Table 2-5 Lights and their descriptions

Component			Description
(1)		Caps lock light	On: Caps lock is on, which switches the key input to all capital letters.
(2)		Privacy key light (select products only)	On: Privacy screen is on, which helps prevent side-angle viewing.
(3)		Mute light	• On: Computer sound is off. • Off: Computer sound is on.
(4)		Microphone mute light	• On: Microphone is off. • Off: Microphone is on.
(5)		Power light	• On: The computer is on. • Blinking (select products only): The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unnecessary components. • Off: Depending on your computer model, the computer is off, in Hibernation, or in Sleep. Hibernation is the power-saving state that uses the least amount of power.
(6)		Camera light (select products only)	On: The camera is in use.
(7)		Fn lock light	On: The fn key is locked. For more information, see Hot keys (select products only) on page 14.

Button, speakers, camera, and fingerprint reader

Fingerprint readers can be located on the touchpad, on a side panel of the computer, or on the top cover below the keyboard.

IMPORTANT: To verify that your computer supports fingerprint reader sign-in, select the Search icon (select products only) in the taskbar, type `Sign-in options` in the search box, and then follow the on-screen instructions. If **Fingerprint reader** is not listed as an option, then your notebook does not include a fingerprint reader.
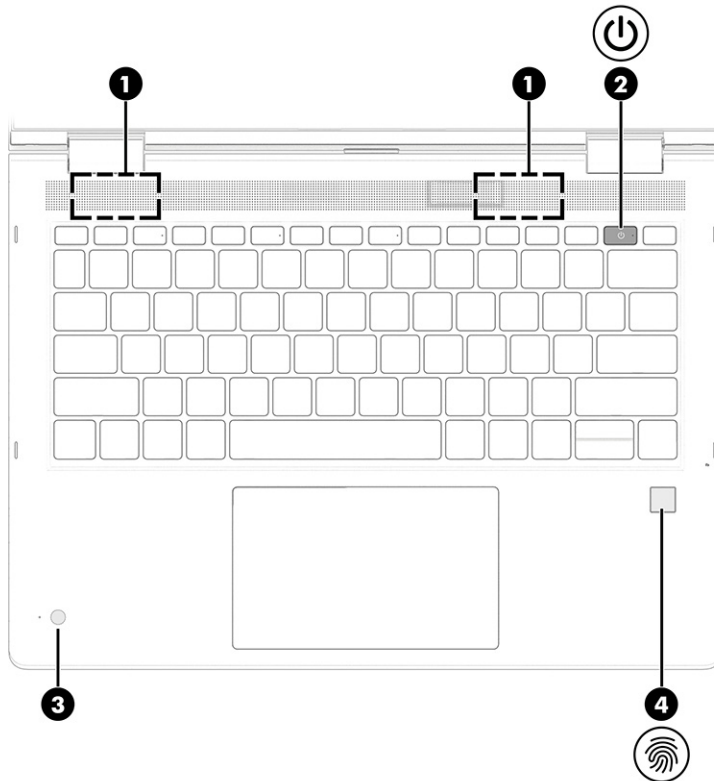

Table 2-6 Button, speakers, camera, and fingerprint reader and their descriptions

Component		Description
(1)	Speakers	Produce sound.
(2)	Power button	• When the computer is off, press the button briefly to turn on the computer.
		• When the computer is on, press the button briefly to initiate Sleep.
		• When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only).
		• When the computer is in Hibernation, press the button briefly to exit Hibernation.
		IMPORTANT: Pressing and holding down the power button results in the loss of unsaved information.

Table 2-6 Button, speakers, camera, and fingerprint reader and their descriptions (continued)

Component		Description
		If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button for at least 4 seconds to turn off the computer.
		To learn more about your power settings, use the Power icon.
		● Right-click the **Power** icon [icon] and then, depending on your product, select **Power and sleep settings** or **Power Options**.
(3)	Camera (select products only)	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 29. Some cameras also allow a facial recognition logon to Windows, instead of a password logon. For more information, see Windows Hello (select products only) on page 50.
		NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(4)	Fingerprint reader (select products only)	Allows a fingerprint logon to Windows, instead of a password logon.
		▲ Touch your finger to the fingerprint reader. See Windows Hello (select products only) on page 50 for details.
		IMPORTANT: To prevent fingerprint logon issues, make sure when you register your fingerprint that all sides of your finger are registered by the fingerprint reader.

Special keys

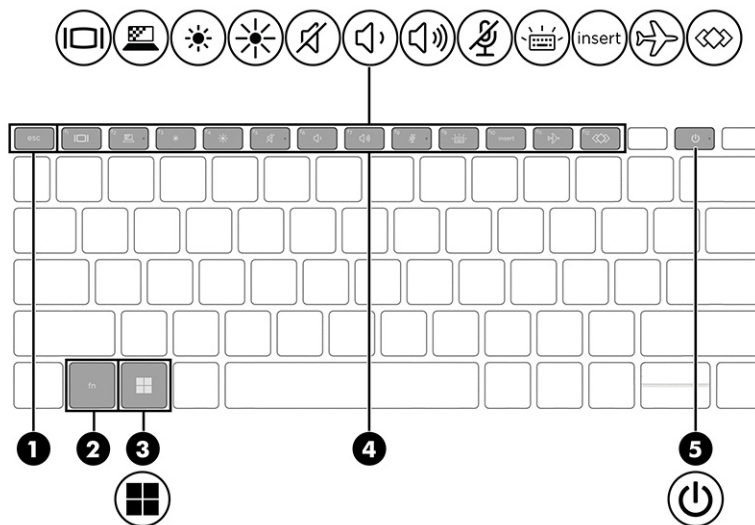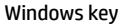Use the illustration and table to identify the special keys.
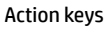
Table 2-7 Special keys and their descriptions

Component		Description
(1)	esc key	Displays system information when pressed in combination with the fn key.
(2)	fn key	Executes frequently used system functions when pressed in combination with another key. Such key combinations are called *hot keys*. See Hot keys (select products only) on page 14.
(3)	Windows key	Opens the Start menu. **NOTE:** Pressing the Windows key again will close the Start menu.
(4)	Action keys	Execute frequently used system functions. See Action keys on page 12.
(5)	Power button	• When the computer is off, press the button briefly to turn on the computer. • When the computer is on, press the button briefly to initiate Sleep. • When the computer is in the Sleep state, press the button briefly to exit Sleep (select products only). • When the computer is in Hibernation, press the button briefly to exit Hibernation. **IMPORTANT:** Pressing and holding down the power button results in the loss of unsaved information. If the computer has stopped responding and shutdown procedures are ineffective, press and hold the power button for at least 4 seconds to turn off the computer. To learn more about your power settings, use the Power icon. • Right-click the **Power** icon ▭ and then, depending on your product, select **Power and sleep settings** or **Power Options**.

Action keys

Action keys perform specific functions and vary by computer. To determine which keys are on your computer, look at the icons on your keyboard and match them to the descriptions in this table.

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

📝 **NOTE:** On some products, you must press the fn key in combination with the action key.
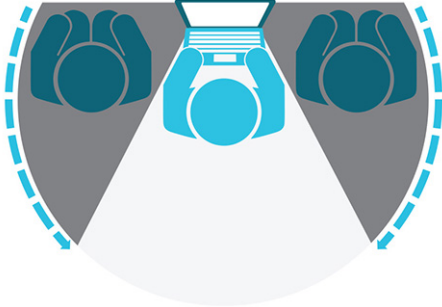
Table 2-8 Action keys and their descriptions

Icon	Description
▯◻▯	Switches the screen image among display devices connected to the system. For example, if a monitor is connected to the computer, repeatedly pressing the key alternates the screen image from computer display to monitor display to simultaneous display on both the computer and the monitor.
(privacy screen icon)	On select products, helps prevent side-angle viewing from onlookers. If needed, decrease or increase brightness for well-lit or darker environments. Press the key again to turn off the privacy screen. NOTE: This feature is available only on select products. If the feature is not available on your computer, a message is displayed when you press this key. NOTE: To quickly turn on the highest privacy setting, press fn+p.
☀	Decreases the screen brightness incrementally as long as you hold down the key.
☀	Increases the screen brightness incrementally as long as you hold down the key.
(mute speaker icon)	Mutes or restores speaker sound.
◁)	Decreases speaker volume incrementally while you hold down the key.
◁)))	Increases speaker volume incrementally while you hold down the key.
(mute mic icon)	Mutes the microphone.
(keyboard backlight icon)	Turns the keyboard backlight off or on. On select products, you can adjust the brightness of the keyboard backlight. Press the key repeatedly to adjust the brightness from high (when you first start up the computer), to low, to off. After you adjust the keyboard backlight setting, the backlight will revert to your previous setting each time you turn on the computer. The keyboard backlight will turn off after 30 seconds of inactivity. To turn the keyboard backlight back on, press any key or tap the touchpad (select products only). To conserve battery power, turn off this feature.
✈	Turns the wireless feature on or off. NOTE: A wireless network must be set up before a wireless connection is possible.
⟨⟨⟩⟩	Executes frequently used tasks. Some tasks might not be available on all products. • Opens an application, file, or website • Enters frequently used text into a permanent clipboard

Table 2-8 Action keys and their descriptions (continued)

Icon	Description
	• Ability to change system profiles
	• Ability to change system properties
	• Executes user-defined key sequences

📝 **NOTE:**   The action key feature is enabled at the factory. On select products only, you can disable this feature by pressing and holding the fn key and the left shift key. The fn lock light will turn on. After you have disabled the action key feature, you can still perform each function by pressing the fn key in combination with the appropriate action key.

Hot keys (select products only)

A hot key is the combination of the fn key and another key. Use the table to identify the hot keys.

To use a hot key:

▲   Press the fn key, and then press one of the keys listed in the following table.

Table 2-9 Hot keys and their descriptions

Key	Description
C	Turns on scroll lock.
E	Turns on the insert function.
R	Breaks the operation.
S	Sends a programing query.
W	Pauses the operation.

Bottom

Use the illustration and table to identify the bottom component.
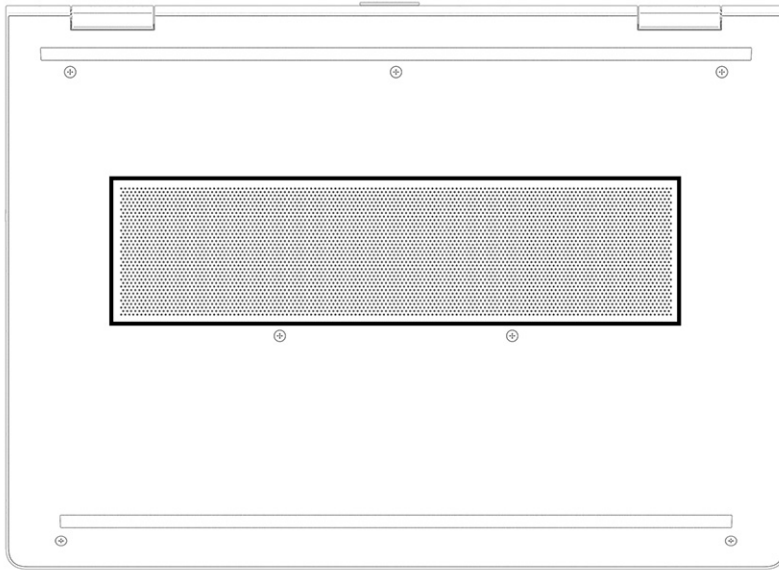
Table 2-10 Bottom component and its description

Component	Description
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.

Labels

The labels affixed to the computer provide information you might need when you troubleshoot system problems or travel internationally with the computer. Labels might be in paper form or imprinted on the product.

IMPORTANT: Check the following locations for the labels described in this section: the bottom of the computer, inside the battery bay, under the service door, on the back of the display, or on the bottom of a tablet kickstand.

- Service label—Provides important information to identify your computer. When contacting support, you might be asked for the serial number, the product number, or the model number. Locate this information before you contact support.

  Your service label will resemble one of the examples shown below. Refer to the illustration that most closely matches the service label on your computer.
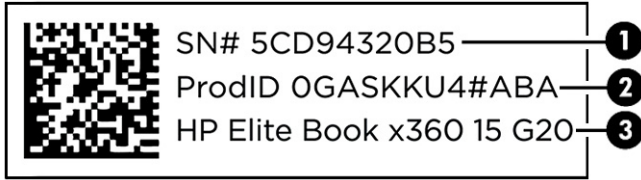
Table 2-11 Service label components

Component	
(1)	Serial number
(2)	Product ID
(3)	HP product name
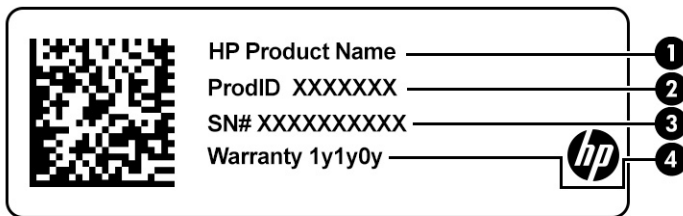
Table 2-12 Service label components

Component	
(1)	HP product name
(2)	Product ID
(3)	Serial number
(4)	Warranty period
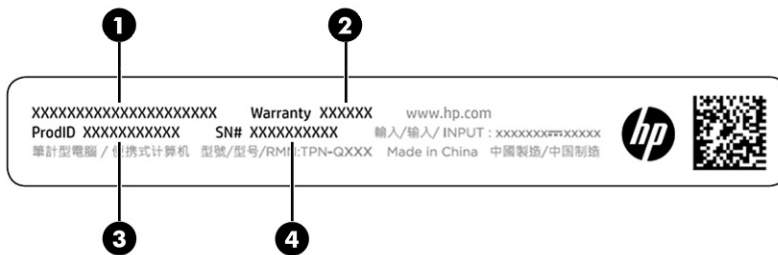
Table 2-13 Service label components

Component	
(1)	HP product name
(2)	Warranty period
(3)	Product ID

Table 2-13 Service label components (continued)

Component
(4) Serial number

- Regulatory labels—Provide regulatory information about the computer.

- Wireless certification labels—Provide information about optional wireless devices and the approval markings for the countries or regions in which the devices have been approved for use.

3   Network connections

Your computer can travel with you wherever you go. But even at home, you can explore the globe and access information from millions of websites by using your computer and a wired or wireless network connection. This chapter helps you get connected to that world.

Connecting to a wireless network

Your computer might be equipped with one or more wireless devices.

- WLAN device—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, the mobile wireless device in your computer communicates with a wireless router or a wireless access point.

- HP Mobile Broadband Module (select products only)—A wireless wide area network (WWAN) device that gives you wireless connectivity over a much larger area. Mobile network operators install base stations (similar to cell phone towers) throughout large geographic areas, effectively providing coverage across entire states, regions, or even countries.

- Bluetooth® device—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 m (approximately 33 ft) of each other.

Using the wireless controls

You can control the wireless devices in your computer using one or more of these features.

- Wireless button (also called *airplane mode key* or *wireless key*)

- Operating system controls

Wireless button

The computer might have a wireless button, one or more wireless devices, and one or two wireless lights. All 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.

Operating system controls

The Network and Sharing Center allows you to set up a connection or network, connect to a network, and diagnose and repair network problems.

Depending on your computer model, you have several methods to access operating system controls:

Select the **Search** icon (select products only) in the taskbar, type `control panel` in the search box, select **Control Panel**, and then select **Network and Sharing Center**.

– or –

On the taskbar, select the network status icon, and then select **Network & Internet settings**.

– or –

On the taskbar, right-click the network status icon, and then select **Network and Internet settings**.

Connecting to a WLAN

Before you can connect to a WLAN with this procedure, you must first set up internet access.

NOTE: When you are setting up internet access in your home, you must establish an account with an internet service provider (ISP). To purchase internet service and a modem, contact a local ISP. The ISP will help set up the modem, install a network cable to connect your wireless router to the modem, and test the internet service.

1. Be sure that the WLAN device is on.

2. On the taskbar, select the network status icon, and then connect to one of the available networks.

   – or –

   On the taskbar, select the network status icon, and then select the right arrow icon next to the Wi-Fi button to see the available networks.

   If the WLAN is a security-enabled WLAN, you are prompted to enter a security code. Enter the code, and then select **Next** to complete the connection.

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

   NOTE: Depending on your computer model, if you do not see the WLAN that you want to connect to, follow one of these methods:

   1. On the taskbar, right-click the network status icon, and then select **Open Network & Internet settings** (select products only) or **Network and Internet settings**.

      – or –

      On the taskbar, select the network status icon, and then select **Network & Internet settings**.

   2. Under the **Change your network settings** section, select **Network and Sharing Center**.

      – or –

      Select **WiFi**, and then select **Manage known networks**.

   3. Select **Set up a new connection or network**.

      – or –

      Select the **Add network** button.

      A list of options is displayed, which allows you to manually search for and connect to a network or to create a new network connection.

3. Follow the on-screen instructions to complete the connection.

After the connection is made, select the network status icon 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.

Using HP Mobile Broadband (select products only)

Your HP Mobile Broadband computer has built-in support for mobile broadband service. Your new computer, when used with a mobile operator's network, gives you the freedom to connect to the internet, send email, or connect to your corporate network without the need for Wi-Fi hotspots.

You might need the HP Mobile Broadband Module IMEI number, MEID number, or both to activate mobile broadband service. The number might be printed on a label located on the bottom of your computer, inside the battery bay, under the service door, or on the back of the display.

1. On the taskbar, select or right-click (select products only) the network status icon.

2. Select **Network & Internet settings** or **Network and Internet settings** (select products only).

3. Under the **Network & Internet** section or the **Network and Internet settings** (select products only), select **Cellular**, and then select **Advanced Options**.

Some mobile network operators require the use of a SIM card. A SIM card contains basic information about you, such as a personal identification number (PIN), as well as network information. Some computers include a SIM card that is preinstalled. If the SIM card is not preinstalled, it might be provided in the HP Mobile Broadband information that is included with your computer or the mobile network operator might provide it separately from the computer.

For information about HP Mobile Broadband and how to activate service with a preferred mobile network operator, see the HP Mobile Broadband information included with your computer.

Using eSIM (select products only)

Your computer might be equipped with an eSIM. An eSIM is a programmable version of the commonly used SIM that you can use to download different profiles from selected carriers.

An eSIM lets you connect to the internet over a cellular data connection. With an eSIM, you do not need to get a SIM card from your mobile operator, and you can quickly switch between mobile operators and data plans. For example, you might have one cellular data plan for work and a different plan with another mobile operator for personal use. If you travel, you can connect in more places by finding mobile operators with plans in that area.

You can implement eSIMs in two ways:

● The eSIM chip can be embedded (eUICC). The notebook then operates as a dual SIM, one as eUICC and the second as standard micro or nano SIM card on a SIM card tray. Only one SIM can be active at a time.

● A removable physical eSIM is placed on a SIM card tray like a standard micro or nano SIM card, but the eSIM is not limited to a single carrier (physical blank eSIM).

You must add an eSIM profile to connect to the internet using cellular data. To add a profile, manage SIM profiles, and learn how to use an eSIM, go to https://www.support.microsoft.com , and type `Use an eSIM` in the search bar.

Using GPS (select products only)

Your computer might be equipped with a Global Positioning System (GPS) device. GPS satellites deliver location, speed, and direction information to GPS-equipped systems. To enable GPS, be sure that location is enabled under the Windows privacy setting.

1. Select the **Search** icon (select products only) in the taskbar, type `location` in the search box, and then select **Location privacy settings**.

2. Follow the on-screen instructions for using location settings.

Using Bluetooth wireless devices (select products only)

A Bluetooth device provides short-range wireless communications that replace the physical cable connections that traditionally link electronic devices.

- Computers (desktop, notebook)

- Phones (cellular, cordless, smartphone)

- Imaging devices (printer, camera)

- Audio devices (headset, speakers)

- Mouse

- External keyboard

Connecting Bluetooth devices

Before you can use a Bluetooth device, you must establish a Bluetooth connection.

1. Select the **Search** icon (select products only) in the taskbar, type `bluetooth` in the search box, and then select **Bluetooth and other devices settings**.

2. Turn on **Bluetooth**, if it is not already turned on.

3. Select **Add Bluetooth or other device** (select products only) or **Add device**, and then in the **Add a device** dialog box, select **Bluetooth**.

4. Select your device from the list, and then follow the on-screen instructions.

> **NOTE:** If the device requires verification, a pairing code is displayed. On the device that you are adding, follow the on-screen instructions to verify that the code on your device matches the pairing code. For more information, see the documentation provided with the device.

> **NOTE:** If your device does not appear in the list, be sure that Bluetooth on that device is turned on. Some devices might have additional requirements; see the documentation provided with the device.

Using NFC to share information (select products only)

Your computer supports Near Field Communication (NFC), which allows you to wirelessly share information between two NFC-enabled devices. Information is transferred from the tapping area (antenna) of one device to another. With NFC and supported apps, you can share websites, transfer contact information, transfer payments, and print on NFC-enabled printers.

> **NOTE:** To locate the tapping area on your computer, see Components on page 3.

1. Confirm that the NFC function is enabled.

   ● Select the **Search** icon (select products only) in the taskbar, type `wireless` in the search box, and then select **Turn wireless devices on or off**.

   ● Confirm that the selection for NFC is **On**.

2. Tap the NFC tapping area with an NFC-enabled device. You might hear a sound when the devices connect.

   NOTE: To find the location of the antenna on the other NFC device, see your device instructions.

3. Follow any on-screen instructions to continue.

Connecting to a wired network

Select products might allow a local area network (LAN) connection, which uses a network cable. The cable is sold separately.

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

Connecting to a local area network (LAN) (select products only)

Use a LAN connection if you want to connect the computer directly to a router in your home (instead of working wirelessly) or if you want to connect to an existing network at your office.

To connect the network cable, follow these steps:

NOTE: A feature called HP LAN-Wireless Protection might be enabled on your computer. It closes your wireless (Wi-Fi) or WWAN connection when you connect directly to a LAN. For more information about HP LAN-Wireless Protection, see Using HP LAN-Wireless Protection (select products only) on page 23.

If there is no RJ-45 port on the computer, connecting to a LAN requires a network cable and a network jack or an optional docking device or expansion product.

1. Plug the network cable into the network jack **(1)** on the computer or on an optional docking device or expansion product.

2. Plug the other end of the network cable into a network wall jack **(2)** or router.

   NOTE: If the network cable contains noise suppression circuitry **(3)**, which prevents interference from TV and radio reception, orient the circuitry end of the cable toward the computer.