) Imagepad on/off button	Quickly double-tap this button to turn the Imagepad off or on.

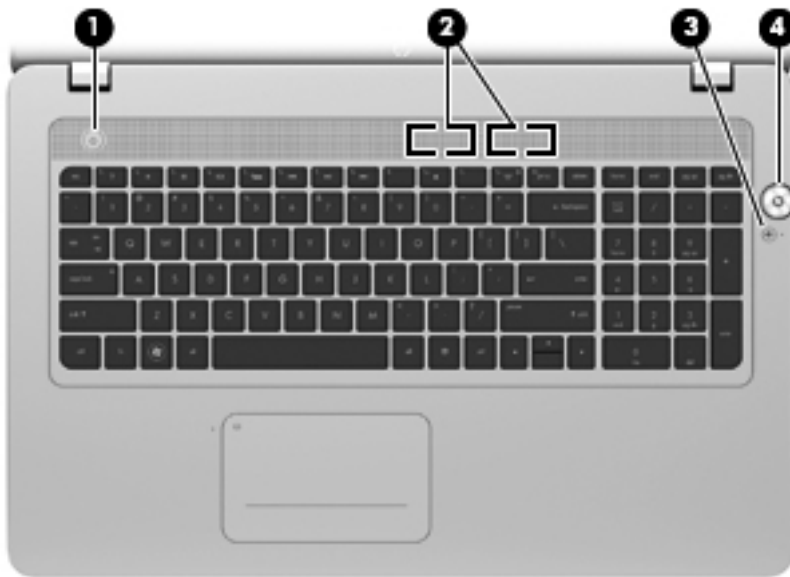
Component	Description
(3) Left Imagepad button	The bottom left corner of the Imagepad functions like the left button on an external mouse.
(4) Imagepad zone	Moves the pointer and selects or activates items on the screen.
(5) Right Imagepad button	The bottom right corner of the Imagepad functions like the right button on an external mouse.




## Lights



Component	Description
(1) Imagepad light	<ul style="list-style-type: none"> <li>Amber: The Imagepad is off.</li> <li>Off: The Imagepad is on.</li> </ul>
(2) Caps lock light	<ul style="list-style-type: none"> <li>White: Caps lock is on.</li> <li>Off: Caps lock is off.</li> </ul>
(3)  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>
(4)  Wireless light	<ul style="list-style-type: none"> <li>White: An integrated wireless device, such as a wireless local area network (WLAN) device, is enabled.</li> <li>Amber: All wireless devices are disabled.</li> </ul>
(5)  Mute light	<ul style="list-style-type: none"> <li>Amber: Speaker sound is off.</li> <li>Off: Speaker sound is on.</li> </ul>

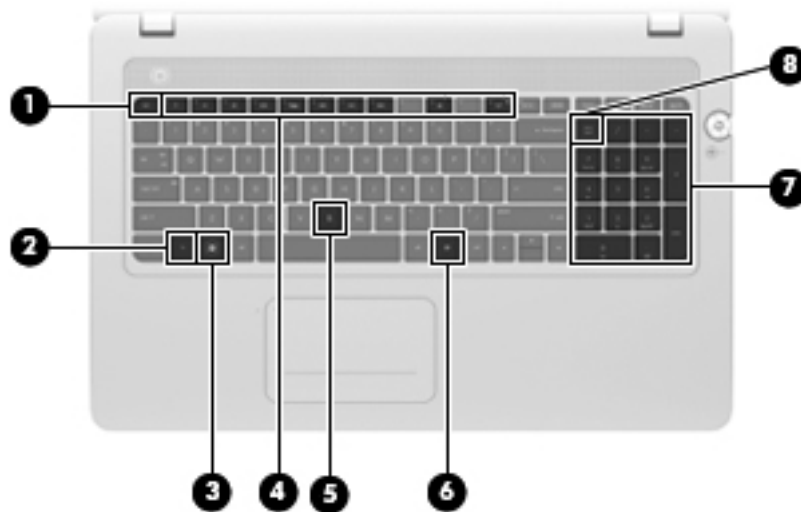
## Buttons and speakers





Component	Description
(1) 	<p>Power button</p> <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>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 refer to the <i>HP Notebook Reference Guide</i>.</p>
(2)	<p>Stereo speakers (2)</p> <p>Produce sound with Beats Audio speakers.</p>
(3) 	<p>Mute button</p> <p>Mutes or restores speaker sound.</p>
(4) 	<p>Beats Audio button</p> <p>Opens Beats Audio Control Panel, which allows you to view and control the audio and bass settings.</p> <p>Beats Audio is an enhanced audio feature that provides a deep, controlled bass while maintaining a clear sound.</p> <p><b>NOTE:</b> You can also open Beats Audio Control Panel by selecting <b>Start &gt; Control Panel &gt; Hardware and Sound &gt; Beats Audio Control Panel</b>.</p>



## Keys



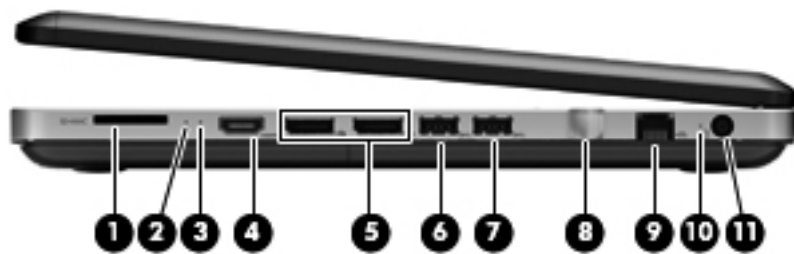
Component	Description
(1) <b>esc</b> key	Displays system information when pressed in combination with the <b>fn</b> key.
(2) <b>fn</b> key	Executes the following functions: <ul style="list-style-type: none"> <li>When the key is pressed in combination with the <b>esc</b> key, system information is displayed.</li> <li>When the key is pressed in combination with the <b>b</b> key, Beats Audio is enabled or disabled.</li> </ul>
(3)  Windows logo key	Displays the Windows Start menu.
(4) Action keys	Execute frequently used system functions.
(5) <b>b</b> key	Enables or disables Beats Audio when pressed in combination with the <b>fn</b> key.
(6)  Windows applications key	Displays a shortcut menu for items beneath the pointer.
(7) Integrated numeric keypad	Can be used like an external numeric keypad.
(8) <b>num lock</b> key	Alternates between navigational and numeric functions of the integrated numeric keypad. <p><b>NOTE:</b> The keypad function that is active when the computer is turned off is reinstated when the computer is turned back on.</p>








# Front




Component	Description
Stereo speakers (4)	Produce sound with Beats Audio speakers.

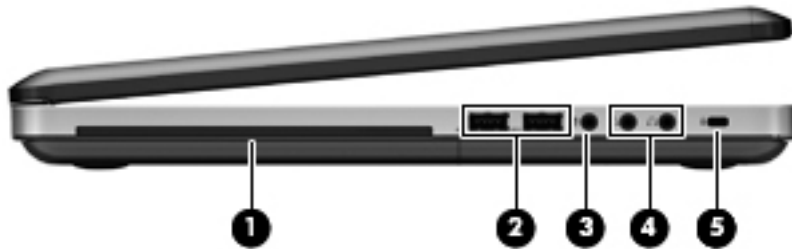
## Right side








Component	Description
(1)	<p>Digital Media Slot</p> <p>Supports the following digital card formats:</p> <ul style="list-style-type: none"> <li>• MultiMediaCard</li> <li>• Secure Digital (SD) Memory Card</li> <li>• Secure Digital High Capacity Memory Card</li> </ul>
(2)	<p> Hard drive light</p> <ul style="list-style-type: none"> <li>• Blinking white: The hard drive is being accessed.</li> <li>• Amber: HP ProtectSmart Hard Drive Protection has temporarily parked the hard drive.</li> </ul> <p><b>NOTE:</b> For information on HP ProtectSmart Hard Drive Protection, refer to the <i>HP Notebook Reference Guide</i>.</p>
(3)	<p> Power light</p> <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>
(4)	<p> HDMI port</p> <p>Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed HDMI 1.4 device.</p>
(5)	<p> DisplayPorts (2)</p> <p>Connect optional digital display devices, such as high-performance monitors or projectors.</p>
(6)	<p> USB 3.0 port</p> <p>Connects an optional USB 3.0 device and provides enhanced USB power performance.</p> <p><b>NOTE:</b> The USB 3.0 port is also compatible with USB 1.0 and 2.0 devices.</p>
(7)	<p> USB 2.0 port</p> <p>Connects an optional USB device.</p>
(8)	<p>Volume dial</p> <p>Adjusts the speaker volume.</p> <p>Rotate the dial clockwise to increase the volume or rotate the dial counter-clockwise to decrease the volume.</p>
(9)	<p> RJ-45 (network) jack</p> <p>Connects a network cable.</p>

Component		Description
(10)	AC adapter light	<ul style="list-style-type: none"> <li>• White: The computer is connected to external power, and the battery is fully charged.</li> <li>• Amber: The computer is connected to external power, and the battery is charging.</li> <li>• Blinking amber: The computer is connected to external power, and there is a battery error or the battery has reached a low or critical battery level.</li> <li>• Off: The computer is running on battery power.</li> </ul>
(11)	 Power connector	Connects an AC adapter.

## Left side



Component	Description
(1) 	<p>Optical drive</p> <p>Reads and writes to an optical disc.</p> <p><b>CAUTION:</b> To reduce the risk of damaging the computer, do not insert smaller (8 cm diameter) optical discs into the drive.</p>
(2) 	<p>USB 3.0 ports (2)</p> <p>Connect optional USB 3.0 devices and provide enhanced USB power performance.</p> <p><b>NOTE:</b> The USB 3.0 ports are also compatible with USB 1.0 and 2.0 devices.</p>
(3) 	<p>Audio-in (microphone) jack</p> <p>Connects an optional computer headset microphone, stereo array microphone, or monaural microphone.</p>
(4) 	<p>Audio-out (headphone) jacks (2)</p> <p>Produce sound when connected to optional powered stereo speakers, headphones, ear buds, a headset, or television audio.</p> <p><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>.</p> <p><b>NOTE:</b> When a device is connected to either jack, the computer speakers are disabled.</p>
(5) 	<p>Security cable slot</p> <p>Attaches an optional security cable to the computer.</p> <p><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.</p>

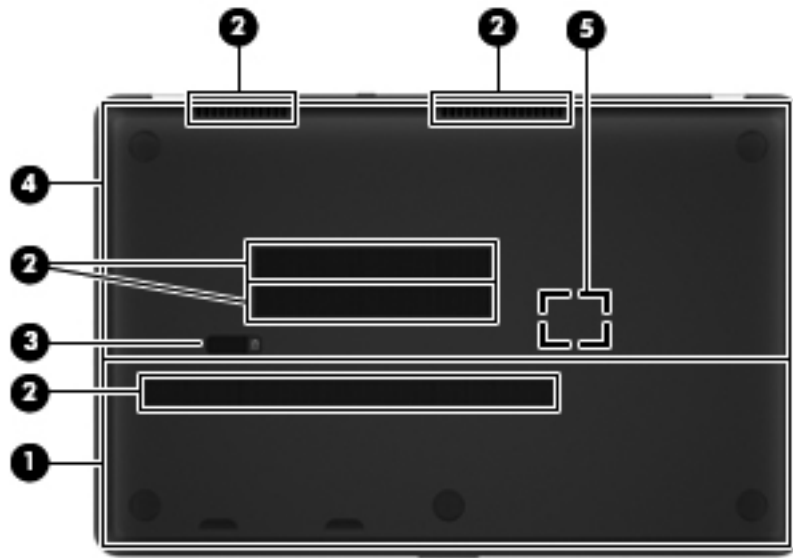
# Display




Component	Description
(1) WLAN antennas (2)*	Send and receive networking signals using up to 2 integrated antennas to a local wireless router or hub.
(2) Proximity sensors (2)	Detects your presence in front of the computer and turns the radiance backlight keyboard feature off or on based on your proximity to the computer.
(3) Internal microphones (2)	Record audio using the integrated microphones by specific programs. The microphones will automatically improve the audio to reduce ambient noise and provide echo cancellation.
(4) Webcam light	Turns on when the webcam is active.
(5) HP TrueVision HD Webcam	Records video and captures still photographs.  To access the webcam, select <b>Start &gt; All Programs &gt; CyberLink &gt; CyberLink YouCam</b> .
(6) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on.  <b>NOTE:</b> The internal display switch is not visible from the outside of the computer.

\*The antennas and IR emitters are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas and IR emitters 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) Hard drive cover	Provides access to the hard drives.
(2) Vents (5)	Enable 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.
(3) Release latch	Releases the hard drive cover.
(4)  Service access door	Provides access to the memory module slots.
(5) HP Triple Bass Reflex Subwoofer	Provides superior bass sound.

---

# 3 Networking

- [Using an Internet service provider \(ISP\)](#)
- [Connecting to a wireless network](#)



---

**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 23](#) or [Setting up a new WLAN network on page 23](#).
- **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 ISP account. Contact a local ISP to purchase Internet service and a modem. The ISP helps to set up the modem, install a network cable to connect your wireless computer to the modem, and test the Internet service.

---

 **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.


---

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

- **ISP-provided icons (available in some locations)**—These icons may be displayed individually on the Windows desktop. 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 the following 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 > Set up a new connection or network**.

---

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

---

## 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 information and Web site 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)**

---

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

---

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.



---

**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.

---

## 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*.

---

# 4 Keyboard and pointing devices

The following sections are included in this chapter:

- [Using the keyboard](#)
- [Using pointing devices](#)

## Using the keyboard

### Using the action keys

Action keys are used for performing customized actions that are assigned to specific keys at the top of the keyboard.

The icons on the **f1** through **f8**, **f10**, and **f12** keys represent the action key functions. To activate a function, press and hold the key.

You can disable the action key feature and revert back to standard settings. Using standard settings, you press the **fn** key and one of the function keys to activate the assigned function. For instructions on disabling the action key feature, see the “Setup Utility (BIOS) and System Diagnostics” chapter in the *HP Notebook Reference Guide*.




---

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








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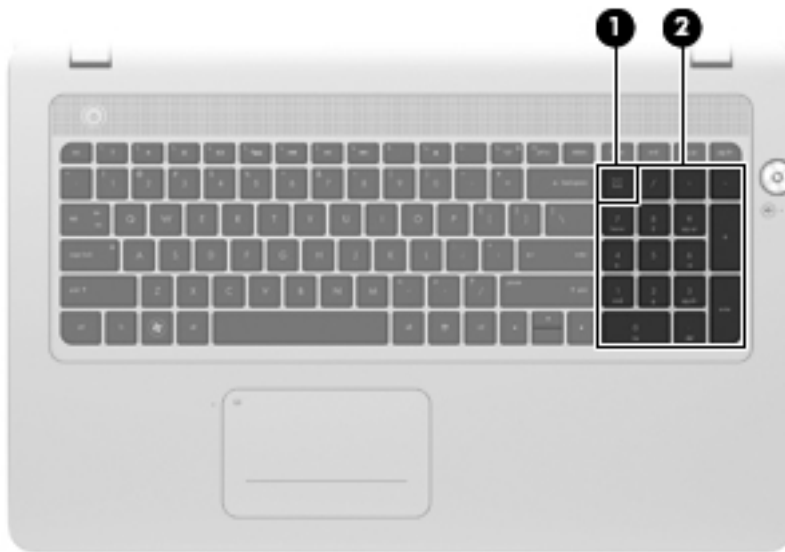
---

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 and links to support specialists.
	<b>f2</b>	Decreases the screen brightness level.
	<b>f3</b>	Increases the screen brightness level.

---

Icon	Key	Description
	f4	<p>Presents the following choices to switch the screen image among display devices connected to the computer:</p> <ul style="list-style-type: none"> <li>• Computer only—Turns off any external displays and shows the image only on only the computer display.</li> <li>• Duplicate—Clones the image on the computer display onto an external display that is connected to the computer.</li> <li>• Extend—Extends the screen image across the computer display and all connected external displays.</li> <li>• Projector only—Turns off the computer display and extends the screen image across all connected external displays.</li> </ul>
	f5	<p>Turns the radiance backlight keyboard feature off or on.</p> <p><b>NOTE:</b> To conserve battery power, turn off this feature. To switch between low, medium, or high brightness levels, press and hold the <a href="#">keyboard backlight</a> action key (f5) in combination with either the up or down arrow key.</p>
	f6	Plays the previous track of an audio CD or the previous section of a DVD or a BD.
	f7	Plays, pauses, or resumes an audio CD, a DVD, or a BD.
	f8	Plays the next track of an audio CD or the next section of a DVD or a BD.
	f10	Ejects a disc from the optical drive.
	f12	<p>Turns off or on all wireless features, including wireless networking, wireless display, and wireless audio.</p> <p><b>NOTE:</b> This key does not establish a wireless connection. To establish a wireless connection, a wireless network must be set up.</p>

## Using the integrated numeric keypad



Component	Description
(1) num lock key	Alternates between the navigational functions and the numeric functions on the integrated numeric keypad. <b>NOTE:</b> The keypad function that is active when the computer is turned off is reinstated when the computer is turned back on.
(2) Integrated numeric keypad	Can be used like an external numeric keypad.

## 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 settings for pointing devices, such as button configuration, click speed, and pointer options.

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

## Using the Imagepad

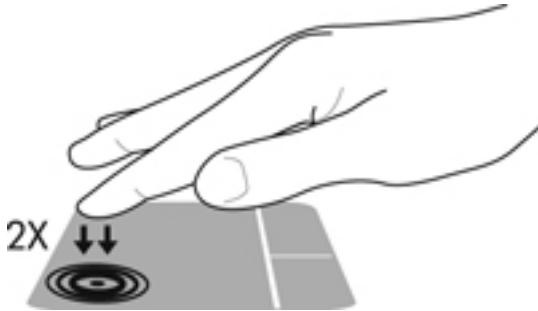
The advanced Imagepad replaces the traditional TouchPad to create a high-precision gesture-friendly mouse alternative. To move the pointer, slide one finger across the Imagepad in the direction you want the pointer to go. Use the left and right Imagepad buttons like the corresponding buttons on an external mouse.

### Turning the Imagepad off or on



To turn the Imagepad off or on, quickly double-tap the Imagepad on/off button.



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



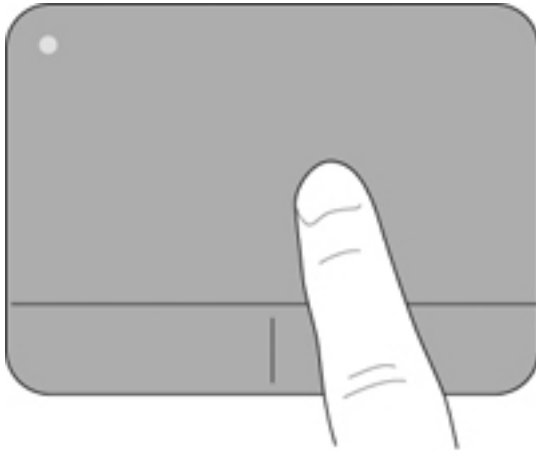
The Imagepad light and on-screen display icons indicate the Imagepad status.

Imagepad light	Icon	Description
Amber		Indicates that the Imagepad is off.
Off		Indicates that the Imagepad is on.



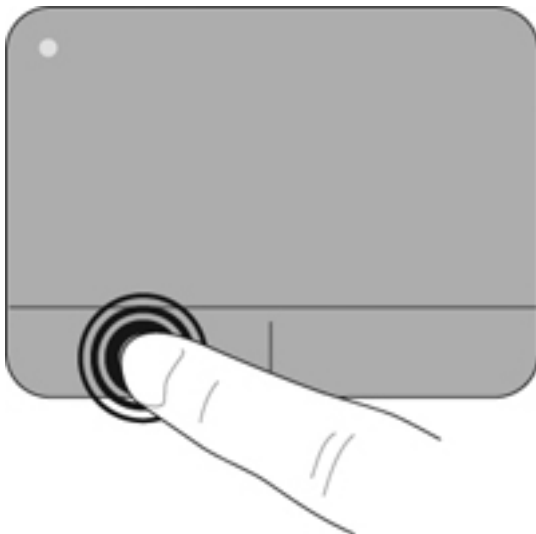
## Navigating

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



## Selecting

Use the left and right Imagepad buttons like the corresponding buttons on an external mouse.



## Using Imagepad gestures

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



**NOTE:** Imagepad gestures are not supported in all computer programs.

---

To view the demonstration of a gesture:

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


To turn the gestures on or off:


1. Select **Start > Control Panel > Hardware and Sound > Synaptics ClickPad**.
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

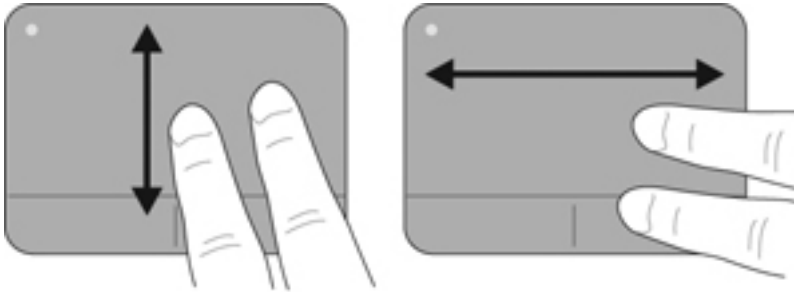
Scrolling is useful for moving up, down, or sideways on a page or image. To scroll, place two fingers slightly apart on the Imagepad, and then drag them across the Imagepad in an up, down, left, or right motion.

---

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

 **NOTE:** Scrolling is enabled at the factory.

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## Pinching/Zooming

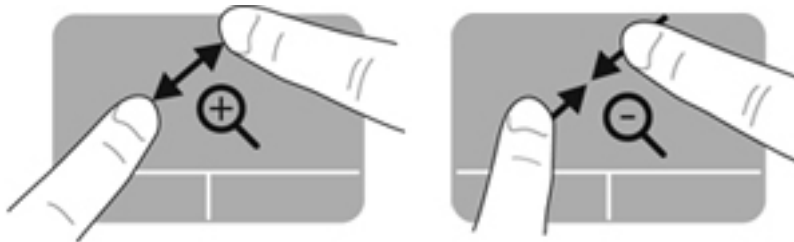
Pinching allows you to zoom in or out on images or text.

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

---


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

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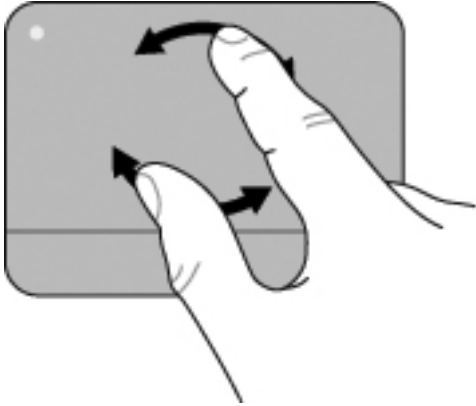


## Rotating

Rotating allows you to rotate items such as photos. Place two separated fingers on the Imagepad, and then rotate your fingers in an arc while maintaining uniform finger separation. An arcing motion to the left rotates the object to the left; an arcing motion to the right rotates the object to the right.

 **NOTE:** Rotating is enabled at the factory.

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## Flicking

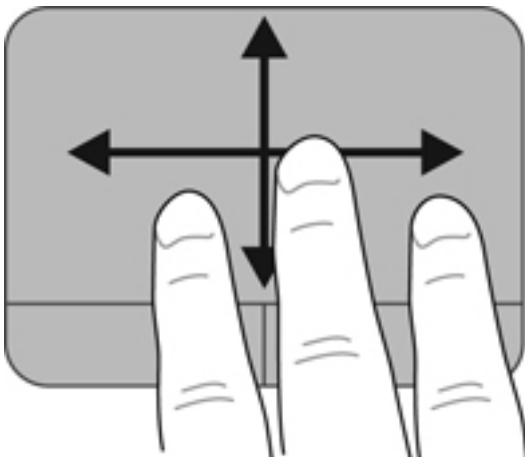
Flicking allows you to quickly perform the following functions:

- Browse the Internet.
- Scroll through photos in a photo viewer.
- Navigate through screens.
- Scroll through documents.
- Enter or exit the slide show mode in your photo viewer.

To flick, use three fingers to touch the Imagepad in a light, quick flicking motion up, down, left, or right.

 **NOTE:** Three-finger flicking is enabled at the factory.

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# 5 Maintenance

The following sections are included in this chapter:

- [Using a factory-sealed battery](#)
- [Replacing or upgrading the hard drives](#)
- [Adding or replacing memory modules](#)

## Using a factory-sealed battery

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 **IMPORTANT:** Do not attempt to replace your computer battery, which is preinstalled and sealed at the factory. A broken battery seal voids your warranty.

---

Your computer has an internal rechargeable battery that can be replaced only by an authorized service provider. For steps to keep your battery in good condition, see “Using Battery Power” in the *HP Notebook Reference Guide*. To access this guide, select **Start > All Programs > HP > HP Documentation**. To monitor the status of your battery, or if the battery is no longer holding a charge, run Battery Check in Help and Support. Contact customer support if the computer battery needs to be replaced.

## Replacing or upgrading the hard drives

---

**CAUTION:** To reduce the risk of information loss or an unresponsive system:

Shut down the computer before removing a hard drive from the hard drive bay.

If you are not sure whether the computer is off, in the Sleep state, or in Hibernation, press the power button, and then shut down the computer through the operating system.

**NOTE:** Some computer models can support up to three drives—two hard drives and one solid-state drive. To determine the number and type of drives installed in your computer, click **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**.

**NOTE:** When replacing a hard drive, make sure that you save the hard drive bracket and cover. You may need these parts to install the new hard drive.

---

## Removing and installing the primary hard drive

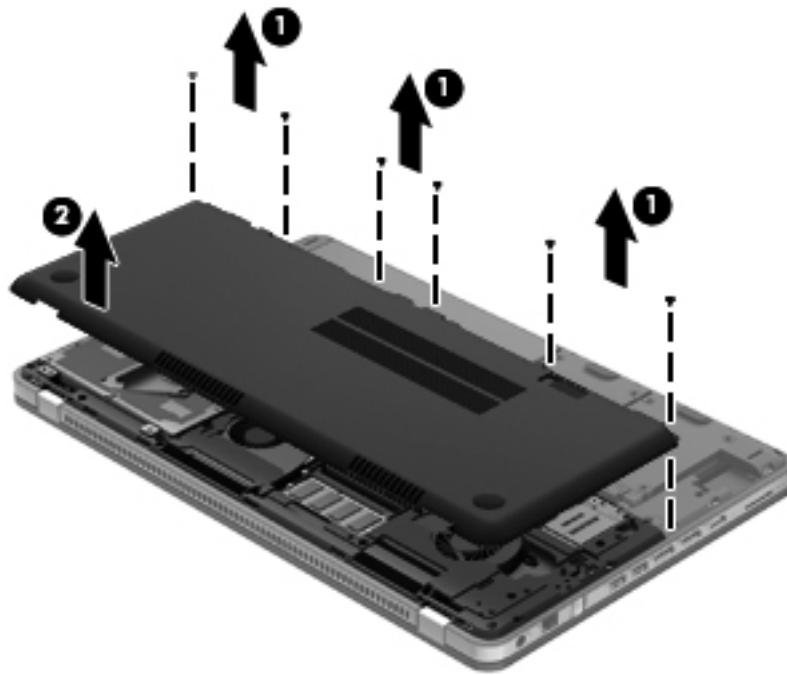
### Removing the primary hard drive

1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Remove external power from the computer.
4. Slide the release latch (1), and then remove the hard drive cover (2).

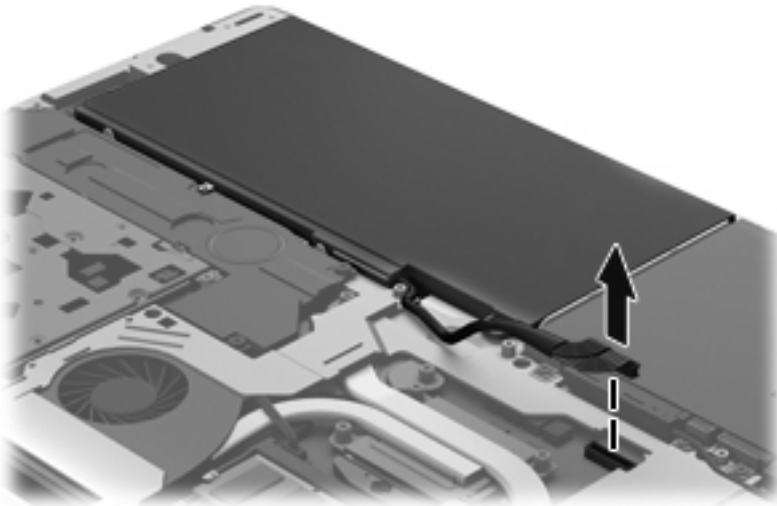


5. Remove the service access door.
  - a. Remove the 6 service access door screws (1).

- b. Remove the door (2).

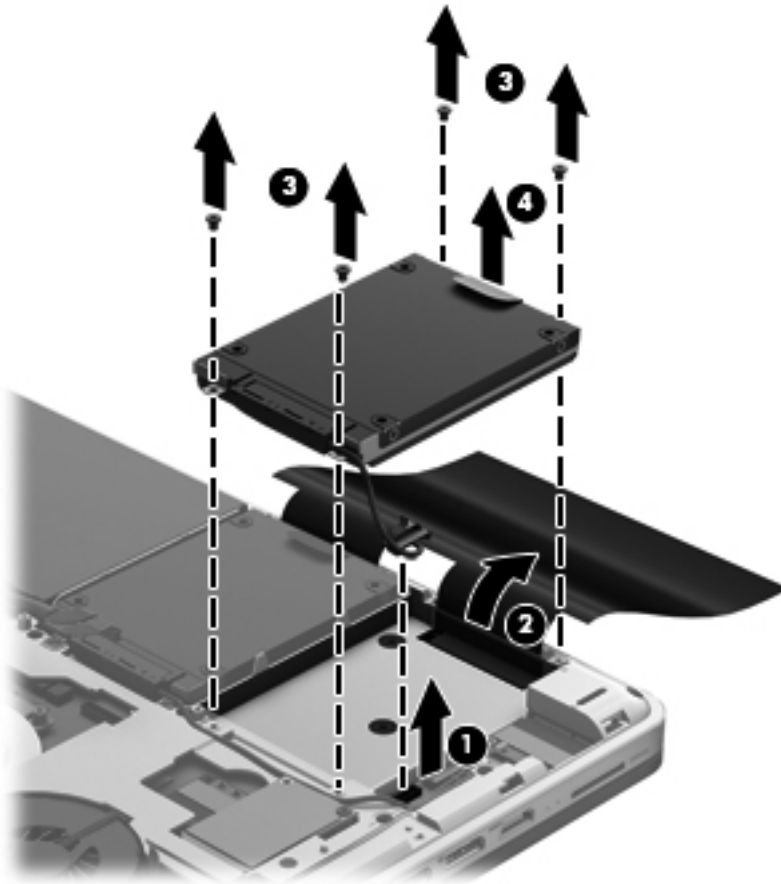


6. Disconnect the battery cable from the computer.



7. Disconnect the hard drive cable (1) from the computer.  
8. Pull back the plastic cover (2).

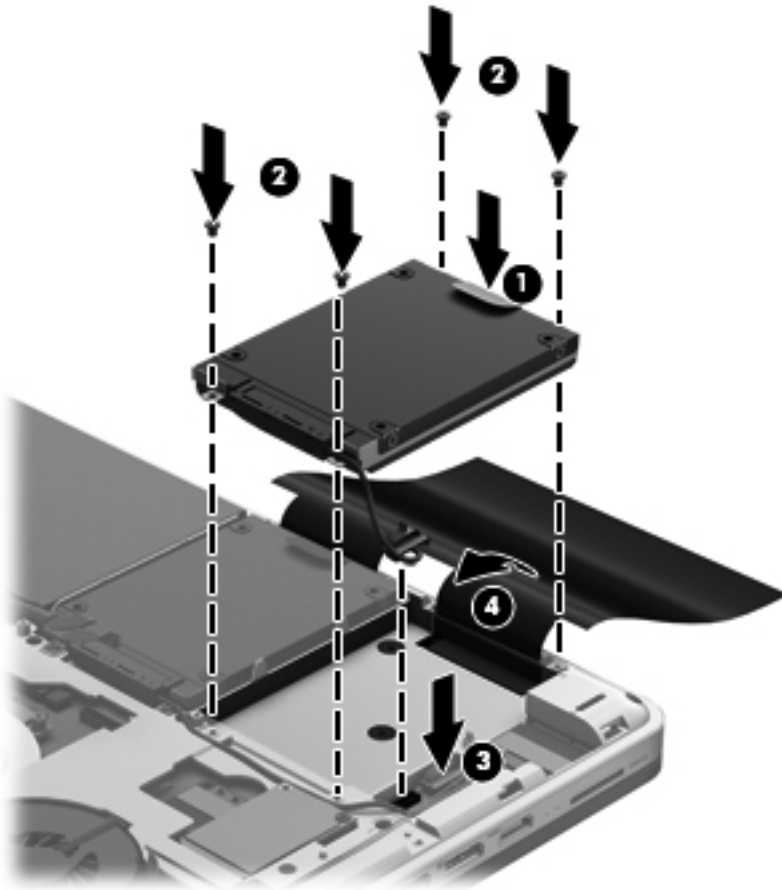
9. Remove the 4 hard drive screws (3), and then lift the hard drive (4) out of the hard drive bay.



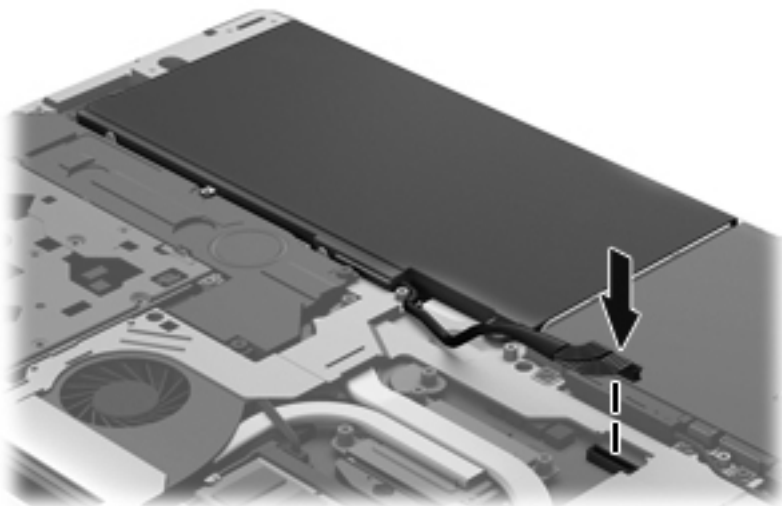
### Installing the primary hard drive

1. Insert the hard drive (1) into the hard drive bay, and then replace the 4 hard drive screws (2).
2. Connect the hard drive cable (3) to the computer.

3. Replace the plastic cover (4).



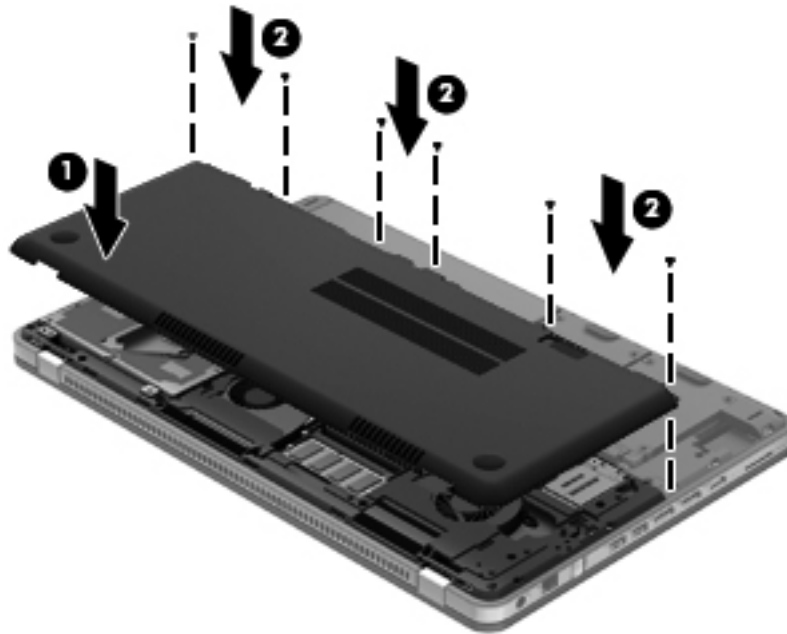
4. Connect the battery cable to the computer.



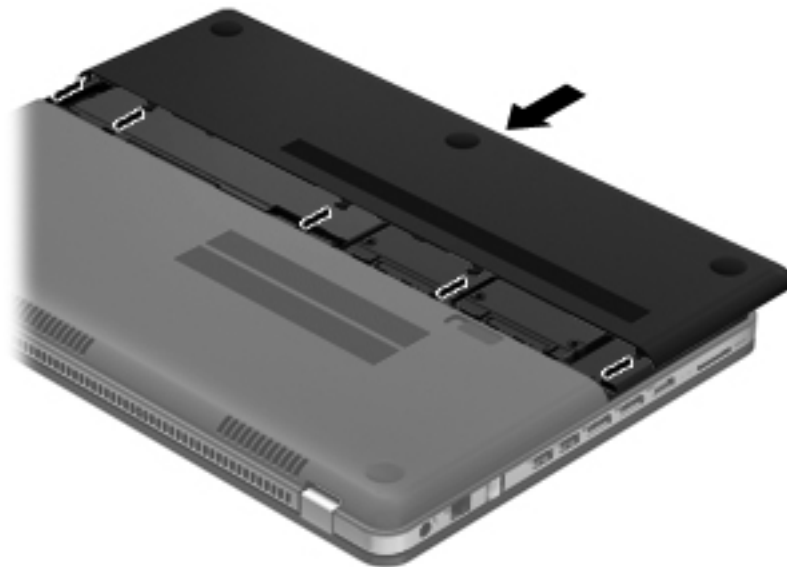
5. Align the screw holes in the service access door with the holes in the computer, and then lower the door (1) onto the computer.



6. Replace the 6 service door screws (2).



7. Align the tabs on the hard drive cover with the notches on the computer, and then slide the cover into the notches. The release latch automatically locks the cover into place.



8. Reconnect external power and external devices.
9. Turn on the computer.

## Removing and inserting the secondary hard drive

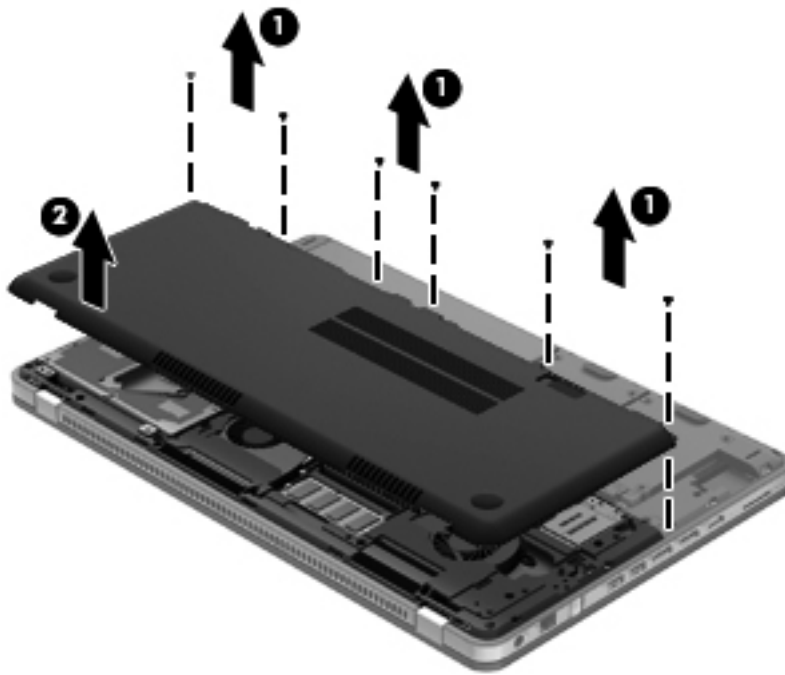
### Removing the secondary hard drive

1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Remove external power from the computer.
4. Slide the release latch **(1)**, and then remove the hard drive cover **(2)**.

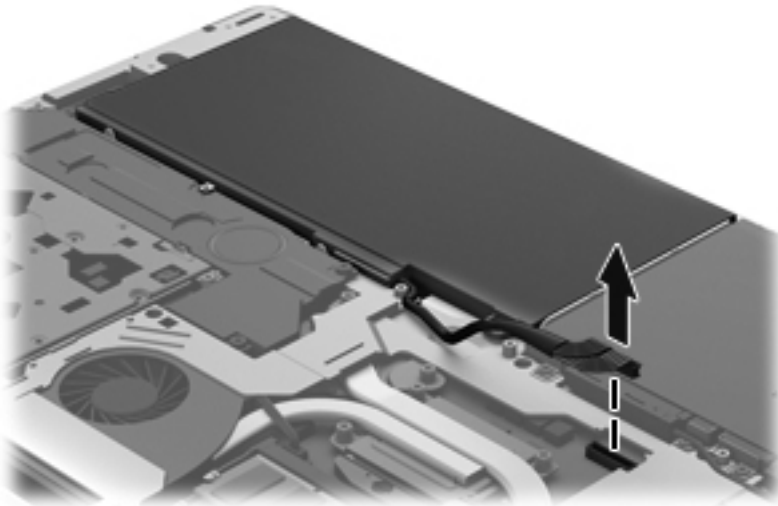


5. Remove the service access door.
  - a. Remove the 6 service access door screws **(1)**.

- b. Remove the door (2).

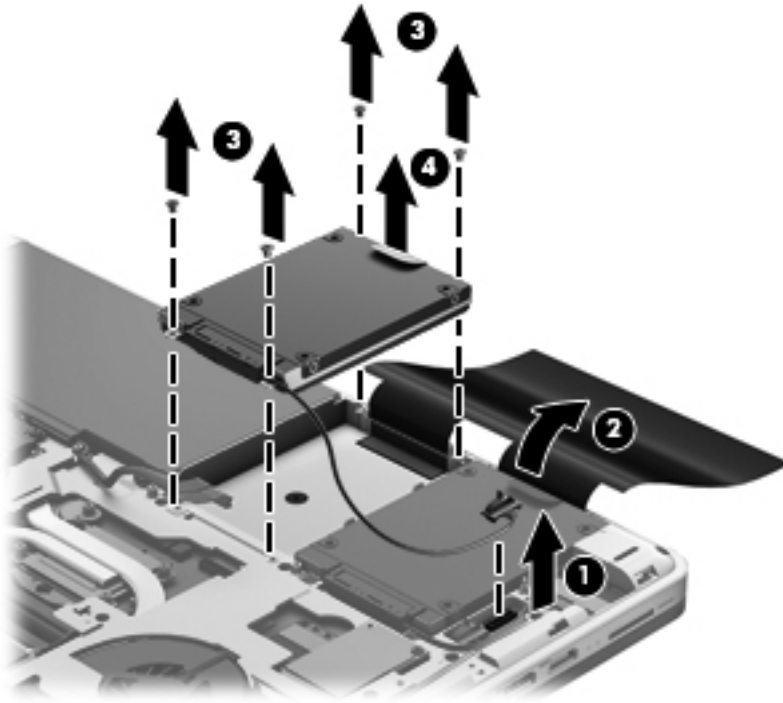


6. Disconnect the battery cable from the computer.



7. Disconnect the hard drive cable (1) from the computer.  
8. Pull back the plastic cover (2).

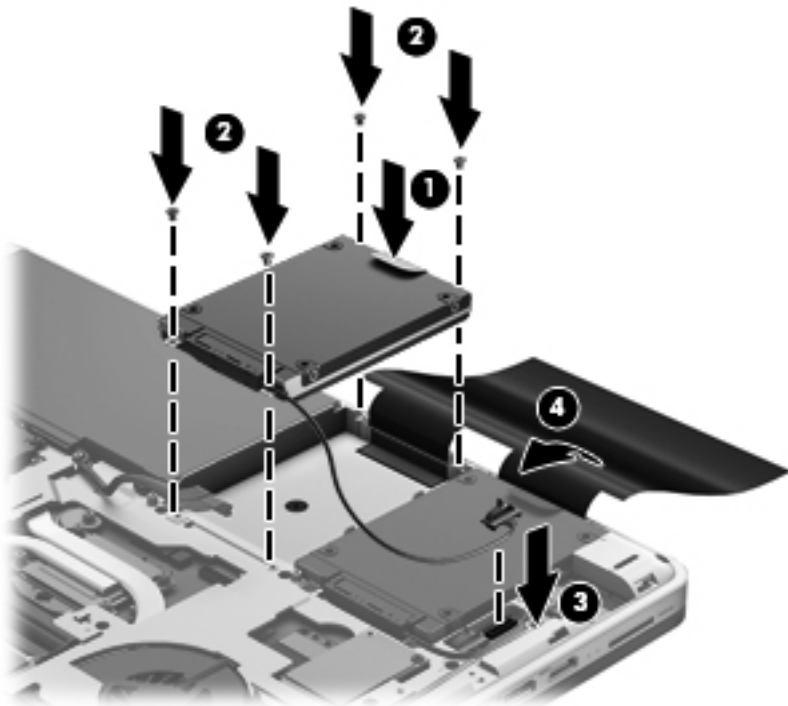
9. Remove the 4 hard drive screws (3), and then lift the hard drive (4) out of the hard drive bay.



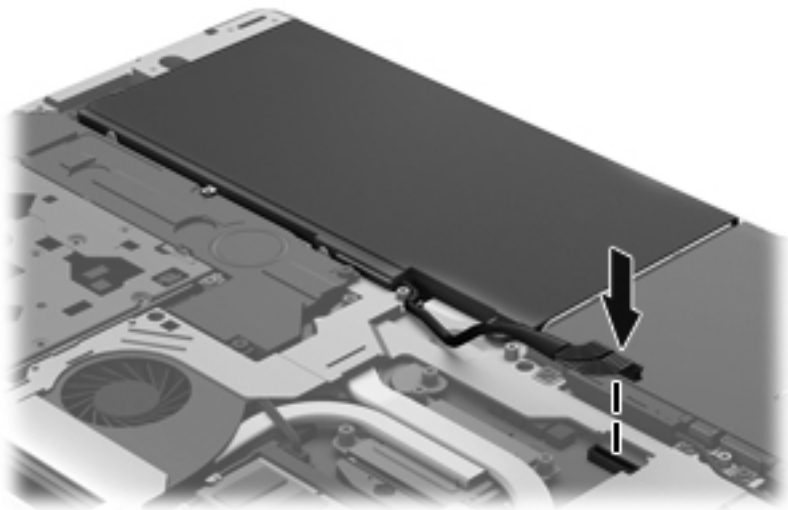
### Installing the secondary hard drive

1. Insert the hard drive (1) into the hard drive bay, and then replace the 4 hard drive screws (2).
2. Connect the hard drive cable (3) to the computer.

3. Replace the plastic cover (4) over the hard drive.

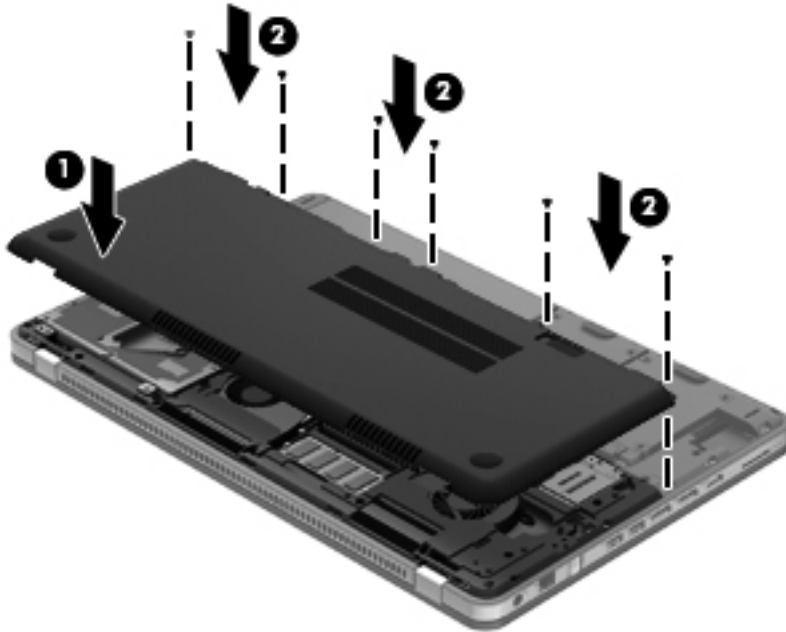


4. Connect the battery cable to the computer.

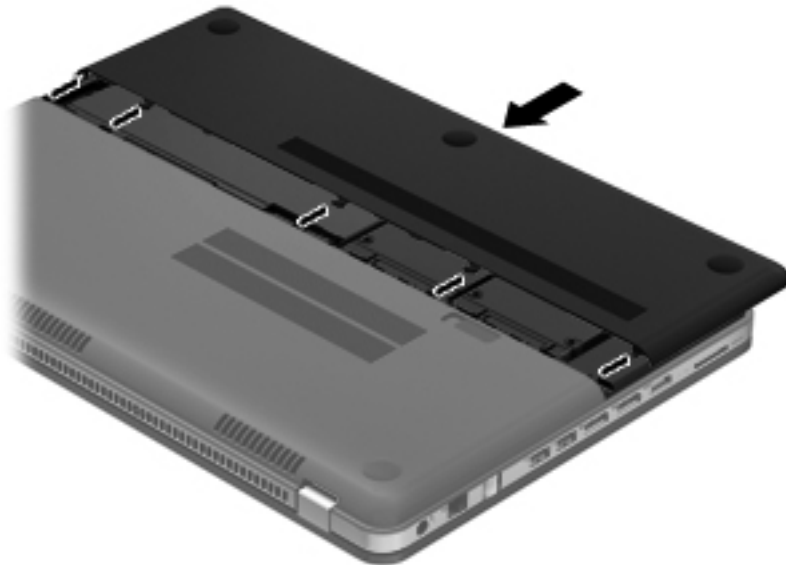


5. Align the screw holes in the service access door with the holes in the computer, and then lower the door (1) onto the computer.

6. Replace the 6 service door screws (2).



7. Align the tabs on the hard drive cover with the notches on the computer, and then slide the cover into the notches. The release latch automatically locks the cover into place.



8. Reconnect external power and external devices.
9. Turn on the computer.

## Adding or replacing memory modules

The computer has two memory module slots. They are located under the service access door on the bottom of the computer. The memory capacity of the computer can be upgraded by adding a memory module or replacing a memory module in one of the memory module slots.

---

**WARNING!** To reduce the risk of electric shock and damage to the equipment, unplug the power cord 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:

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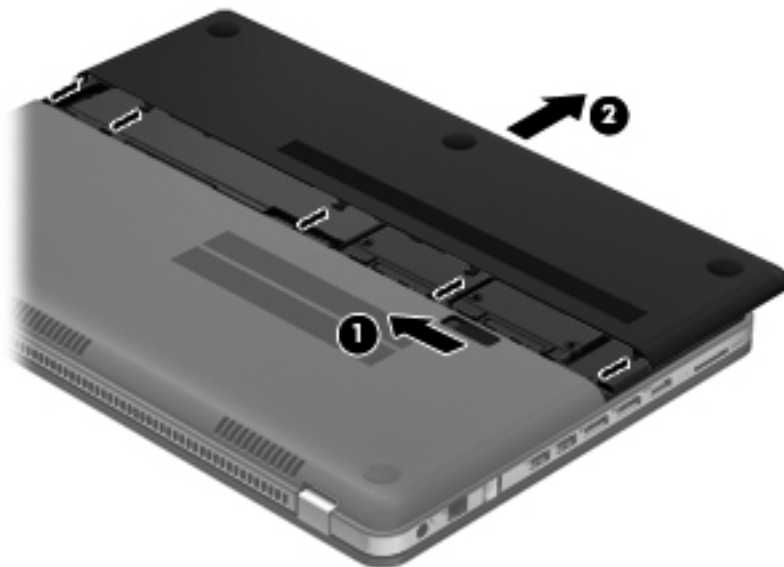
**CAUTION:** To reduce the risk of information loss or an unresponsive system:

Shut down the computer before removing a memory module from the computer. 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, in the Sleep state, or in Hibernation, press the power button, and then shut down the computer through the operating system.

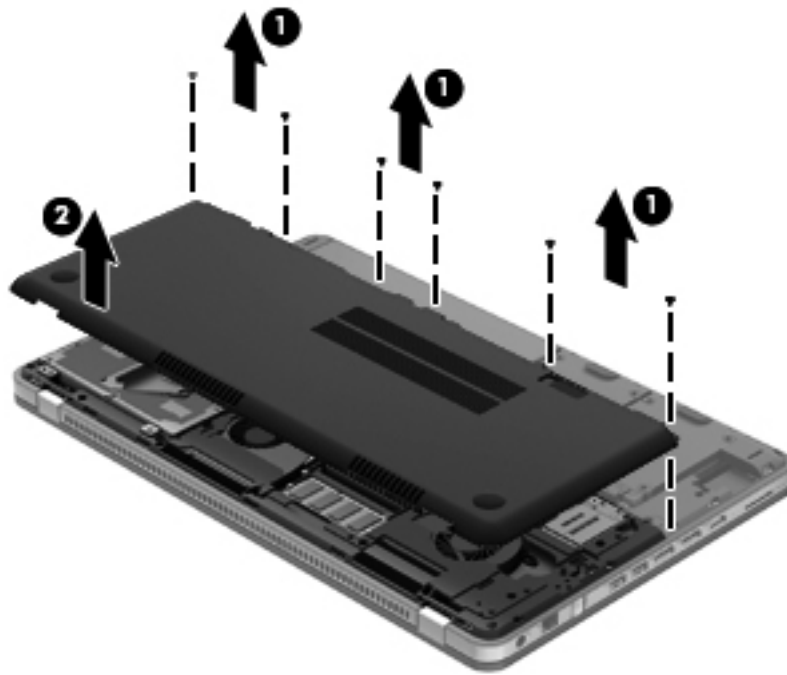
---

1. Save your work and shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Remove external power from the computer.
4. Slide the release latch (1), and then remove the hard drive cover (2).

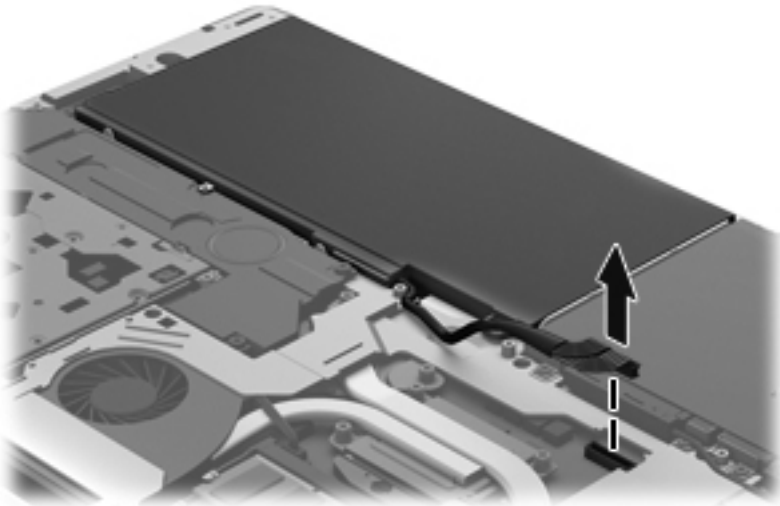


5. Remove the service access door.
  - a. Remove the 6 service access door screws (1).

- b. Remove the door (2).



6. Disconnect the battery cable from the computer.



7. 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.

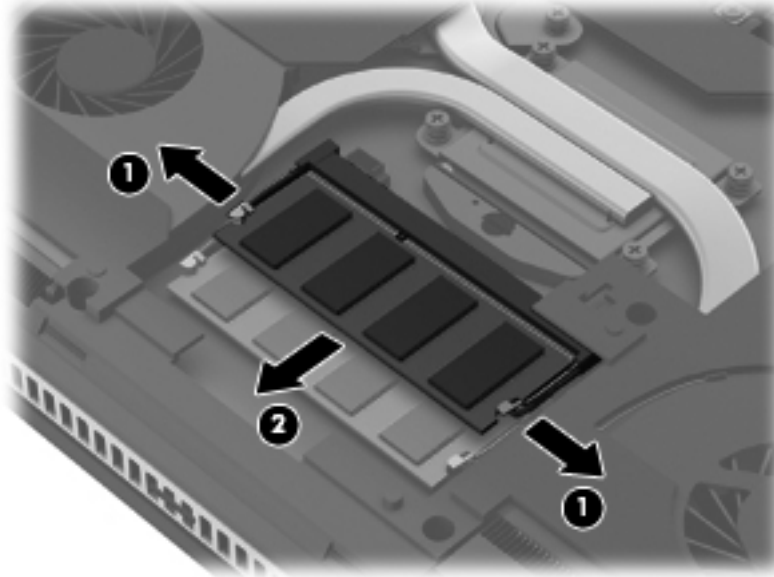


- b. Grasp the edge of the memory module (2), and then gently pull the module out of the memory module slot.

---

⚠ **CAUTION:** To reduce the risk of damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module. To protect a memory module after removal, place it in an electrostatic-safe container.

---



- 8. Insert a new memory module.

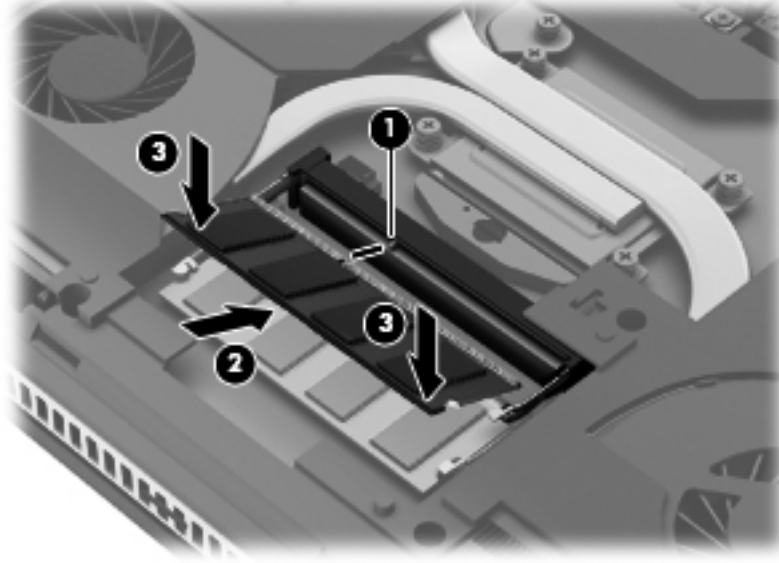
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⚠ **CAUTION:** To reduce the risk of damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module, and do not bend the memory module.

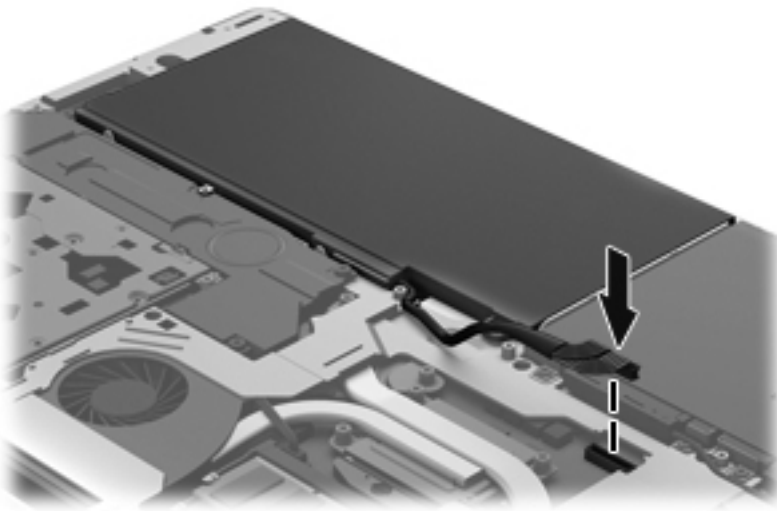
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- a. Align the notched edge (1) of the memory module with the tab in the memory module slot.
- b. Position the memory module at a 45-degree angle from the surface of the memory module compartment, and then press the module (2) into the slot until the module is seated.

- 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.

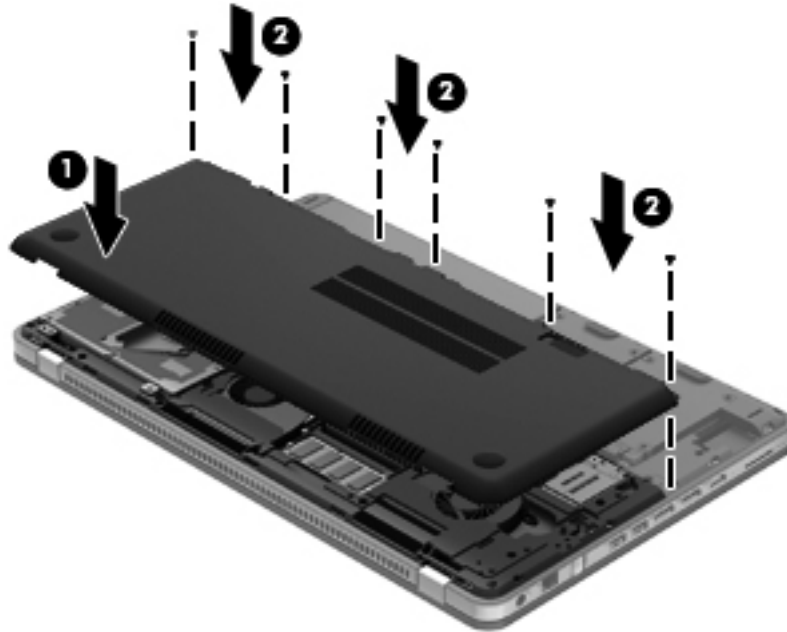


- 9. Connect the battery cable to the computer.

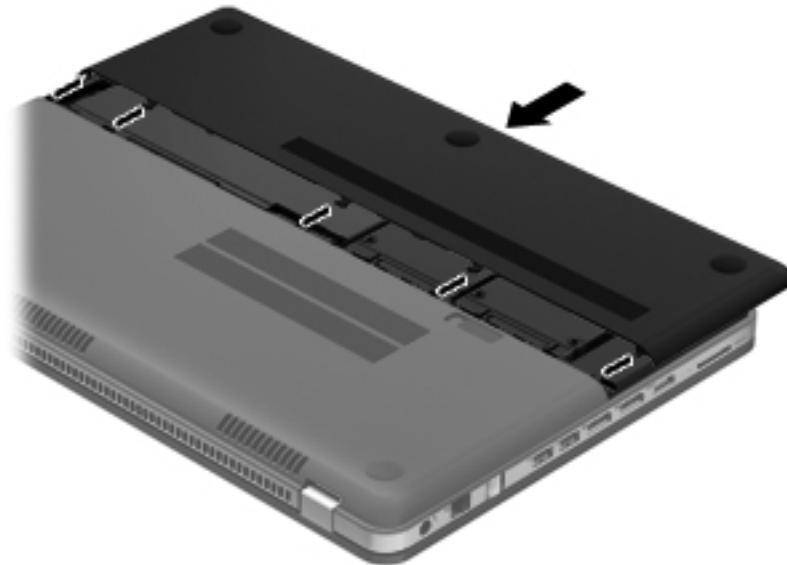


- 10. Align the screw holes in the service access door with the holes in the computer, and then lower the door **(1)** onto the computer.

11. Replace the 6 service access door screws (2).



12. Align the tabs on the hard drive cover with the notches on the computer, and then slide the cover into place. The release latch automatically locks the cover into place.



13. Reconnect external power and external devices.
14. Turn on the computer.

---

## 6 Backup and recovery

- [Restore](#)
- [Creating recovery media](#)
- [Performing a system restore](#)
- [Backing up and recovering your information](#)

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

This chapter provides information on the following topics:


- Creating a set of recovery discs or a recovery flash drive (HP Recovery Manager software feature)
- Performing a system restore (from the partition, recovery discs, or a recovery flash drive)
- Backing up your information
- Recovering a program or driver


## Restore

In the event of hard drive failure, to restore your system to its factory image you must use a set of recovery discs or a recovery flash drive that you have created using HP Recovery Manager. HP recommends that you use HP Recovery Manager immediately after software setup to create either a set of recovery discs or a recovery flash drive.

If you need to restore your system for some other reason than hard drive failure, you can use the HP Recovery partition (select models only), without the need for recovery discs or a recovery flash drive. To check for the presence of a recovery partition, click **Start**, right-click **Computer**, click **Manage**, and then click **Disk Management**. If the recovery partition is present, a Recovery drive is listed in the window.

---


 **CAUTION:** HP Recovery Manager (partition or discs/flash drive) restores only the software that was installed at the factory. Software not provided with this computer must be reinstalled manually.


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

---

## Creating recovery media


HP recommends that you create either a set of recovery discs or a recovery flash drive to be sure that you can restore your computer to its original factory state if the hard drive fails, or if for any reason you cannot restore using the recovery partition tools. Create these discs or the flash drive after setting up the computer for the first time.

 **NOTE:** HP Recovery Manager allows the creation of only one set of recovery discs or one recovery flash drive. Handle these discs or the flash drive carefully and keep them in a safe place.


 **NOTE:** 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 purchase recovery discs for your computer from the HP Web site. 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.

Guidelines:

- Purchase high-quality DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs.

 **NOTE:** Read-write discs, such as CD-RW, DVD±RW, double-layer DVD±RW, and BD-RE (rewritable Blu-ray) discs, are not compatible with the HP Recovery Manager software.

- The computer must be connected to AC power during this process.
- Only one set of recovery discs or one recovery flash drive can be created per computer.

 **NOTE:** If you are creating recovery discs, number each disc before inserting it into the optical drive.


- If necessary, you can exit the program before you have finished creating the recovery discs or recovery flash drive. The next time you open HP Recovery Manager, you will be prompted to continue the backup creation process.

To create a set of recovery discs or a recovery flash drive:

1. Select **Start > All Programs > HP > HP Recovery Manager > HP Recovery Media Creation**.
2. Follow the on-screen instructions.

## Performing a system restore

HP Recovery Manager software allows you to repair or restore the computer to its original factory state. HP Recovery Manager works from recovery discs or a recovery flash drive, or from a dedicated recovery partition (select models only) on the hard drive.

 **NOTE:** A system restore must be performed if the computer hard drive has failed or if all attempts to correct any functional computer issues fail. A system restore should be used as a final attempt to correct computer issues.

Note the following when performing a system restore:

- You can restore only the system that you have previously backed up. HP recommends that you use HP Recovery Manager to create either a set of recovery discs or a recovery flash drive as soon as you set up the computer.
- Windows has its own built-in repair features, such as System Restore. If you have not already tried these features, try them before using HP Recovery Manager.
- HP Recovery Manager restores only software that was installed at the factory. Software not provided with this computer must be downloaded from the manufacturer's Web site or reinstalled from the disc provided by the manufacturer.

## Restoring using the dedicated recovery partition (select models only)

When using the dedicated recovery partition, there is an option to back up pictures, music and other audio, videos and movies, recorded TV shows, documents, spreadsheets and presentations, e-mails, and Internet favorites and settings during this process.

To restore the computer from the recovery partition, follow these steps:


1. Access HP Recovery Manager in either of the following ways:
  - Select **Start > All Programs > HP > HP Recovery Manager > HP Recovery Manager**.
  - 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.

## Restoring 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, the computer boot order must be changed. For details, see [Changing the computer boot order on page 53](#).

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.

## Backing up and recovering your information

It is very important to back up your files and keep any new software in a safe place. As you add new software and data files, continue to create backups on a regular basis.

How completely you are able to recover your system depends on how recent your backup is.



**NOTE:** A recovery from your most recent backup should be performed if the computer is attacked by a virus or if any major system components fail. In order to correct computer issues, attempt a recovery before you attempt a system restore.

You can back up your information to an optional external hard drive, a network drive, or discs. Back up your system at the following times:

- At regularly scheduled times



**TIP:** Set reminders to back up your information periodically.

- Before the computer is repaired or restored
- Before you add or modify hardware or software

Guidelines:

- Create system restore points using the Windows® System Restore feature, and periodically copy them to an optical disc or an external hard drive. For more information on using system restore points, see [Using Windows system restore points on page 54](#).
- Store personal files in the Documents library and back up this folder 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, and then select **Edit > Paste**. The screen image is added to the document.
4. Save and print the document.

## Using Windows Backup and Restore


Guidelines:

- Be sure that the computer is connected to AC power before you start the backup process.
- Allow enough time to complete the backup process. Depending on file sizes, it may take over an hour.

To create a backup:

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. For more information, see Help and Support for more information.

---

## Using Windows system restore points

A system restore point allows you to save and name a snapshot of your hard drive at a specific point in time. You can then recover back to that point if you want to reverse subsequent changes.

---

 **NOTE:** Recovering to an earlier restore point does not affect data files saved or e-mails created since the last restore point.

---

You also can create additional restore points to provide increased protection for your files and settings.

## When to create restore points

- Before you add or modify software or hardware
- Periodically, whenever the computer is functioning optimally

## Create 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**.
5. Follow the on-screen instructions.

## Restore to a previous date and time

To revert to a restore point (created at a previous date and time), when the computer was functioning optimally, follow these steps:

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**.
5. Follow the on-screen instructions.



---

**NOTE:** If you revert to a restore point and then change your mind, you can reverse the restoration.

---

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# 7 Customer support

The following sections are included in this chapter:

- [Contacting customer support](#)
- [Labels](#)

## 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 HP Customer Support at:

<http://www.hp.com/go/contactHP>



---

**NOTE:** For worldwide support, click **Contact HP worldwide** on the left side of the page, or go to [http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html).

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Here you can:

- Chat online with an HP technician.



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

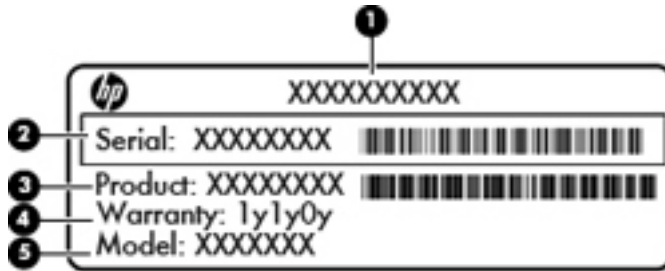
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- E-mail HP Customer Support.
- Find HP Customer Support worldwide telephone numbers.
- Locate an HP service center.

# Labels

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

- Serial number label—Provides important information, including the following:



Component	
(1)	Product name
(2)	Serial number (s/n)
(3)	Part number/Product number (p/n)
(4)	Warranty period
(5)	Model description

- Have this information available when you contact technical support. The serial number label is affixed inside the hard drive bay.
- 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 on the bottom of the computer.
- Regulatory label—Provides regulatory information about the computer. The regulatory label is affixed inside the hard drive 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. If your computer model includes one or more wireless devices, one or more certification labels are included with your computer. You may need this information when traveling internationally. Wireless certification labels are affixed inside the hard drive bay.

---

# 8 Specifications

- [Input power](#)
- [Operating environment](#)

## 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	19.5 V dc @ 6.15 A - 120 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 regulatory label.

# Operating environment

<b>Factor</b>	<b>Metric</b>	<b>U.S.</b>
<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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