Mini User Guide
Product notice

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

Safety warning notice

⚠️ WARNING! To reduce the possibility of heat-related injuries or of overheating the computer, do not place the computer directly on your lap or obstruct the computer air vents. Use the computer only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to 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).
# Table of contents

1 Getting started

   Using HP QuickWeb (select models only) ................................................................. 2

2 Knowing the parts

   Identifying the hardware ............................................................................................. 3
   Top components ........................................................................................................... 3
   TouchPad ..................................................................................................................... 3
   Lights .......................................................................................................................... 4
   Keys ............................................................................................................................. 5
   Front components ........................................................................................................ 5
   Right-side components ............................................................................................. 6
   Left-side components ............................................................................................... 7
   Display components .................................................................................................. 8
   Bottom components .................................................................................................. 9
   Removing the vanity cover ....................................................................................... 9
   Replacing the vanity cover ..................................................................................... 11
   Wireless antennas ..................................................................................................... 12
   Additional hardware components ........................................................................... 13
   Identifying the labels ................................................................................................. 13

3 Power management

   Setting power options ............................................................................................... 15
   Using power-saving states ....................................................................................... 15
   Initiating and exiting Sleep .................................................................................... 15
   Initiating and exiting Hibernation ........................................................................... 16
   Using power plans ................................................................................................... 16
   Viewing the current power plan ............................................................................ 16
   Selecting a different power plan ............................................................................ 16
   Customizing power plans ....................................................................................... 17
   Setting password protection upon exiting Sleep or Hibernation .......................... 17
   Using external AC power ......................................................................................... 17
   Connecting the AC adapter ..................................................................................... 18
   Using battery power .................................................................................................. 18
   Displaying the remaining battery charge ............................................................... 19
   Finding battery information in Help and Support ................................................... 19
   Using Battery Check ............................................................................................... 19
   Inserting or removing the battery .......................................................................... 19
   Charging a battery .................................................................................................... 20
   Maximizing battery discharge time ........................................................................ 21
Using preinstalled multimedia software ................................................................. 46
Installing multimedia software from the Internet .................................................. 46
Audio .......................................................................................................................... 47
  Connecting external audio devices ........................................................................ 47
  Checking your audio functions .............................................................................. 47
Video ......................................................................................................................... 48
  Connecting an external monitor or projector ....................................................... 48
Webcam ..................................................................................................................... 49

6 Security
  Protecting the computer .......................................................................................... 50
  Using passwords ........................................................................................................ 50
    Setting passwords in Windows ............................................................................ 51
    Setting passwords in Setup Utility ...................................................................... 51
      Administrator password ................................................................................... 52
        Managing an administrator password ......................................................... 52
        Entering an administrator password ............................................................. 52
      Power-on password .......................................................................................... 52
        Managing a power-on password ................................................................. 53
        Entering a power-on password ..................................................................... 53
  Using antivirus software ......................................................................................... 54
  Using firewall software .......................................................................................... 55
  Installing critical updates ......................................................................................... 56

7 Digital cards
  Inserting a digital card ............................................................................................. 57
  Removing a digital card ............................................................................................ 58

8 USB devices
  Using a USB device .................................................................................................. 59
  Connecting a USB device ......................................................................................... 59
  Removing a USB device ............................................................................................ 59

9 Pointing devices and keyboard
  Setting pointing device preferences ....................................................................... 61
  Using the TouchPad .................................................................................................. 61
    Scrolling ................................................................................................................ 61
    Pinching .................................................................................................................. 62
  Connecting an external mouse ............................................................................... 62
  Using the keyboard .................................................................................................. 63
    Using the action keys ............................................................................................ 63
    Using hotkeys ........................................................................................................ 64

10 Drives
  Identifying installed drives ...................................................................................... 66
  Handling drives ......................................................................................................... 66
  Using external drives ................................................................................................. 67
    Using optional external devices ............................................................................ 68
11 Memory modules

12 Updating software
   Updating the BIOS .................................................................................................................. 73
   Determining the BIOS version ......................................................................................... 73
   Downloading a BIOS update ......................................................................................... 73
   Updating programs and drivers ..................................................................................... 75

13 Changing QuickWeb settings
   Disabling and enabling QuickWeb .................................................................................... 76

14 Setup Utility
   Starting Setup Utility ............................................................................................................. 77
   Using Setup Utility ............................................................................................................... 77
   Changing the language of Setup Utility .......................................................................... 77
   Navigating and selecting in Setup Utility ........................................................................ 77
   Displaying system information ....................................................................................... 78
   Restoring default settings in Setup Utility ....................................................................... 78
   Exiting Setup Utility ......................................................................................................... 78
   Setup Utility menus .......................................................................................................... 79
   Main menu ....................................................................................................................... 79
   Security menu .................................................................................................................. 79
   System Configuration menu ........................................................................................... 79
   Diagnostics menu ............................................................................................................. 80

Index .......................................................................................................................................... 81
Your computer’s main operating system is Microsoft® Windows®. Your computer may also feature HP QuickWeb (select models only).

- The Microsoft Windows operating system displays the desktop on the display and controls your computer's hardware, peripherals, and software programs.

- If your computer includes QuickWeb, it allows you to quickly browse the Web, view digital photos, listen to music, or keep in touch using e-mail, instant messages, or Skype, without having to start your main operating system. QuickWeb is also referred to as Instant-On Software (IOS).

**NOTE:** To disable or enable QuickWeb, refer to the "Changing QuickWeb settings" chapter later in this guide. You can access the QuickWeb software Help by clicking the **Help** icon in the notification area.
Using HP QuickWeb (select models only)

To start QuickWeb:

1. Turn on your computer. The HP QuickWeb Home screen appears.

2. Click an icon (select models only) on the QuickWeb Home screen or click an icon on the LaunchBar to start a program.

   **NOTE:** If QuickWeb has been activated, it starts every time you turn on your computer and displays an automatic timer above the **Start Windows** icon. If you do not move your mouse or press a key for 15 seconds, the computer starts Microsoft Windows. For more information on the QuickWeb timer and changing the timer settings, refer to the HP QuickWeb software Help.

To start QuickWeb from Microsoft Windows:

  ▲ Click **Start**, click the arrow next to the Shut down button, and then click **Restart**. Your computer restarts and displays the HP QuickWeb Home screen.

  – or –

  Select **Start > All Programs > HP QuickWeb**. Click **HP QuickWeb Configuration Tool**. Click the **Home** tab, and then select the **Go** button located next to **Do you want to shut down Windows and go to QuickWeb?**

   **NOTE:** To learn more about HP QuickWeb, refer to the QuickWeb software Help.
2 Knowing the parts

Identifying the hardware

Components included with the computer may vary by region and model. The illustrations in this chapter identify the standard features on most computer models.

To see a list of hardware installed in the computer:

▲ Select Start > Control Panel > System and Security. Click System, and then click Device Manager.

You can also add hardware or modify computer configurations using Device Manager.

Top components

TouchPad

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) TouchPad off indicator</td>
<td>Turns the TouchPad on and off. Quickly double-tap the TouchPad off indicator to turn the TouchPad on and off.</td>
</tr>
<tr>
<td>(2) Left TouchPad button*</td>
<td>Functions like the left button on an external mouse.</td>
</tr>
<tr>
<td>(3) Right TouchPad button*</td>
<td>Functions like the right button on an external mouse.</td>
</tr>
</tbody>
</table>
### Lights

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>TouchPad off indicator</td>
</tr>
<tr>
<td></td>
<td>- On: The TouchPad is off.</td>
</tr>
<tr>
<td></td>
<td>- Off: The TouchPad is on.</td>
</tr>
<tr>
<td>(2)</td>
<td>Caps lock light</td>
</tr>
<tr>
<td></td>
<td>On: Caps lock is on.</td>
</tr>
<tr>
<td>(3)</td>
<td>Mute light</td>
</tr>
<tr>
<td></td>
<td>On: Speaker sound is off.</td>
</tr>
<tr>
<td>(4)</td>
<td>Wireless light</td>
</tr>
<tr>
<td></td>
<td>- White: An integrated wireless device, such as a wireless local area network (WLAN) device and/or a Bluetooth® device, is on.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> Wireless devices are enabled at the factory.</td>
</tr>
<tr>
<td></td>
<td>- Off: All wireless devices are off.</td>
</tr>
</tbody>
</table>
## Keys

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Action keys</td>
<td>Execute frequently used system functions.</td>
</tr>
<tr>
<td>(2) fn key</td>
<td>Executes frequently used system functions when pressed in combination with a function key or the esc key.</td>
</tr>
<tr>
<td>(3) Windows® logo key</td>
<td>Displays the Windows Start menu.</td>
</tr>
<tr>
<td>(4) Windows applications key</td>
<td>Displays a shortcut menu for items beneath the pointer.</td>
</tr>
</tbody>
</table>

### Front components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speakers (2)</td>
<td>Produce sound.</td>
</tr>
</tbody>
</table>
## Right-side components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| (1) Digital Media Slot | Supports the following optional digital card formats:  
  - Memory Stick (MS)  
  - MS/Pro  
  - MultiMediaCard (MMC)  
  - Secure Digital High Capacity (SDHC) Memory Card (standard and large size)  
  - xD-Picture card |
| (2) Power light |  
  - White: The computer is on.  
  - Blinking white: The computer is in the Sleep state.  
  - Off: The computer is off or in Hibernation. |
| (3) Power switch |  
  - When the computer is off, slide the switch to turn on the computer.  
  - When the computer is on, briefly slide the switch to initiate Sleep.  
  - When the computer is in the Sleep state, briefly slide the switch to exit Sleep.  
  - When the computer is in Hibernation, briefly slide the switch to exit Hibernation.  
  
  If the computer has stopped responding and Windows shutdown procedures are ineffective, slide and hold the power switch for at least five seconds to turn off the computer.  
  
  To learn more about your power settings, select **Start > Control Panel > System and Security > Power Options**. |
| (4) Vent | Enables airflow to cool internal components.  
  
  **NOTE:** 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) USB ports (2) | Connect optional USB devices. |
Component Description

(6) RJ-45 (network) jack and cover
Connects a network cable.

(7) Security cable slot
Attaches an optional security cable to the computer.

NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

---

**Left-side components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Power connector</td>
<td>Connects an AC adapter.</td>
</tr>
</tbody>
</table>

- Off: The computer is running on battery power.
- Blinking white: The battery has reached a low battery level, a critical battery level, or there is a battery error. When the battery reaches a critical battery level, the battery light begins blinking rapidly.
- Amber: A battery is charging.
- White: The computer is connected to external power and the battery is fully charged.

(2) Battery light

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blinking white</td>
<td>The battery has reached a low battery level, a critical battery level, or there is a battery error. When the battery reaches a critical battery level, the battery light begins blinking rapidly.</td>
</tr>
<tr>
<td>Amber</td>
<td>A battery is charging.</td>
</tr>
<tr>
<td>White</td>
<td>The computer is connected to external power and the battery is fully charged.</td>
</tr>
</tbody>
</table>

(3) External monitor port
Connects an optional external display, such as a monitor or projector, to the computer.

(4) Vent
Enables airflow to cool internal components.

NOTE: 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) Drive light

- Blinking white: The hard drive is being accessed.
- Amber (select models only): HP ProtectSmart Hard Drive Protection has temporarily parked the hard drive.
### Component Description

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(6) USB port</td>
<td>Connects an optional USB device.</td>
</tr>
</tbody>
</table>
| (7) Audio-out (headphone) jack/Audio-in (microphone) jack | Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone.  
**NOTE:** When an audio component is connected to the jack, the computer speakers are disabled.  
The audio component cable must have a 4-conductor connector. |

### Display components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| (1) Internal display switch | Initiates Sleep if the display is closed while the power is on.  
**NOTE:** The display switch is not visible from the outside of the computer. |
| (2) Webcam light | On: The webcam is in use. |
### Component Description

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
</table>
| (3) Webcam | Records video and captures still photographs.  
**NOTE:** To capture and edit videos, you can use the preinstalled Arcsoft WebCam Companion 3 software. |
| (4) Internal microphone | Records sound. |

### Bottom components

1. **Battery release latches** (2)  
   Release the battery from the battery bay and lock the battery in the battery bay.  
**NOTE:** For more information, refer to the section “Inserting or removing the battery,” later in this guide.

2. **Battery bay**  
   Holds the battery.

### Removing the vanity cover

Removing the vanity cover allows access to the memory module compartment, SIM card insertion slot, regulatory label, and other important components. To remove the vanity cover:

1. Disconnect the computer from AC power.
2. Remove the battery.

**NOTE:** For more information, refer to the section “Inserting or removing the battery,” later in this guide.
3. Press the right release button (1).

4. Release the right side of the vanity cover (2) by lifting it slightly away from the base.

NOTE: It is normal for the vanity cover to flex slightly and you may also hear some popping noises when the vanity cover tabs disengage from the base.

5. Press the left release button (1).

6. Release the left side of the vanity cover (2) by lifting it slightly away from the base.
7. Lift the bottom edge of the vanity cover (1) at an angle, and then lift the vanity cover away from the base (2).

Replacing the vanity cover

Replace the vanity cover after accessing the memory module compartment, SIM card insertion slot, regulatory label, and other important components. To replace the vanity cover:

1. Place the vanity cover (1) above the computer at an angle with the front edge facing the front of the computer.

2. Seat the back edge of the vanity cover over the back edge of the computer by aligning, and then inserting the six tabs into the slots in the base (2).
3. Rotate the front edge (1) of the vanity cover down, and then firmly press the vanity cover onto the base of the computer until it snaps into place (2).

4. Replace the battery.

NOTE: For more information, refer to the section “Inserting or removing the battery,” later in this guide.

Wireless antennas

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) WWAN antennas (2) (select models only)*</td>
<td>Send and receive wireless signals to communicate with wireless wide-area networks (WWANs).</td>
</tr>
<tr>
<td>(2) WLAN antennas (2)*</td>
<td>Send and receive wireless signals to communicate with wireless local-area networks (WLANs).</td>
</tr>
</tbody>
</table>

*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, refer to the section of the *Regulatory, Safety and Environmental Notices* that applies to your country or region. These notices are located in Help and Support.

**Additional hardware components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Power cord*</td>
<td>Connects an AC adapter to an AC outlet.</td>
</tr>
<tr>
<td>(2) AC adapter</td>
<td>Converts AC power to DC power.</td>
</tr>
<tr>
<td>(3) Battery*</td>
<td>Powers the computer when the computer is not plugged into external power.</td>
</tr>
</tbody>
</table>

*Batteries and power cords vary in appearance by region and country.*

**Identifying the 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 that you may need when contacting technical support. The serial number label is affixed inside the battery bay.

<table>
<thead>
<tr>
<th>Component</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Product name</td>
</tr>
</tbody>
</table>
## Component

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(2)</td>
<td>Serial number</td>
</tr>
<tr>
<td>(3)</td>
<td>Product number</td>
</tr>
<tr>
<td>(4)</td>
<td>Warranty period</td>
</tr>
<tr>
<td>(5)</td>
<td>Model description (select models)</td>
</tr>
</tbody>
</table>

- 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 battery bay.

- Wireless certification label(s) (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 to the bottom of the computer.

- SIM (subscriber identity module) label (select models only)—Provides the ICCID (Integrated Circuit Card Identifier) of your SIM. This label is located inside the battery bay.

- HP Mobile Broadband Module serial number label (select models only)—Provides the serial number of your HP Mobile Broadband Module. This label is located inside the battery bay.
3  Power management

Setting power options

Using power-saving states

The computer has two power-saving states enabled at the factory: Sleep and Hibernation.

When Sleep is initiated, the power light blinks and the screen clears. Your work is saved to memory, letting you exit the Sleep state faster than exiting Hibernation. If the computer is in the Sleep state for an extended period or if the battery reaches a critical battery level while in the Sleep state, the computer initiates Hibernation.

When Hibernation is initiated, your work is saved to a hibernation file on the hard drive and the computer turns off.

⚠️ CAUTION: To prevent possible audio and video degradation, loss of audio or video playback functionality, or loss of information, do not initiate Sleep or Hibernation while reading from or writing to a disc or an external media card.

ernote: You cannot initiate any type of networking connection or perform any computer functions while the computer is in the Sleep state or in Hibernation.

Initiating and exiting Sleep

The system is set at the factory to initiate Sleep after 15 minutes of inactivity when running on battery power and 30 minutes of inactivity when running on external power.

Power settings and timeouts can be changed using Power Options in Windows Control Panel.

With the computer on, you can initiate Sleep in any of the following ways:

- Briefly slide the power switch.
- Close the display.
- Click Start, click the arrow next to the Shut down button, and then click Sleep.

You can exit Sleep in any of the following ways:

- Briefly slide the power switch.
- If the display is closed, open the display and activate the TouchPad.
- Press a key on the keyboard.

When the computer exits Sleep, the power light turns on and your work returns to the screen where you stopped working.
NOTE: If you have set a password to be required when the computer exits Sleep, you must enter your Windows password before your work returns to the screen.

Initiating and exiting Hibernation

Power settings and timeouts can be changed using Power Options in Windows Control Panel.

To initiate Hibernation:

▲ Click Start, click the arrow next to the Shut down button, and then click Hibernate.

To exit Hibernation:

▲ Briefly slide the power switch.

When the computer exits Hibernation, the power light turns on and your work returns to the screen where you stopped working.

NOTE: If you have set a password to be required when the computer exits Hibernation, you must enter your Windows password before your work returns to the screen.

Using power plans

A power plan is a collection of system settings that manages how the computer uses power. Power plans can help you conserve power and maximize computer performance.

The following power plans are available:

● HP recommended
● High performance
● Power saver

You can change the settings of these power plans through Power Options.

Viewing the current power plan

▲ Click the Battery Meter icon in the notification area, at the far right of the taskbar.

– or –

Select Start > Control Panel > System and Security > Power Options.

Selecting a different power plan

▲ Click the Battery Meter icon in the notification area, and then select a power plan from the list.

– or –

Select Start > Control Panel > System and Security > Power Options, and then select a power plan from the list.
Customizing power plans

1. Click the Battery Meter icon in the notification area and then click Power options.

   – or –

   Select Start > Control Panel > System and Security > Power Options.

2. Select a power plan, and then click Change plan settings.

3. Change the settings as needed.

4. To change additional settings, click Change advanced power settings and make your changes.

Setting password protection upon exiting Sleep or Hibernation

To set the computer to prompt for a password when the computer exits Sleep or Hibernation, follow these steps:


2. In the left pane, click Require a password on wakeup.

3. Click Change Settings that are currently unavailable.

4. Click Require a password (recommended).

5. Click Save changes.

Using external AC power

External AC power is supplied through an approved AC adapter.

⚠️ WARNING! To reduce potential safety issues, use only the AC adapter provided with the computer, a replacement AC adapter provided by HP, or a compatible AC adapter purchased from HP.

Connect the computer to external AC power under any of the following conditions:

⚠️ WARNING! Do not charge the battery while you are onboard aircraft.

- When you are charging or calibrating a battery
- When you are installing or modifying system software
- When you are writing information to a CD or DVD

When you connect the computer to external AC power, the following events occur:

- The battery begins to charge.
- If the computer is turned on, the Battery Meter icon in the notification area changes appearance.

When you disconnect external AC power, the following events occur:

- The computer switches to battery power.
- The display brightness is automatically decreased to save battery life. Press the F3 action key to increase brightness or reconnect the AC adapter.
Connecting the AC adapter

⚠️ **WARNING!** To reduce the risk of electric shock or damage to the equipment:

- Plug the power cord into an AC outlet that is easily accessible at all times.
- Disconnect power from the computer by unplugging the power cord from the AC outlet (not by unplugging the power cord from the computer).
- If provided with a 3-pin attachment plug on the power cord, plug the cord into a grounded (earthed) 3-pin outlet. Do not disable the power cord grounding pin, for example, by attaching a 2-pin adapter. The grounding pin is an important safety feature.

To connect the computer to external AC power, follow these steps:

1. Plug the AC adapter into the power connector (1) on the computer.
2. Plug the power cord into the AC adapter (2).
3. Plug the other end of the power cord into an AC outlet (3).

Using battery power

When a charged battery is in the computer and the computer is not plugged into external power, the computer runs on battery power. When the computer is plugged into external AC power, the computer runs on AC power.

If the computer contains a charged battery and is running on external AC power supplied through the AC adapter, the computer switches to battery power if the AC adapter is disconnected from the computer.

**NOTE:** The display brightness is decreased to save battery life when you disconnect AC power. To increase brightness, use the F3 action key or reconnect the AC adapter.

You can keep a battery in the computer or in storage, depending on how you work. Keeping the battery in the computer whenever the computer is plugged into AC power charges the battery and also protects your work in case of a power outage. However, a battery in the computer slowly discharges when the computer is off and unplugged from external power.
To reduce potential safety issues, use only the battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

Battery life varies, depending on power management settings, programs running on the computer, display brightness, external devices connected to the computer, and other factors.

Displaying the remaining battery charge

Move the pointer over the Battery Meter icon in the notification area, at the far right of the taskbar.

Finding battery information in Help and Support

Help and Support provides the following tools and information about the battery:

- Battery Check tool to test battery performance
- Information on calibration, power management, and proper care and storage to maximize battery life
- Information on battery types, specifications, life cycles, and capacity

To access battery information:


Using Battery Check

Help and Support provides information on the status of the battery installed in the computer.

To run Battery Check:

1. Connect the AC adapter to the computer.

   **NOTE:** The computer must be connected to external power for Battery Check to function properly.

2. Select Start > Help and Support > Troubleshoot > Power, Thermal and Mechanical.

3. Click the Power tab, and then click Battery Check.

Battery Check examines the battery and its cells to see if they are functioning properly, and then reports the results of the examination.

Inserting or removing the battery

**CAUTION:** Removing a battery that is the sole power source may 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.

To insert the battery:

1. Turn the computer upside down on a flat surface.
2. Align the tabs on the battery with the notches on the computer, and then insert the battery into the battery bay. The battery release latches automatically lock the battery into place.

To remove the battery:

1. Turn the computer upside down on a flat surface.
2. Slide the battery release latches (1) to release the battery, and then remove the battery (2).

Charging a battery

⚠️ **WARNING!** Do not charge the computer battery while you are onboard aircraft.

The battery charges whenever the computer is plugged into external power through an AC adapter.

The battery charges whether the computer is off or in use, but it charges faster when the computer is off.
Charging may take longer if a battery is new, has been unused for 2 weeks or more, or is much warmer or cooler than room temperature.

To prolong battery life and optimize the accuracy of battery charge displays, follow these recommendations:

- If you are charging a new battery, charge it fully before turning on the computer.
- Charge the battery until the battery light turns white.

**NOTE:** If the computer is on while the battery is charging, the Battery Meter icon in the notification area may show 100 percent charge before the battery is fully charged.

- Allow the battery to discharge below 5 percent of a full charge through normal use before charging it.
- If the battery has been unused for one month or more, calibrate the battery instead of simply charging it.

The battery light displays charge status:

- Off: The computer is running on battery power.
- Blinking white: The battery has reached a low battery level, a critical battery level, or there is a battery error. When the battery reaches a critical battery level, the battery light begins blinking rapidly.
- Amber: A battery is charging.
- White: The computer is connected to external power and the battery is fully charged.

**Maximizing battery discharge time**

Battery discharge time varies depending on the features you use while on battery power. Maximum discharge time gradually shortens, as the battery storage capacity naturally degrades.

Tips for maximizing battery discharge time:

- Decrease the brightness on the display.
- Remove the battery from the computer when it is not being used or charged.
- Store the battery in a cool, dry location.

**Managing low battery levels**

The information in this section describes the alerts and system responses set at the factory. Some low-battery alerts and system responses can be changed using Power Options in Windows Control Panel. Preferences set using Power Options do not affect lights.

**Identifying low battery levels**

When a battery that is the sole power source for the computer reaches a low battery level, the battery light blinks.

If a low battery level is not resolved, the computer enters a critical battery level, and the battery light blinks rapidly.
The computer takes the following actions for a critical battery level:

- If Hibernation is enabled and the computer is on or in Sleep, the computer initiates Hibernation.
- If Hibernation is disabled and the computer is on or in Sleep, the computer remains briefly in Sleep, and then shuts down and loses any unsaved information.

Resolving a low battery level

△ **CAUTION:** To reduce the risk of losing information when the computer reaches a critical battery level and has initiated Hibernation, do not restore power until the power light turns off.

Resolving a low battery level when external power is available

▲ Connect to an approved AC adapter.

Resolving a low battery level when a charged battery is available

1. Turn off the computer or initiate Hibernation.
2. Remove the discharged battery, and then insert a charged battery.
3. Turn on the computer.

Resolving a low battery level when no power source is available

▲ Initiate Hibernation.

- or -

Save your work and shut down the computer.

Resolving a low battery level when the computer cannot exit Hibernation

When the computer lacks sufficient power to exit Hibernation, follow these steps:

1. Insert a charged battery or plug the computer into external power.
2. Exit Hibernation by briefly sliding the power switch.

Calibrating a battery

Calibrate a battery under the following conditions:

- When battery charge displays seem inaccurate
- When you observe a significant change in battery run time

Even if a battery is heavily used, it should not need to be calibrated more than once a month. It is also not necessary to calibrate a new battery.

Step 1: Fully charge the battery

△ **WARNING!** Do not charge the computer battery while you are onboard aircraft.

☞ **NOTE:** The battery charges whether the computer is off or in use, but it charges faster when the computer is off.
To fully charge the battery:

1. Insert the battery into the computer.
2. Connect the computer to an AC adapter and then plug the adapter into external power.
   The battery light on the computer turns amber.
3. Leave the computer plugged into external power until the battery is fully charged.
   The battery light on the computer turns white.

**Step 2: Disable Hibernation and Sleep**

1. Click the **Battery Meter** icon in the notification area, and then click **Power options**.
   – or –
   Select **Start > Control Panel > System and Security > Power Options**.
2. Under the current power plan, click **Change plan settings**.
3. Record the **Turn off the display** settings listed in the **On battery** column so that you can reset them after the calibration.
4. Change the **Turn off the display** settings to **Never**.
5. Click **Change advanced power settings**.
6. Click the plus sign next to **Sleep**, and then click the plus sign next to **Hibernate after**.
7. Record the **On battery** setting under **Hibernate after** so that you can reset it after the calibration.
8. Change the **On battery** setting to **Never**.
9. Click **OK**.
10. Click **Save changes**.

**Step 3: Discharge the battery**

The computer must remain on while the battery is being discharged. The battery can discharge whether or not you are using the computer, but the battery discharges faster while you are using it.

- If you plan to leave the computer unattended during the discharge, save your information before beginning the discharge procedure.
- If you use the computer occasionally during the discharge procedure and have set energy-saving timeouts, expect the following performance from the system during the discharge process:
  - The monitor does not turn off automatically.
  - Hard drive speed does not decrease automatically when the computer is idle.
  - System-initiated Hibernation does not occur.
To discharge a battery:

1. Unplug the computer from its external power source, but do not turn off the computer.

2. Run the computer on battery power until the battery is discharged. The battery light begins to blink white when the battery has discharged to a low battery level. When the battery is discharged, the battery light turns off and the computer shuts down.

Step 4: Fully recharge the battery

To recharge the battery:

1. Plug the computer into external power and maintain external power until the battery is fully recharged. When the battery is recharged, the battery light on the computer turns white.

   You can use the computer while the battery is recharging, but the battery charges faster if the computer is off.

2. If the computer is off, turn it on when the battery is fully charged and the battery light has turned white.

Step 5: Enable Hibernation and Sleep

⚠️ CAUTION: Failure to enable Hibernation after calibration may result in a full battery discharge and information loss if the computer reaches a critical battery level.

1. Click the Battery Meter icon in the notification area, and then click Power options.

   – or –

   Select Start > Control Panel > System and Security > Power Options.

2. Under the current power plan, click Change plan settings.

3. Reenter the settings that you recorded for the items in the On battery column.

4. Click Change advanced power settings.

5. Click the plus sign next to Sleep, and then click the plus sign next to Hibernate after.

6. Reenter the setting that you recorded for On battery.

7. Click OK.

8. Click Save changes.

Conserving battery power

- Select the Power saver power plan through Power Options under System and Security in Windows Control Panel.

- Turn off wireless and local area network (LAN) connections and exit modem applications when you are not using them.

- Disconnect external devices that are not plugged into an external power source, when you are not using them.

- Stop, disable, or remove any external media cards that you are not using.
• Use the f2 and f3 action keys to adjust screen brightness as needed.
• If you leave your work, initiate Sleep or Hibernation, or shut down the computer.

**Storing a battery**

⚠ **CAUTION:** To prevent damage to a battery, do not expose it to high temperatures for extended periods of time.

If a computer is unused and unplugged from external power for more than 2 weeks, remove the battery and store it separately.

To prolong the charge of a stored battery, place it in a cool, dry place.

**NOTE:** A stored battery should be checked every 6 months. If the capacity is less than 50 percent, recharge the battery before returning it to storage.

Calibrate a battery before using it if it has been stored for one month or more.

**Disposing of a used battery**

⚠ **WARNING!** To reduce the risk of fire or burns, do not disassemble, crush, or puncture; do not short external contacts; do not dispose of in fire or water.

Refer to the *Regulatory, Safety and Environmental Notices* for battery disposal information.

**Shutting down the computer**

⚠ **CAUTION:** Unsaved information will be lost when the computer is shut down.

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

Shut down the computer under any of the following conditions:

• When you need to replace the battery or access components inside the computer
• When you are connecting an external hardware device that does not connect to a USB port
• When the computer is unused and disconnected from external power for an extended period

Although you can shut down the computer with the power switch, the recommended procedure is to use the Windows Shut down command.

To shut down the computer, follow these steps:

**NOTE:** If the computer is in the Sleep state or in Hibernation, you must first exit Sleep or Hibernation before shut down is possible.

1. Save your work and close all open programs.
2. Click **Start**.
3. Click **Shut down**.
If the computer is unresponsive and you are unable to use the preceding shut down procedures, try the following emergency procedures in the sequence provided:

- Press `ctrl+alt+delete`, and then click the **Power** button.
- Slide and hold the power switch for at least 5 seconds.
- Disconnect the computer from external power and remove the battery.
Your computer supports the following types of Internet access:

- **Wired**—You can access the Internet by connecting to a broadband network using the RJ-45 (network) jack.

- **Wireless**—For mobile Internet access, you can use a wireless connection. To learn about setting up a wireless network or adding your computer to an existing network, refer to the “Connecting to a wireless network” section.
Connecting to a wired network

Connecting to a local area network (LAN) requires an 8-pin, RJ-45 network cable (purchased separately). If the network cable contains noise suppression circuitry (1), which prevents interference from TV and radio reception, orient the circuitry end of the cable (2) toward the computer.

To connect the network cable:

⚠️ **WARNING!** To reduce the risk of electric shock, fire, or damage to the equipment, do not plug a modem cable or telephone cable into an RJ-45 (network) jack.

1. Plug the network cable into the network jack (1) on the computer.
2. Plug the other end of the cable into a network wall jack (2).
Connecting to a wireless network

Using wireless devices

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 (select models only)**—Connects the computer to wireless local area networks (commonly referred to as Wi-Fi networks, wireless LANs, or WLANs) in corporate offices, your home, and public places such as airports, restaurants, coffee shops, hotels, and universities. In a WLAN, each mobile wireless device communicates with a wireless router or a wireless access point.

- **HP Mobile Broadband Module (select models only)**—A wireless wide area network (WWAN) device that provides access to information wherever mobile network operator service is available. In a WWAN, each mobile device communicates to a mobile network operator’s base station. Mobile network operators install networks of base stations (similar to cell phone towers) throughout large geographic areas, effectively providing coverage across entire states, regions, or even countries.

- **Bluetooth® device (select models only)**—Creates a personal area network (PAN) to connect to other Bluetooth-enabled devices such as computers, phones, printers, headsets, speakers, and cameras. In a PAN, each device communicates directly with other devices, and devices must be relatively close together—typically within 10 meters (approximately 33 feet) of each other.

The computer supports the following IEEE industry standards:

- **802.11a** supports data rates of up to 54 Mbps and operates at a frequency of 5 GHz.

- **802.11b**, the first popular standard, supports data rates of up to 11 Mbps and operates at a frequency of 2.4 GHz.

- **802.11g** supports data rates of up to 54 Mbps and operates at a frequency of 2.4 GHz. An 802.11g WLAN device is backward compatible with 802.11b devices, so they can operate on the same network.

- **802.11n** supports data rates of up to 600 Mbps and operates at a frequency of 2.4 and/or 5 GHz. An 802.11n WLAN device is backward compatible with 802.11a, 802.11b, and 802.11g devices, so they can operate on the same network.

For more information on wireless technology, refer to the information and Web site links provided in Help and Support.

### Identifying wireless and network icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Wireless icon" /></td>
<td>Wireless (connected)</td>
<td>Identifies the location of the wireless light and the wireless action key on the computer. Also identifies the Wireless Assistant software on the computer and indicates that one or more of the wireless devices are on.</td>
</tr>
<tr>
<td><img src="image" alt="Wireless icon" /></td>
<td>Wireless (disconnected)</td>
<td>Identifies the Wireless Assistant software on the computer and indicates that all of the wireless devices are off.</td>
</tr>
<tr>
<td>Icon</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><img src="image1.png" alt="Icon" /></td>
<td>HP Connection Manager</td>
<td>Opens HP Connection Manager, which enables you to create a connection with an HP Mobile Broadband device (select models only).</td>
</tr>
<tr>
<td><img src="image2.png" alt="Icon" /></td>
<td>Wired network (connected)</td>
<td>Indicates that one or more of your network drivers are installed and one or more network devices are connected to the network.</td>
</tr>
<tr>
<td><img src="image3.png" alt="Icon" /></td>
<td>Network (connected)</td>
<td>Indicates that one or more of your network drivers are installed, one or more network devices are connected to a wireless network, and one or more network devices may be connected to a wired network.</td>
</tr>
<tr>
<td><img src="image4.png" alt="Icon" /></td>
<td>Network (disabled/disconnected)</td>
<td>Indicates that one or more of your network drivers are installed, no wireless connections are available or all wireless network devices are disabled by the wireless action key or Wireless Assistant, and no network devices are connected to a wired network.</td>
</tr>
<tr>
<td><img src="image5.png" alt="Icon" /></td>
<td>Network (disconnected)</td>
<td>Indicates that one or more of your network drivers are installed and wireless connections are available, but no network devices are connected to a wired or wireless network.</td>
</tr>
<tr>
<td><img src="image6.png" alt="Icon" /></td>
<td>Wired network (disabled/disconnected)</td>
<td>Indicates that one or more of your network drivers are installed, all network devices or all wireless devices are disabled in Windows® Control Panel, and no network devices are connected to a wired network.</td>
</tr>
</tbody>
</table>

**Using the wireless controls**

You can control the wireless devices in your computer using these features:

- The f12 wireless action key
- HP Connection Manager software (select models only)
- Wireless Assistant software (select models only)
- Operating system controls

**Using the wireless action key**

The computer has a wireless action key (f12), one or more wireless devices, and one wireless light. All of the wireless devices on your computer are enabled at the factory.

The wireless light indicates the overall power state of your wireless devices, not the status of individual devices. If the wireless light is white, at least one wireless device is on. If the wireless light is off, all wireless devices are off.

Because the wireless devices are enabled at the factory, you can use the wireless action key (f12) to turn on or turn off all of the wireless devices simultaneously.

**Using HP Connection Manager (select models only)**

You can use HP Connection Manager to connect to WWANs using the HP Mobile Broadband device in your computer (select models only).

▲ To start Connection Manager, click the **Connection Manager** icon in the notification area, at the far right of the taskbar.
Select Start > All Programs > HP > HP Connection Manager.

For more details about using Connection Manager, refer to the Connection Manager software Help.

Using HP Wireless Assistant software (select models only)

A wireless device can be turned on or off using the Wireless Assistant software. If a wireless device is disabled by Setup Utility, it must be enabled by Setup Utility before it can be turned on or off using Wireless Assistant.

**NOTE:** Enabling or turning on a wireless device does not automatically connect the computer to a network or a Bluetooth-enabled device.

To view the state of the wireless devices, click the Show hidden icons icon, the arrow at the left of the notification area, and position the mouse pointer over the wireless icon.

If the wireless icon is not displayed in the notification area, complete the following steps to change Wireless Assistant properties:

1. Select Start > Control Panel > Network and Internet > HP Wireless Assistant.
2. Click Properties.
3. Select the check box next to HP Wireless Assistant icon in notification area.
4. Click Apply.
5. Click Close.

For more information, refer to the Wireless Assistant software Help:

1. Open Wireless Assistant by double-clicking the icon in the notification area.
2. Click the Help button.

You can use the properties dialog box in Wireless Assistant to show the on/off controls for each installed wireless device and control the devices separately. To show the on/off controls:

1. Double-click the Wireless Assistant icon in the notification area, at the far right of the taskbar.
2. Click Properties.
3. Select the Independent controls for installed wireless devices check box, and then click Apply.
4. Click Turn off or Turn on to control each wireless device separately.

Using operating system controls

Some operating systems also offer a way to manage integrated wireless devices and the wireless connection. For example, Windows provides the Network and Sharing Center that allows you to set up a connection or network, connect to a network, manage wireless networks, and diagnose and repair network problems.

To access the Network and Sharing Center, select Start > Control Panel > Network and Sharing Center.

For more information, select Start > Help and Support.
Using a WLAN

With a WLAN device, you can access a wireless local area network (WLAN), which is composed of other devices and accessories that are linked by a wireless router or a wireless access point.

**NOTE:** The terms *wireless router* and *wireless access point* are often used interchangeably.

- A large-scale WLAN, such as a corporate or public WLAN, typically uses wireless access points that can accommodate a large number of devices and accessories and can separate critical network functions.
- A home or small office WLAN typically uses a wireless router, which allows several wireless and wired devices to share an Internet connection, a printer, and files without requiring additional pieces of hardware or software.

To use the WLAN device in your computer, you must connect to a WLAN infrastructure (provided through a service provider or a public or corporate network).

Setting up a WLAN

To set up a WLAN and connect to the Internet, you need the following 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)
- Computer equipped with a wireless device (3)

The illustration below shows an example of a wireless network installation that is connected to the Internet.

As your network grows, additional wireless and wired devices can be connected to the network to access the Internet.

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

Protecting your WLAN

It is essential to understand that because the WLAN standard was designed with only limited security capabilities—basically to foil casual eavesdropping rather than more powerful forms of attack—WLANs are vulnerable to well-known and well-documented security weaknesses.

WLANs in public areas, or “hotspots,” like coffee shops and airports may not provide any security. New technologies are being developed by wireless manufacturers and hotspot service providers that make the public environment more secure and anonymous. If you are concerned about the security of your computer in a hotspot, limit your network activities to noncritical e-mail and basic Internet surfing.
When you set up a WLAN or access an existing WLAN, always enable security features to protect your network from unauthorized access. The common security levels are Wi-Fi Protected Access (WPA)-Personal and Wired Equivalent Privacy (WEP). Because wireless radio signals travel outside the network, other WLAN devices can pick up unprotected signals and either connect to your network (uninvited) or capture information being sent across it. However, you can take precautions to protect your WLAN:

- **Use a wireless transmitter with built-in security**
  
  Many wireless base stations, gateways, or routers provide built-in security features such as wireless security protocols and firewalls. With the correct wireless transmitter, you can protect your network from the most common wireless security risks.

- **Work behind a firewall**
  
  A firewall is a barrier that checks both data and requests for data that are sent to your network, and discards any suspicious items. Firewalls are available in many varieties, both software and hardware. Some networks use a combination of both types.

- **Use wireless encryption**
  
  A variety of sophisticated encryption protocols is available for your WLAN. Find the solution that works best for your network security:
  
  - **Wired Equivalent Privacy (WEP)** is a wireless security protocol that encodes or encrypts all network data before it is transmitted using a WEP key. Usually, you can allow the network to assign the WEP key. Alternatively, you can set up your own key, generate a different key, or choose other advanced options. Without the correct key, others will not be able to use the WLAN.
  
  - **WPA (Wi-Fi Protected Access)**, like WEP, uses security settings to encrypt and decrypt data that is transmitted over the network. However, instead of using one static security key for encryptions as WEP does, WPA uses “temporal key integrity protocol” (TKIP) to dynamically generate a new key for every packet. It also generates different sets of keys for each device on the network.

**Connecting to a WLAN**

To connect to the WLAN, follow these steps:

1. Be sure that the WLAN device is on. If it is on, the wireless light is white. If the wireless light is off, press the f12 action key to turn on the wireless connection.

2. Click the network icon in the notification area, at the far right of the taskbar.

3. Select your WLAN from the list.

4. Click **Connect**.

   If the network is a security-enabled WLAN, you are prompted to enter a network security key, which is a security code. Type the code, and then click **OK** to complete the connection.

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

   **NOTE:** If you do not see the network you want to connect to, click **Open Network and Sharing Center**, and then click **Set up a new connection or network**. A list of options is displayed. You can choose to manually search for and connect to a network or to set up a new network connection.
After the connection is made, place the mouse pointer over the network icon in the notification area, at the far right of the taskbar, to verify the name and status of the connection.

**NOTE:** The functional range (how far your wireless signals travel) depends on WLAN implementation, router manufacturer, and interference from other electronic devices or structural barriers such as walls and floors.

More information about using a WLAN is available through the following resources:

- Information from your ISP and the manufacturer's instructions included with your wireless router and other WLAN equipment
- Information and Web site links provided in Help and Support

For a list of public WLANs near you, contact your ISP or search the Web. Web sites that list public WLANs include Cisco Internet Mobile Office Wireless Locations, Hotspotlist, and Geektools. Check with each public WLAN location for cost and connection requirements.

For additional information on connecting your computer to a corporate WLAN, contact your network administrator or IT department.

**Roaming to another network**

When you move your computer within range of another WLAN, Windows attempts to connect to that network. If the attempt is successful, your computer is automatically connected to the new network. If Windows does not recognize the new network, follow the same procedure you used initially to connect to your WLAN.
Using HP Mobile Broadband (select models only)

HP Mobile Broadband enables your computer to use wireless wide area networks (WWANs) to access the Internet from more places and over larger areas than it can by using WLANs. Using HP Mobile Broadband requires a network service provider (called a mobile network operator), which in most cases is a mobile phone network operator. Coverage for HP Mobile Broadband is similar to mobile phone voice coverage.

When used with mobile network operator service, HP Mobile Broadband gives you the freedom to stay connected to the Internet, send e-mail, or connect to your corporate network whether you are on the road or outside the range of Wi-Fi hotspots.

The activation requirements for Code Division Multiple Access (CDMA) and Global System for Mobile Communications (GSM) are different as CDMA requires an MEID and GSM requires a SIM plus the SIM information.

HP Mobile Broadband supports the following technologies:

- HSPA (High Speed Packet Access), which provides access to networks based on the GSM telecommunications standard.
  
  For HSPA service activation, you may need the HP Mobile Broadband Module International Mobile Equipment Identity (IMEI) number to activate mobile broadband service. The IMEI number is printed on a label inside the battery bay of your computer.
  
  HSPA mobile network operators require the use of a subscriber identity module (SIM). A SIM contains basic information about you, such as a personal identification number (PIN), as well as network information.
  
  Some computers include a SIM that is preinstalled in the battery bay. If the SIM is not preinstalled, it may be provided in the packet of HP Mobile Broadband information provided with your computer, or the mobile network operator may provide it separately from the computer.
  
  For information on inserting and removing the SIM, refer to the “Inserting a SIM” and “Removing a SIM” sections in this chapter.

- EV-DO (Evolution Data Optimized), which provides access to networks based on the CDMA telecommunications standard.

  You may need the HP Mobile Broadband Module Mobile Equipment Identifier (MEID) to activate mobile broadband service. The MEID is printed on a label inside the battery bay of your computer.
  
  For information on HP Mobile Broadband and how to activate service with a preferred mobile network operator, refer to the HP Mobile Broadband information included with your computer. For additional information, see the HP Web site at http://www.hp.com/go/mobilebroadband (U.S. only).

Inserting a SIM

**CAUTION:** When inserting a SIM, position the card with the slanted corner as shown in the illustration. If a SIM is inserted backwards or upside down, the battery may not snap into place properly and could damage the SIM and the SIM connector.

To prevent damage to the connectors, use minimal force when inserting a SIM.
To insert a SIM:

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

2. Close the display.

3. Disconnect all external devices connected to the computer.

4. Unplug the power cord from the AC outlet.

5. Turn the computer upside down on a flat surface, with the battery bay toward you.

6. Remove the battery.

    **NOTE:** For more information, refer to the section “Inserting and removing the battery,” earlier in this guide.

7. Insert the SIM into the SIM slot, and gently push the SIM into the slot until it is firmly seated.

8. Replace the battery.

    **NOTE:** If the battery is not replaced, HP Mobile Broadband is disabled.

9. Turn the computer right-side up, and then reconnect external power and external devices.

10. Turn on the computer.

**Removing a SIM**

To remove a SIM:

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

2. Close the display.

3. Disconnect all external devices connected to the computer.
4. Unplug the power cord from the AC outlet.

5. Turn the computer upside down on a flat surface, with the battery bay toward you.

6. Remove the battery.

7. Press in on the SIM, and then remove it from the slot.

8. Replace the battery.

**NOTE:** For more information, refer to the section “Inserting and removing the battery,” earlier in this guide.

9. Turn the computer right-side up, and then reconnect external power and external devices.

10. Turn on the computer.
Using GPS (select models only)

Your computer may be equipped with a Global Positioning System (GPS). GPS satellites deliver location, speed, and direction information to GPS-equipped systems. For more information, refer to the HP Connection Manager or HP Wireless Assistant software Help.
Using HP Navigator software (select models only)

HP Navigator software uses the GPS module (select models only) in your computer to display a map of your current location or another address. You can map a specific address, search for a restaurant, store, or other nearby business, display driving instructions, and listen to audible driving instructions.

To access HP Navigator:

1. Select Start > All Programs > HP > HP Navigator.

2. To search for a type of business, click Go To, and then click the icon for the type of business you are looking for.
   – or –

   To map an address or to get driving instructions, click Map, enter an address, and then follow the on-screen instructions.

⚠️ NOTE: To learn more about HP Navigator, refer to the HP Navigator software Help.
Using Bluetooth wireless devices (select models only)

A Bluetooth device provides short-range wireless communications that replace the physical cable connections that traditionally link electronic devices such as the following:

- Computers (desktop, notebook, PDA)
- Phones (cellular, smart phone)
- Imaging devices (printer, camera)
- Audio devices (headset, speakers)

Bluetooth devices provide peer-to-peer capability that allows you to set up a personal area network (PAN) of Bluetooth devices. For information on configuring and using Bluetooth devices, refer to the Bluetooth software Help.

Bluetooth and Internet Connection Sharing (ICS)

HP does not recommend setting up one computer with Bluetooth as a host and using it as a gateway through which other computers may connect to the Internet. When two or more computers are connected using Bluetooth, and Internet Connection Sharing (ICS) is enabled on one of the computers, the other computers may not be able to connect to the Internet using the Bluetooth network.

The strength of Bluetooth is in synchronizing information transfers between your Mini and wireless devices including cellular phones, printers, cameras, and PDAs. The inability to consistently connect two or more computers to share the Internet through Bluetooth is a limitation of Bluetooth and the Windows operating system.
5 Multimedia

Multimedia features

Your computer includes multimedia features that allow you to listen to music, watch movies, and view pictures. Your computer may include the following multimedia components:

- Integrated speakers for listening to music
- Integrated webcam that allows you to capture photographs and videos
- Preinstalled multimedia software that allows you to play and manage your music, movies, and pictures

The following sections explain how to identify and use the multimedia components included with your computer.

Identifying your multimedia components

The following illustration and table describe the multimedia features of the computer.
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Webcam light</td>
<td>On: The webcam is in use.</td>
</tr>
</tbody>
</table>
| (2) Webcam | Records video and captures still photographs.  
**NOTE:** To capture and edit videos, you can use the preinstalled Arcsoft WebCam Companion 3 software. |
| (3) Internal microphone | Records sound. |
| (4) Speakers (2) | Produce sound. |
| (5) Volume mute action key (f11) | Mutes or restores speaker sound. |
| (6) Volume up action key (f10) | Increases speaker volume. |
| (7) Volume down action key (f9) | Decreases speaker volume. |
| (8) Audio-out (headphone) jack/Audio-in (microphone) jack | Produces sound when connected to optional powered stereo speakers, headphones, earbuds, a headset, or television audio. Also connects an optional headset microphone.  
**WARNING:** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the *Regulatory, Safety and Environmental Notices.* |
### Adjusting the volume

You can adjust the volume using the following computer volume action keys:

- To decrease volume, press the volume down action key (f9) (1).
- To increase volume, press the volume up action key (f10) (2).
- To mute or restore volume, press the volume mute action key (f11) (3).

- Windows® volume control:
  
  a. Click the **Speakers** icon in the notification area, at the far right of the taskbar.
  b. Increase or decrease the volume by moving the slider up or down. Click the **Mute Speakers** icon to mute the volume.

  — or —

  a. Right-click the **Speakers** icon in the notification area, and then click **Open Volume Mixer**.
  b. In the Speakers column, increase or decrease the volume by moving the slider up or down. You can also mute the volume by clicking the **Mute Speakers** icon.

If the Speakers icon is not displayed in the notification area, follow these steps to add it:

a. Right-click the **Show hidden icons** icon (the arrow at far left of the notification area).

b. Click **Customize notification icons**.
c. Under Behaviors, select **Show icon and notifications** for the Speakers icon.

d. Click **OK**.

- **Program volume control:**

  Volume can also be adjusted within some programs.
Using the media activity action keys

The media activity action keys control the play of an audio CD or a DVD or BD that is inserted into an external optical drive (purchased separately).

**NOTE:** The external optical drive must be connected to a USB port on the computer, not to a USB port on another external device, such as a hub.

- When an audio CD or a DVD or BD is not playing, press the play/pause action key (f6) (2) to play the disc.
- When an audio CD or a DVD or BD is playing, use the following keys:
  - To play the previous track of an audio CD or the previous chapter of a DVD or BD, press the previous track action key (f5) (1).
  - To pause or resume playing the disc, press the play/pause action key (f6) (2).
  - To stop the disc, press the stop action key (f7) (3).
  - To play the next track of an audio CD or the next chapter of a DVD or BD, press the next track action key (f8) (4).

Multimedia software

Your computer includes preinstalled multimedia software. Depending on the hardware and software included with the computer, the following multimedia tasks may be supported:

- Playing digital media, including audio and video CDs, audio and video DVDs, and Internet radio
- Creating or copying data CDs
- Creating, editing, and burning audio CDs
- Creating, editing, and burning a video or movie to a DVD or video CD
Using preinstalled multimedia software

To locate preinstalled multimedia software:

▲ Select Start > All Programs, and then open the multimedia program you want to use. For example, if you want to use Windows Media Player (select models only), click Windows Media Player.

NOTE: Some programs may be located in subfolders.

Installing multimedia software from the Internet

▲ To install multimedia software from the Internet, go to the software manufacturer’s Web site and follow the instructions.

NOTE: Software downloaded from the Internet may contain viruses. Refer to the “Security” chapter for more information.
Audio

Your computer has a variety of audio features that allow you to:

- Play music using your computer speakers and/or connected external speakers.
- Record sound using the internal microphone or an optional external headset microphone.
- Download music from the Internet.
- Create multimedia presentations using audio and images.
- Transmit sound and images with instant messaging programs.

Connecting external audio devices

⚠️ **WARNING!** To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the Regulatory, Safety and Environmental Notices.

To connect external devices such as external speakers, headphones, or a headset microphone, refer to the information provided with the device. For best results, remember the following tips:

- Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).
- Be sure that the external device cable is securely connected to the jack on your computer.
- Be sure to install any drivers required by the external device.

**NOTE:** A driver is a required program that acts like a translator between the device and the programs that use the device.

Checking your audio functions

To check the system sound on your computer, follow these steps:

1. Select **Start > Control Panel**.
2. Click **Hardware and Sound**.
3. Click **Sound**.
4. When the Sound window opens, click the **Sounds** tab. Under Program Events, select any sound event, such as a beep or alarm, and click the **Test** button.

   You should hear sound through the speakers or through connected headphones.

To check the record functions of the computer, follow these steps:

1. Select **Start > All Programs > Accessories > Sound Recorder**.
2. Click **Start Recording** and speak into the microphone. Save the file to your desktop.
3. Open Windows Media Player or TouchSmart and play back the sound.

**NOTE:** For best results when recording, speak directly into the microphone and record sound in a setting free of background noise.
To confirm or change the audio settings on your computer, select **Start > Control Panel > Hardware and Sound > Sound**.

**Video**

Your computer enables you to use a variety of video features:

- Watch movies
- Play games over the Internet
- Edit pictures and video to create presentations
- Connect external video devices

**Connecting an external monitor or projector**

Use a VGA cable (purchased separately) to connect an external display, such as a monitor or projector, to the external monitor port on the computer.

To connect an external monitor or projector:

1. Connect the optional VGA cable to the external monitor port on the computer.

2. Connect the external monitor or projector to the other end of the cable.

**NOTE:** If a properly connected external monitor or projector does not display a screen image, press the f4 action key to transfer the image to the external display. Repeatedly pressing f4 alternates the screen image between the external display and the computer.
Webcam

Your computer includes an integrated webcam, located at the top of the display. The webcam is an input device that allows you to record video and capture still photographs.

NOTE: To record and edit videos, you can use the preinstalled Arcsoft WebCam Companion 3 software.

To access the webcam using the Arcsoft WebCam Companion 3 software:

1. Select Start > All Programs > Arcsoft WebCam Companion 3.
2. You may choose Capture or Edit from the dialog box.

NOTE: For more information, refer to the Arcsoft WebCam Companion 3 software Help.
Protecting the computer

Standard security features provided by the Windows operating system and the non-Windows Setup Utility can protect your personal settings and data from a variety of risks.

Follow the procedures in this chapter to use the following features:

- Passwords
- Firewall software
- Antivirus support (Norton Internet Security)
- Critical security updates

**NOTE:** Security solutions are designed to act as deterrents, but they may not deter software attacks or prevent the computer from being mishandled or stolen.

**NOTE:** Before you send your computer for service, remove all password settings.

<table>
<thead>
<tr>
<th>Computer risk</th>
<th>Security feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unauthorized use of the computer</td>
<td>Power-on password</td>
</tr>
<tr>
<td>Unauthorized access to data</td>
<td>Firewall software</td>
</tr>
<tr>
<td>Unauthorized access to Setup Utility, BIOS settings, and other system</td>
<td>Windows updates</td>
</tr>
<tr>
<td>Identification information</td>
<td>Administrator password</td>
</tr>
<tr>
<td>Ongoing or future threats to the computer</td>
<td>Critical security updates from Microsoft</td>
</tr>
<tr>
<td>Unauthorized access to a Windows user account</td>
<td>User password</td>
</tr>
</tbody>
</table>

Using passwords

A password is a group of characters that you choose to secure your computer information. Several types of passwords can be set, depending on how you want to control access to your information. Passwords can be set in Windows or in the non-Windows Setup Utility preinstalled on the computer.

**CAUTION:** To prevent being locked out of the computer, record each password you set. Because most passwords are not displayed as they are set, changed, or deleted, it is essential to record each password immediately and store it in a secure place.
You can use the same password for a Setup Utility feature and for a Windows security feature. You can also use the same password for more than one Setup Utility feature.

Use the following guidelines when setting a password in Setup Utility:

● A password can be any combination of up to 8 letters and numbers and is case sensitive.
● A password set in Setup Utility must be entered at a Setup Utility prompt. A password set in Windows must be entered at a Windows prompt.

Use the following tips for creating and saving passwords:

● When creating passwords, follow requirements set by the program.
● Write down your passwords and store them in a secure place away from the computer.
● Do not store passwords in a file on the computer.
● Do not use your name or other personal information that could be easily discovered by an outsider.

The following sections list Windows and Setup Utility passwords and describe their functions. For additional information about Windows passwords, such as screen-saver passwords, select Start > Help and Support.

### Setting passwords in Windows

<table>
<thead>
<tr>
<th>Password</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator password</td>
<td>Protects administrator-level access to computer contents.</td>
</tr>
<tr>
<td></td>
<td>NOTE: This password cannot be used to access Setup Utility contents.</td>
</tr>
<tr>
<td>User password</td>
<td>Protects access to a Windows user account. It also protects access to the computer contents and must be entered when you exit Sleep or Hibernation.</td>
</tr>
</tbody>
</table>

### Setting passwords in Setup Utility

<table>
<thead>
<tr>
<th>Password</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator password*</td>
<td>● Protects access to Setup Utility.</td>
</tr>
<tr>
<td></td>
<td>● After this password is set, it must be entered each time you access Setup Utility.</td>
</tr>
<tr>
<td></td>
<td>CAUTION: If you forget your administrator password, you cannot access Setup Utility.</td>
</tr>
<tr>
<td>Power-on password*</td>
<td>● Protects access to the computer contents.</td>
</tr>
<tr>
<td></td>
<td>● After this password is set, it must be entered each time you turn on or restart the computer, or exit Hibernation.</td>
</tr>
<tr>
<td></td>
<td>CAUTION: If you forget your power-on password, you cannot turn on or restart the computer, or exit Hibernation.</td>
</tr>
</tbody>
</table>

*For details about each of these passwords, refer to the following topics.
**Administrator password**

Your administrator password protects the configuration settings and system identification information in Setup Utility. After this password is set, you must enter it each time you access Setup Utility.

Your administrator password is not interchangeable with an administrator password set in Windows, nor is it displayed as it is set, entered, changed, or deleted. Be sure that you record your password and store it in a safe place.

**Managing an administrator password**

To set, change, or delete this password, follow these steps:

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select Security > Set Administrator Password, and then press enter.

   - To set an administrator password, type your password in the Enter New Password and Confirm New Password fields, and then press enter.

   - To change an administrator password, type your current password in the Enter Current Password field, type a new password in the Enter New Password and Confirm New Password fields, and then press enter.

   - To delete an administrator password, type your current password in the Enter Password field, and then press enter 4 times.

3. To save your changes and exit Setup Utility, use the arrow keys to select Exit > Exit Saving Changes.

   Your changes go into effect when the computer restarts.

**Entering an administrator password**

At the Enter Password prompt, type your administrator password, and then press enter. After 3 unsuccessful attempts to enter the administrator password, you must restart the computer and try again.

**Power-on password**

Your power-on password prevents unauthorized use of the computer. After this password is set, it must be entered each time you turn on or restart the computer, or exit Hibernation. A power-on password is not displayed as it is set, entered, changed, or deleted.
Managing a power-on password

To set, change, or delete this password, follow these steps:

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select Security > Set Power-On Password, and then press enter.
   - To set a power-on password, type your password in the Enter New Password and Confirm New Password fields, and then press enter.
   - To change a power-on password, type your current password in the Enter Current Password field, type a new password in the Enter New Password and Confirm New Password fields, and then press enter.
   - To delete a power-on password, type your current password in the Enter Current Password field, and then press enter 4 times.

3. To save your changes and exit Setup Utility, use the arrow keys to select Exit > Exit Saving Changes.

Your changes go into effect when the computer restarts.

Entering a power-on password

At the Enter Password prompt, type your password, and then press enter. After 3 unsuccessful attempts to enter the password, you must restart the computer and try again.
Using antivirus software

When you use the computer for e-mail or Internet access, you expose it to computer viruses that can disable the operating system, programs, or utilities or cause them to function abnormally.

Antivirus software can detect most viruses, destroy them, and in most cases, repair damage they have caused. To provide ongoing protection against newly discovered viruses, antivirus software must be kept up to date.

Norton Internet Security, an antivirus program, is preinstalled on the computer.

- Your version of Norton Internet Security includes 60 days of free updates. It is strongly recommended that you protect the computer against new viruses beyond 60 days by purchasing extended update service. Instructions for using and updating Norton Internet Security software and for purchasing extended update service are provided within the program.

- To access Norton Internet Security, or to get more information about it, select Start > All Programs > Norton Internet Security.

NOTE: HP recommends that you always update the antivirus software to help protect your computer.

NOTE: For more information about computer viruses, type viruses in the Search box in Help and Support.
Using firewall software

When you use the computer for e-mail, network, or Internet access, unauthorized persons may be able to gain access to the computer, your personal files, and information about you. Use the firewall software preinstalled on the computer to protect your privacy.

Firewall features include logging and reporting of network activity, and automatic monitoring of all incoming and outgoing traffic. Refer to the firewall user guide or contact your firewall manufacturer for more information.

**NOTE:** Under some circumstances a firewall can block access to Internet games, interfere with printer or file sharing on a network, or block authorized e-mail attachments. To temporarily resolve the problem, disable the firewall, perform the task that you want to perform, and then enable the firewall. To permanently resolve the problem, reconfigure the firewall.
Installing critical updates

⚠️ **CAUTION:** Microsoft sends alerts regarding critical updates. To protect the computer from security breaches and computer viruses, install all critical updates from Microsoft as soon as you receive an alert.

Updates to the operating system and other software may have become available after the computer was shipped. To be sure that all available updates are installed on the computer, observe these guidelines:

- Run Windows Update as soon as possible after you set up your computer. Use the update link at **Start > All Programs > Windows Update**.
- Run Windows Update at regular intervals, such as once a month.
- Obtain updates to Windows and other Microsoft programs, as they are released, from the Microsoft Web site and through the updates link in Help and Support.
Optional digital cards provide secure data storage and convenient data sharing. These cards are often used with digital media–equipped cameras and PDAs as well as with other devices.

The Digital Media Slot supports the following formats:

- Memory Stick (MS)
- MS/Pro
- MultiMediaCard (MMC)
- Secure Digital High Capacity (SDHC) Memory Card (standard and large size)
- xD-Picture card

**Inserting a digital card**

⚠️ **CAUTION:** To avoid damaging the digital card or the computer, do not insert any type of adapter into the Digital Media Slot.

**CAUTION:** To prevent damage to the digital card connectors, use minimal force to insert a digital card.

1. Hold the digital card label-side up, with the connectors toward the computer.
2. Insert the card into the Digital Media Slot, and then push in on the card until it is firmly seated.

You will hear a sound when the device has been detected, and a menu of options may be displayed.
Removing a digital card

⚠️ **CAUTION:** To prevent loss of information or an unresponsive system, use the following procedure to safely remove the digital card.

1. Save your information and close all programs associated with the digital card.

⚠️ **NOTE:** To stop a data transfer, click **Cancel** in the operating system Copying window.

2. To remove a digital card:
   a. Click the **Safely Remove Hardware and Eject Media** icon in the notification area, at the far right of the taskbar.

      📌 **NOTE:** To display the Safely Remove Hardware and Eject Media icon, click the **Show hidden icons** icon (the arrow at the left side of the notification area).

   b. Click the name of the digital card in the list.

      📌 **NOTE:** You are prompted that it is safe to remove the hardware device.

   c. Press in on the digital card (1), and then remove the card from the slot (2).
8 USB devices

Using a USB device

Universal Serial Bus (USB) is a hardware interface that can be used to connect an optional external device, such as a USB keyboard, mouse, drive, printer, scanner, or hub. Devices can be connected to the system.

Some USB devices may require additional support software, which is usually included with the device. For more information about device-specific software, refer to the manufacturer’s instructions.

The computer has 3 USB ports, which support USB 1.0, USB 1.1, and USB 2.0 devices. An optional USB hub provides additional USB ports that can be used with the computer.

Connecting a USB device

⚠️ CAUTION: To prevent damage to a USB connector, use minimal force to connect a USB device.

To connect a USB device, connect the USB cable for the computer to the USB port. You will hear a sound when the device has been detected.

NOTE: When you connect a USB device, you may see a message in the notification area to let you know that the device is recognized by the system.

Removing a USB device

⚠️ CAUTION: To prevent loss of information or an unresponsive system, use the following procedure to safely remove a USB device.
CAUTION: To prevent damage to a USB connector, do not pull on the cable to remove the USB device.

To remove a USB device:

1. Click the **Safely Remove Hardware and Eject Media** icon in the notification area, at the far right of the taskbar.

   **NOTE:** To display the Safely Remove Hardware and Eject Media icon, click the **Show hidden icons** icon (the arrow at the left of the notification area).

2. Click the name of the device in the list.

   **NOTE:** You are informed that it is safe to remove the device.

3. Remove the device.
9 Pointing devices and keyboard

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 device, and select Mouse settings.

Using the TouchPad

To move the pointer, slide your finger across the TouchPad surface in the direction you want the pointer to go. Use the TouchPad buttons like the corresponding buttons on an external mouse. To scroll up and down using the TouchPad vertical scroll zone, slide your finger up or down over the lines.

**NOTE:** For more information on identifying the TouchPad components, refer to the “TouchPad” section earlier in this guide.

The TouchPad supports a variety of TouchPad gestures. To activate the TouchPad gestures, place two fingers on the TouchPad as described in the following sections.

The TouchPad gestures described in this section (except rotating) are enabled at the factory. To disable or enable these gestures:

1. Double-click the Synaptics icon in the notification area, at the far right of the taskbar, and then click the Device Settings tab.
2. Select the device, and then click Settings.
3. Select the check box to disable or enable the TouchPad gesture.
4. Click Apply and then click OK.

**NOTE:** Your computer also supports additional TouchPad features that are disabled at the factory. To view and enable these features, double-click the Synaptics icon in the notification area, at the far right of the taskbar, and then click the Device Settings tab. Select the device, and then click Settings.

Scrolling

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

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

Pinching allows you to zoom in or out on items such as PDFs, images, and photos.

To pinch:

- Zoom in by holding two fingers together on the TouchPad, and then pull the fingers apart to increase an object's size.
- Zoom out by holding two fingers apart on the TouchPad, and then pull the fingers together to decrease an object's size.

Connecting an external mouse

You can connect an external USB mouse to the computer using one of the USB ports on the computer.
Using the keyboard

Using the action keys

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

To use an action key, press and hold this key to activate the assigned function.

**NOTE:** Depending on the program you are using, pressing fn and one of the action keys opens a specific shortcut menu within that program.

**NOTE:** The action key feature is enabled at the factory. You can disable this feature in Setup Utility to require pressing the fn key and one of the action keys to activate the assigned function. Refer to the “Setup Utility” chapter for additional information.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>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.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Decreases the screen brightness level incrementally when you hold down this key.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Increases the screen brightness level incrementally when you hold down this key.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, pressing this action key alternates the screen image from computer display to monitor display to simultaneous display on both the computer and the monitor. Most external monitors receive video information from the computer using the external VGA video standard. The switch screen image action key can also alternate images among other devices that are receiving video information from the computer.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Plays the previous track of a CD or the previous section of a DVD or a BD.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Plays a track of an audio CD or a section of a DVD or a BD.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Stops audio playback of a CD, a DVD, or a BD.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Plays the next track of an audio CD or the next section of a DVD or a BD.</td>
</tr>
</tbody>
</table>
### Hotkeys

Hotkeys are combinations of the **fn** key (1) and the **esc** key (2).

<table>
<thead>
<tr>
<th>Function</th>
<th>Hotkey</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display system information.</td>
<td>fn+esc</td>
<td>Displays information about system hardware components and the system BIOS version number.</td>
</tr>
</tbody>
</table>
To use a hotkey command on the computer keyboard, follow either of these steps:

- Briefly press the fn key, and then briefly press the second key of the hotkey command.

- or -

- Press and hold down the fn key, briefly press the second key of the hotkey command, and then release both keys at the same time.
Identifying installed drives

To view the drives installed on the computer, select Start > Computer.

Handling drives

Drives are fragile computer components that must be handled with care. Refer to the following cautions before handling drives. Additional cautions are included with the procedures to which they apply.
\begin{ caution \end{ caution} \quad \text{To reduce the risk of damage to the computer, damage to a drive, or loss of information, observe these precautions:} \\

Before you move a computer that is connected to an external hard drive, initiate Sleep and allow the screen to clear, or properly disconnect the external hard drive.

Before handling a drive, discharge static electricity by touching the unpainted metal surface of the drive.

Do not touch the connector pins on a removable drive or on the computer.

Handle a drive carefully; do not drop a drive or place items on it.

Before removing or inserting a drive, shut down the computer. If you are unsure whether the computer is off, in the Sleep state, or in Hibernation, turn the computer on and then shut it down through the operating system.

Do not use excessive force when inserting a drive into a drive bay.

Do not type on the keyboard or move the computer while an optional optical drive is writing to a disc. The write process is sensitive to vibration. The external optical drive must be connected to a USB port on the computer, not to a USB port on another external device, such as a hub.

When the battery is the only source of power, be sure that the battery is sufficiently charged before writing to media.

Avoid exposing a drive to temperature or humidity extremes.

Avoid exposing a drive to liquids. Do not spray the drive with cleaning products.

Remove media from a drive before removing the drive from the drive bay, or traveling with, shipping, or storing a drive.

If a drive must be mailed, place the drive in a bubble-pack mailer or other suitable protective packaging and label the package “FRAGILE.”

Avoid exposing a drive to magnetic fields. Security devices with magnetic fields include airport walk-through devices and security wands. The airport security devices that check carry-on luggage, such as conveyor belts, use X-rays instead of magnetism and will not damage a drive.

\section*{Using external drives}

Removable external drives expand your options for storing and accessing information.

USB drives include the following types:

- 1.44-megabyte diskette drive
- Hard drive module (a hard drive with an adapter attached)
- DVD-ROM Drive
- DVD/CD-RW Combo Drive
- DVD+RW/R and CD-RW Combo Drive
- DVD±RW/R and CD-RW Combo Drive
Using optional external devices

**NOTE:** For more information about required software and drivers, or to learn which device port to use, refer to the manufacturer's instructions.

To connect an external device:

**CAUTION:** To reduce the risk of damage to the equipment when connecting a powered device, be sure that the computer is turned off and the AC power cord is unplugged.

1. Connect the device.
2. If you are connecting a powered device, plug the device power cord into a grounded AC outlet.
3. Turn on the computer.

To disconnect an unpowered external device, turn off the computer, and then disconnect it. To disconnect a powered external device, turn off the computer, disconnect it, and then unplug the AC power cord.
The computer has one memory module compartment, which is located on the bottom of the computer, beneath the vanity cover. The memory capacity of the computer can be upgraded by replacing the existing memory module in the 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.

To add or replace a memory module:

1. Save your work.
2. Shut down the computer and close the display.
   
   If you are not sure whether the computer is off or in Hibernation, turn the computer on by sliding the power switch. Then shut down the computer through the operating system.
3. Disconnect all external devices connected to the computer.
4. Follow the instructions in the section “Removing the vanity cover,” earlier in this guide.
5. Remove the existing memory module:
   
   a. Pull away the retention clips (1) on each side of the memory module.

   The memory module tilts up.

   ⚠️ **CAUTION:** To prevent damage to the memory module, hold the memory module by the edges only. Do not touch the components on the memory module.
b. Grasp the edge of the memory module (2), and gently pull the module out of the memory module slot.

To protect a memory module after removal, place it in an electrostatic-safe container.

6. Insert a new memory module:

⚠️ **CAUTION:** To prevent 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.

a. Align the notch (1) in the memory module with the tab in the memory module slot.

b. With the memory module at a 45–degree angle from the surface of the memory module compartment, press the module (2) into the memory module slot until it 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.

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

7. Follow the instructions in the section “Replacing the vanity cover,” earlier in this guide.
8. Turn the computer right-side up, and then reconnect external power and external devices.

9. Turn on the computer.
Updated versions of the software provided with your computer may be available on the HP Web site.

Most software and BIOS updates on the HP Web site are packaged in compressed files called SoftPaqs.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

To update the software, follow these steps, which are explained in the remainder of this guide:

1. Identify your computer model, product category, and series or family. Prepare for a system BIOS update by identifying the BIOS version currently installed on the computer.
   
   If your computer is connected to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

   \[\textbf{NOTE:} \] The computer system BIOS is stored on the system ROM. The BIOS initializes the operating system, determines how the computer will interact with the hardware devices, and provides for data transfer among hardware devices, including the time and date.

2. Access the updates on the HP Web site at \texttt{http://www.hp.com}.

3. Install the updates.
Updating the BIOS

To update the BIOS, first determine what BIOS version you currently have and then download and install the new BIOS.

Determining the BIOS version

To determine whether available BIOS updates contain later BIOS versions than those currently installed on the computer, you need to know the version of the system BIOS currently installed.

BIOS version information (also known as ROM date and System BIOS) can be displayed by opening Setup Utility.

To display the BIOS information:

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.
2. If Setup Utility does not open with the system information displayed, use the arrow keys to select the Main menu.
   When the Main menu is selected, BIOS and other system information is displayed.
3. To exit Setup Utility, use the arrow keys to select Exit > Exit Discarding Changes, and then press enter.

Downloading a BIOS update

⚠️ CAUTION: To prevent damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power or connected to an optional power source. During the download and installation, follow these instructions:

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep or Hibernation.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

To download a BIOS update:

1. Access the page on the HP Web site that provides software for your computer:
   Select Start > Help and Support, and then select the software and drivers update.
2. Follow the instructions on the screen to identify your computer and access the BIOS update you want to download.
3. At the download area, follow these steps:
   a. Identify the BIOS update that is later than the BIOS version currently installed on your computer. Make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
   b. Follow the instructions on the screen to download your selection to the hard drive.
      Make a note of the path to the location on your hard drive where the BIOS update is to be downloaded. You will need to access this path when you are ready to install the update.
NOTE: If you connect your computer to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

BIOS installation procedures vary. Follow any instructions that are displayed on the screen after the download is complete. If no instructions are displayed, follow these steps:

1. Open Windows Explorer by selecting **Start > Computer**.
2. Double-click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).
   
   The BIOS installation begins.
5. Complete the installation by following the instructions on the screen.

NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.
Updating programs and drivers

To download and install software other than a BIOS update, follow these steps:

1. Access the page on the HP Web site that provides software for your computer:
   Select Start > Help and Support, and then select the software and drivers update.

2. Follow the instructions on the screen to find the software you want to update.

3. At the download area, select the software you want to download and follow the instructions on the screen.

   NOTE: Make a note of the path to the location on your hard drive where the software is to be downloaded. You will need to access this path when you are ready to install the software.

4. When the download is complete, open Windows Explorer by selecting Start > Computer.

5. Double-click your hard drive designation. The hard drive designation is typically Local Disk (C:).

6. Using the hard drive path you recorded earlier, open the folder on your hard drive that contains the update.

7. Double-click the file that has an .exe extension (for example, filename.exe).

   The installation begins.

8. Complete the installation by following the instructions on the screen.

   NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.
13 Changing QuickWeb settings

Disabling and enabling QuickWeb

To disable or enable QuickWeb from within the Windows operating system:

1. Select **Start > All Programs > HP QuickWeb**. Click **HP QuickWeb Configuration Tool**.
2. Click the **Status** tab, and then select the **Enable** or **Disable**.
3. Click **OK**.

**NOTE:** The HP QuickWeb Configuration Tool can also be accessed by selecting **Start > Control Panel**, and then clicking the **View by** arrow. Select **Large icons** or **Small icons** to locate the HP QuickWeb Configuration Tool.
14 Setup Utility

Starting Setup Utility

Setup Utility is a ROM-based information and customization utility that can be used even when your Windows operating system is not working.

The utility reports information about the computer and provides settings for startup, security, and other preferences.

To start Setup Utility:

▲ Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

Using Setup Utility

Changing the language of Setup Utility

The following procedure explains how to change the language of Setup Utility. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select System Configuration > Language, and then press enter.

3. Use the arrow keys to select a language, and then press enter.

4. When a confirmation prompt with your language selected is displayed, press enter.

5. To save your change and exit Setup Utility, use the arrow keys to select Exit > Exit Saving Changes, and then press enter.

Your change goes into effect immediately.

Navigating and selecting in Setup Utility

Because Setup Utility is not Windows based, it does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.

- To choose an item in a list or to toggle a field, for example an Enable/Disable field, use either the arrow keys or f5 or f6.
To select an item, press enter.

To close a text box or return to the menu display, press esc.

To display additional navigation and selection information while Setup Utility is open, press f1.

Displaying system information

The following procedure explains how to display system information in Setup Utility. If Setup Utility is not open, begin at step 1. If Setup Utility is open, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

2. Select the Main menu. System information such as the system time and date, and identification information about the computer is displayed.

3. To exit Setup Utility without changing any settings, use the arrow keys to select Exit > Exit Discarding Changes, and then press enter.

Restoring default settings in Setup Utility

The following procedure explains how to restore the Setup Utility default settings. If Setup Utility is not already running, begin at step 1. If Setup Utility is already running, begin at step 2.

1. Open Setup Utility by turning on or restarting the computer, and then pressing f10 while the “F10 = BIOS Setup Options” message is displayed in the lower-left corner of the screen.

2. Use the arrow keys to select Exit > Load Setup Defaults, and then press enter.

3. When the Setup Confirmation is displayed, press enter.

4. To save your change and exit Setup Utility, use the arrow keys to select Exit > Exit Saving Changes, and then press enter.

The Setup Utility default settings go into effect when the computer restarts.

NOTE: Your password, security, and language settings are not changed when you restore the factory default settings.

Exiting Setup Utility

You can exit Setup Utility with or without saving changes.

- To exit Setup Utility and save your changes from the current session:
  
  If the Setup Utility menus are not visible, press esc to return to the menu display. Then use the arrow keys to select Exit > Exit Saving Changes, and then press enter.

- To exit Setup Utility without saving your changes from the current session:
  
  If the Setup Utility menus are not visible, press esc to return to the menu display. Then use the arrow keys to select Exit > Exit Discarding Changes, and then press enter.

After either choice, the computer restarts in Windows.
Setup Utility menus

The menu tables in this section provide an overview of the Setup Utility options.

**NOTE:** Some of the Setup Utility menu items listed in this chapter may not be supported by your computer.

## Main menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>System information</td>
<td>• View and change the system time and date.</td>
</tr>
<tr>
<td></td>
<td>• View identification information about the computer.</td>
</tr>
<tr>
<td></td>
<td>• View specification information about the processor, memory size, and system BIOS.</td>
</tr>
</tbody>
</table>

## Security menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator password</td>
<td>Enter, change, or delete an administrator password.</td>
</tr>
<tr>
<td>Power-On Password</td>
<td>Enter, change, or delete a power-on password.</td>
</tr>
</tbody>
</table>

## System Configuration menu

<table>
<thead>
<tr>
<th>Select</th>
<th>To do this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Support</td>
<td>Change the Setup Utility language.</td>
</tr>
<tr>
<td>Processor C4 State</td>
<td>Enable/disable the processor C4 sleep state.</td>
</tr>
<tr>
<td>Boot Options</td>
<td>Set the following boot options:</td>
</tr>
<tr>
<td></td>
<td>• f10 and f12 Delay (sec.)—Set the delay for the f10 and f12 functions of Setup Utility in intervals of 5 seconds each (0, 5, 10, 15, 20).</td>
</tr>
<tr>
<td></td>
<td>• HP QuickWeb—Enable/disable the QuickWeb Boot menu in Setup Utility.</td>
</tr>
<tr>
<td></td>
<td>• Internal Network Adapter boot—Enable/disable boot from Internal Network Adapter.</td>
</tr>
<tr>
<td></td>
<td>• Boot Device Priority—Set the boot device priority for:</td>
</tr>
<tr>
<td></td>
<td>◦ Internal hard drive (select models only)</td>
</tr>
<tr>
<td></td>
<td>◦ USB Floppy</td>
</tr>
<tr>
<td></td>
<td>◦ USB CD/DVD ROM Drive</td>
</tr>
<tr>
<td></td>
<td>◦ USB flash drive</td>
</tr>
<tr>
<td></td>
<td>◦ USB Hard drive</td>
</tr>
</tbody>
</table>
NOTE: Only the devices attached to the system appear in the boot order menu.

<table>
<thead>
<tr>
<th>Diagnostics menu</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Select</strong></td>
<td><strong>To do this</strong></td>
</tr>
<tr>
<td>Hard Disk Self Test (select models only)</td>
<td>Run a comprehensive self-test on the hard drive.</td>
</tr>
<tr>
<td>Memory Test</td>
<td>Run a diagnostic test on the system memory.</td>
</tr>
</tbody>
</table>
Index

A
AC adapter
- connecting 18
- identifying 13
action keys 5
administrator password
- creating 52
- entering 52
- managing 52
airport security devices 67
antennas 12
applications key, Windows 5
audio devices, connecting external 47
audio functions, checking 47
audio-in (microphone) jack 8, 42
audio-out (headphone) jack 8, 42
B
battery
- calibrating 22
- charging 20, 22
- discharging 21
- disposing 25
- identifying 13
- inserting 19
- low battery levels 21
- recharging 24
- removing 19
- storing 25
battery bay 14
battery bay, identifying 9
battery light 20, 21
battery power 18
battery release latches 9, 19
battery temperature 25
bay, battery 9
bays
- battery 14
BIOS, updating 73
Bluetooth device 29
Bluetooth label 14
boot options 79
boot order 79
buttons
- left TouchPad 3
- right TouchPad 3

C
cables
- LAN 28
- USB 59
- VGA 48
calibrating battery 22
caps lock light, identifying 4
CD drive 67
Certificate of Authenticity label 14
changing Setup Utility language 77
charging batteries 20, 22
checking audio functions 47
drives
- boot order 79
- diskette 67
- external 67
- hard 67
- optical 67
DVD drive 67
earbuds 8, 42
calibration 22
caps lock light, identifying 4
digital card
- inserting 57
- removing 58
Diskette drive 67
display switch, identifying 8
displaying system information 78
drives
- boot order 79
- diskette 67
- external 67
- hard 67
- optical 67
Display switch 67
earbuds 8, 42
earbuds 8, 42
calibration 22
caps lock light, identifying 4
digital card
- inserting 57
- removing 58
Diskette drive 67
display switch, identifying 8
displaying system information 78
drives
- boot order 79
- diskette 67
- external 67
- hard 67
- optical 67
DVD drive 67
encryption 33
diagnostic menu 80

D
diagnostic menu 80
hard drive self test 80
hard drive, external 67
hardware, identifying 3
headphone (audio-out) jack 8, 42
headphones 8, 42
Hibernation
  exiting 16
  initiated during critical battery level 22
  initiating 16
hotkeys
  description 64
  using 65
HP Connection Manager software 30
HP Mobile Broadband Module 35
HP Mobile Broadband, disabled 35
HP Navigator 39
hubs 59

icons
  Connection Manager 29
  network 29
  wired network 29
  wireless 29
indicators
  TouchPad off 3
  internal display switch, identifying 8
  internal microphone, identifying 9, 42
  Internet connection setup 32

jacks
  audio-in (microphone) 8, 42
  audio-out (headphone) 8, 42
  RJ-45 (network) 7

keyboard hotkeys, identifying 64
keys
  action 5
  fn 5
  Windows applications 5
  Windows logo 5
labels
  Bluetooth 14
  HP Mobile Broadband Module 14
  Microsoft Certificate of Authenticity 14
  regulatory 14
  serial number 13
  SIM 14
  wireless certification 14
  WLAN 14
  language support 79
  latches, battery release 9
  left TouchPad button, identifying 3
  lights
    caps lock 4
    TouchPad off indicator 4
    webcam 8
  local area network (LAN)
    cable required 28
    connecting cable 28
    low battery level 21
Main menu 79
managing a power-on password 53
managing an administrator password 52
memory module
  inserting 70
  memory module, removing 69
  memory test 80
microphone (audio-in) jack 8, 42
Microsoft Certificate of Authenticity label 14
monitor, connecting 48
mouse, external
  connecting 62
  setting preferences 61
multimedia components, identifying 41
multimedia software
  installing 46
  using 46
mute action key, identifying 42
navigating in Setup Utility 77
network cable
  connecting 28
  noise suppression circuitry 28
  network icon 29
  network jack, identifying 7
  noise suppression circuitry, network cable 28
operating system
  Microsoft Certificate of Authenticity label 14
  Product Key 14
passwords
  administrator 52
  power-on 52
  set in Setup Utility 51
  set in Windows 51
ports
  external monitor 48
  USB 6, 8, 59
  power connector, identifying 13
  power, connecting 18
  power-on password
    creating 53
    entering 53
    managing 53
Processor C4 State 79
Product Key 14
product name and number, computer 13
programs, updating 75
projector, connecting 48
public WLAN connection 33
QuickWeb
  disabling 76
  enabling 76
  Setup Utility 79
readable media 15
readable media 15
Index

regulatory information
  regulatory label 14
  wireless certification labels 14
release latches, battery 9, 20
restoring default settings 78
right TouchPad button,
  identifying 3
RJ-45 (network) jack,
  identifying 7
S
security cable slot 7
Security menu 79
security, wireless 32
selecting in Setup Utility 77
serial number, computer 13
setup of WLAN 32
Setup Utility, passwords set in 51
setup, computer 3
shut down 25
SIM
  inserting 35
  removing 36
Sleep
  exiting 15
  initiating 15
software
  HP Connection Manager 30
  installing 46
  multimedia 46
  Windows Media Player 46
speakers 5
speakers, identifying 42
storing battery 25
System Configuration menu 79
system information 79
T
temperature 25
TouchPad
  identifying 4
  indicator 3
TouchPad off indicator light,
  identifying 4
TouchPad off indicator,
  identifying 3
traveling with the computer 14, 25
turning off the computer 25
U
unresponsive system 25
USB cable, connecting 59
USB devices
  connecting 59
  description 59
  removing 59
USB hubs 59
USB ports, identifying 6, 8, 59
V
vanity cover
  removing 9
  replacing 11
vents, identifying 7
volume down action key,
  identifying 42
volume up action key,
  identifying 42
volume, adjusting 43
W
webcam light, identifying 8, 42
webcam, identifying 9, 42
Windows applications key,
  identifying 5
Windows logo key, identifying 5
Windows, passwords set in 51
wired network icon 29
wireless action key, identifying 30
wireless antennas 12
wireless certification label 14
wireless controls
  action key 30
  operating system 30
wireless icon 29
wireless light, identifying 30
wireless network (WLAN)
  connecting 33
  corporate WLAN
    connection 33
  equipment needed 32
  functional range 34
  public WLAN connection 33
  security 32
wireless network, connecting 29
WLAN antennas, identifying 12
WLAN device 14, 29
WLAN label 14
writable media 15
WWAN antennas, identifying 12