



User Guide

SUMMARY

This guide provides information about components, network connection, power management, security, backing up, and more.

Legal information

© Copyright 2022 HP Development Company, L.P.

AMD is a trademark of Advanced Micro Devices, Inc. Bluetooth is a trademark owned by its proprietor and used by HP Inc. under license. Intel, Celeron, Pentium, and Thunderbolt are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries. Windows is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. NVIDIA and the NVIDIA logo are trademarks and/or registered trademarks of NVIDIA Corporation in the U.S. and other countries. The microSD logo and microSD are trademarks of SD-3C LLC. USB Type-C® and USB-C® are registered trademarks of USB Implementers Forum. DisplayPort™ and the DisplayPort™ logo are trademarks owned by the Video Electronics Standards Association (VESA®) in the United States and other countries.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

For DTS patents, see <http://patents.dts.com>. Manufactured under license from DTS Licensing Limited. DTS, the Symbol, & DTS and the Symbol together are registered trademarks, and DTS Sound is a trademark of DTS, Inc. ©

DTS, Inc. All Rights Reserved 

Second Edition: May 2022

First Edition: January 2022

Document Part Number: N05887-002

Product notice

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

Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated, which is always enabled. High-speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See <http://www.windows.com>. **If your product ships with Windows in S Mode:** Windows in S Mode works exclusively with apps from the Microsoft Store within Windows. Certain default settings, features, and apps cannot be changed. Some accessories and apps that are compatible with Windows may not work (including some antivirus, PDF writers, driver utilities, and accessibility apps), and performance may vary, even if you switch out of S Mode. If you switch to Windows, you cannot switch back to S Mode. Learn more at Windows.com/SmodeFAQ.

To access the latest user guides, go to <http://www.hp.com/support>, and follow the instructions to find your product. Then select **Manuals**.

Software terms

By installing, copying, downloading, or otherwise using any software product preinstalled on this computer, you agree to be bound by the terms of the HP End User License Agreement (EULA). If you do not accept these license terms, your sole remedy is to return the entire unused product (hardware and software) within 14 days for a full refund subject to the refund policy of your seller.

For any further information or to request a full refund of the price of the computer, please contact your seller.

Safety warning notice

Reduce the possibility of heat-related injuries or of overheating the computer by following the practices described.

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

Processor configuration setting (select products only)

Important information about processor configurations.



IMPORTANT: Select computer products are configured with an Intel® Pentium® N35xx/N37xx series or a Celeron® N28xx/N29xx/N30xx/N31xx series processor and a Windows® operating system. **If your computer is configured as described, do not change the processor configuration setting in msconfig.exe from 4 or 2 processors to 1 processor.** If you do so, your computer will not restart. You will have to perform a factory reset to restore the original settings.

Table of contents

1 Getting started	1
Finding information	1
2 Components	3
Locating hardware	3
Locating software	3
Right	3
Left	4
Display	5
Low blue light mode (select products only)	6
Keyboard area	8
Touchpad	8
Touchpad settings	8
Adjusting touchpad settings	8
Turning on the touchpad	8
Touchpad components	9
Lights	9
Power key, speakers, and fingerprint reader	11
Special keys	12
Action keys	13
Hot keys (select products only)	15
Bottom	15
Labels	16
3 Network connections	19
Connecting to a wireless network	19
Using the wireless controls	19
Wireless button	19
Operating system controls	19
Connecting to a WLAN	20
Using HP Mobile Broadband (select products only)	20
Using Bluetooth wireless devices (select products only)	21
Connecting Bluetooth devices	21
Connecting to a wired network	21
Connecting to a local area network (LAN) (select products only)	22
Using HP LAN-Wireless Protection (select products only)	22
Using HP MAC Address Pass Through (select products only)	23
4 Navigating the screen	24
Using touchpad and touch screen gestures	24
Tap	24

Two-finger pinch zoom.....	24
Two-finger slide (touchpad and precision touchpad)	25
Two-finger tap (touchpad and precision touchpad)	25
Three-finger tap (touchpad and precision touchpad)	25
Four-finger tap (touchpad and precision touchpad)	26
Three-finger swipe (touchpad and precision touchpad)	26
Four-finger swipe (precision touchpad)	26
One-finger slide (touch screen)	27
Using an optional keyboard or mouse.....	27
Using an on-screen keyboard (select products only).....	27
5 Entertainment features	28
Using a camera (select products only)	28
Using audio	28
Connecting speakers	28
Connecting headphones	28
Connecting headsets	29
Using sound settings	29
Viewing or changing sound settings	29
Using the control panel to view and control audio settings	29
Using video	29
Connecting a DisplayPort device using a USB Type-C cable (select products only)	30
Discovering and connecting wired displays using MultiStream Transport.....	31
Connecting displays to computers with AMD or NVIDIA graphics (with an optional hub).....	31
Connecting displays to computers with Intel graphics (with an optional hub)	31
Connecting displays to computers with Intel graphics (with a built-in hub)	31
Using data transfer	32
Connecting devices to a USB Type-C port (select products only)	32
6 Managing power.....	34
Using Sleep and Hibernation	34
Initiating and exiting Sleep.....	34
Initiating and exiting Hibernation (select products only)	35
Shutting down (turning off) the computer	35
Using the Power icon	36
Running on battery power	36
Using HP Fast Charge (select products only).....	36
Displaying battery charge	36
Finding battery information in HP Support Assistant (select products only)	37
Conserving battery power	37
Identifying low battery levels.....	37
Resolving a low battery level	37
Resolving a low battery level when external power is available.....	38
Resolving a low battery level when no power source is available.....	38
Resolving a low battery level when the computer cannot exit Hibernation	38
Factory-sealed battery	38

Running on external power	38
7 Security	40
Protecting the computer	40
Using passwords	41
Setting passwords in Windows	41
Setting passwords in Computer Setup	41
Managing a BIOS administrator password	42
Setting a new BIOS administrator password	42
Changing a BIOS administrator password	43
Deleting a BIOS administrator password	43
Entering a BIOS administrator password	44
Using DriveLock Security Options	44
Selecting Automatic DriveLock (select products only)	44
Enabling Automatic DriveLock	44
Disabling Automatic DriveLock	45
Entering an Automatic DriveLock password	45
Selecting manual DriveLock	45
Setting a DriveLock master password	46
Enabling DriveLock and setting a DriveLock user password	46
Disabling DriveLock	47
Entering a DriveLock password	48
Changing a DriveLock password	48
Windows Hello (select products only)	48
Using antivirus software	49
Using firewall software	49
Installing software updates	49
Using HP Client Security (select products only)	50
Using HP TechPulse (select products only)	50
Using an optional security cable (select products only)	50
Using a fingerprint reader (select products only)	50
8 Maintenance	51
Improving performance	51
Using Disk Defragmenter	51
Using Disk Cleanup	51
Using HP 3D DriveGuard (select products only)	51
Identifying HP 3D DriveGuard status	52
Updating programs and drivers	52
Cleaning your computer	52
Enabling HP Easy Clean (select products only)	52
Removing dirt and debris from your computer	53
Cleaning your computer with a disinfectant	53
Caring for wood veneer (select products only)	54
Traveling with or shipping your computer	54

9 Backing up, restoring, and recovering	56
Backing up information and creating recovery media	56
Using Windows tools for backing up	56
Using the HP Cloud Recovery Download Tool to create recovery media (select products only)	56
Restoring and recovering your system	56
Creating a system restore	57
Restoring and recovery methods	57
Recovering using HP Recovery media	57
Changing the computer boot order	58
Using HP Sure Recover (select products only)	58
10 Computer Setup (BIOS), TPM, and HP Sure Start	59
Using Computer Setup	59
Navigating and selecting in Computer Setup	59
Restoring factory settings in Computer Setup	59
Updating the BIOS	60
Determining the BIOS version	60
Preparing for a BIOS update	60
Downloading a BIOS update	61
Installing a BIOS update	61
Changing the boot order using the f9 prompt	61
TPM BIOS settings (select products only)	62
Using HP Sure Start (select products only)	62
11 Using HP PC Hardware Diagnostics	63
Using HP PC Hardware Diagnostics Windows (select products only)	63
Using an HP PC Hardware Diagnostics Windows hardware failure ID code	63
Accessing HP PC Hardware Diagnostics Windows	63
Accessing HP PC Hardware Diagnostics Windows from HP Help and Support (select products only)	63
Accessing HP PC Hardware Diagnostics Windows from HP Support Assistant	64
Accessing HP PC Hardware Diagnostics Windows from the Start menu (select products only)	64
Downloading HP PC Hardware Diagnostics Windows	64
Downloading the latest HP PC Hardware Diagnostics Windows version from HP	64
Downloading HP Hardware Diagnostics Windows by product name or number (select products only)	64
Downloading the HP PC Hardware Diagnostics Windows from the Microsoft Store	65
Installing HP PC Hardware Diagnostics Windows	65
Using HP PC Hardware Diagnostics UEFI	65
Using an HP PC Hardware Diagnostics UEFI hardware failure ID code	65
Starting HP PC Hardware Diagnostics UEFI	66
Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive	66
Downloading the latest HP PC Hardware Diagnostics UEFI version	66
Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)	66
Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)	67
Downloading Remote HP PC Hardware Diagnostics UEFI	67
Downloading the latest Remote HP PC Hardware Diagnostics UEFI version	67
Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number	67
Customizing Remote HP PC Hardware Diagnostics UEFI settings	67

12 Specifications	69
Input power	69
Operating environment	70
13 Electrostatic discharge	72
14 Accessibility	73
HP and accessibility	73
Finding the technology tools you need	73
The HP commitment	73
International Association of Accessibility Professionals (IAAP)	74
Finding the best assistive technology	74
Assessing your needs	74
Accessibility for HP products	74
Standards and legislation	75
Standards	75
Mandate 376 – EN 301 549	75
Web Content Accessibility Guidelines (WCAG)	75
Legislation and regulations	75
Useful accessibility resources and links	76
Organizations	76
Educational institutions	76
Other disability resources	76
HP links	77
Contacting support	77
Index	78

1 Getting started

This computer is a powerful tool designed to enhance your work and entertainment. Read this chapter to learn about best practices after you set up your computer and where to find additional HP resources.

After you set up and register the computer, HP recommends the following steps to get the most out of your smart investment:



TIP: To quickly return to the computer Start screen from an open app or the Windows desktop, press the Windows key on your keyboard. Pressing the Windows key again returns you to the previous screen.

- **Connect to the internet**—Set up your wired or wireless network so that you can connect to the internet. For more information, see [Network connections on page 19](#).
- **Update your antivirus software**—Protect your computer from damage caused by viruses. The software is preinstalled on the computer. For more information, see [Using antivirus software on page 49](#).
- **Get to know your computer**—Learn about your computer features. See [Components on page 3](#) and [Navigating the screen on page 24](#) for additional information.
- **Find installed software**—Access a list of the software preinstalled on the computer:

Select the **Start** button, and then select **All apps**.

– or –

Right-click the **Start** button, and then select **Apps and Features**.
- **Back up your hard drive**—Create recovery discs or a recovery USB flash drive to back up your hard drive. See [Backing up, restoring, and recovering on page 56](#).
- **Access HP Support Assistant app**—For quick online support, open the HP Support Assistant app (select products only). HP Support Assistant optimizes computer performance and resolves problems using the latest software updates, diagnostic tools, and guided assistance. Select the **Search** icon in the taskbar, type `support` in the search box, and then select **HP Support Assistant**.

Finding information

To locate resources that provide product details, how-to information, and more, use this table.

Table 1-1 Additional information

Resource	Contents
<i>Setup Instructions</i>	• Overview of computer setup and features

Table 1-1 Additional information (continued)

Resource	Contents
<i>HP support</i> For HP support, go to https://www.hp.com/support, and follow the instructions to find your product. – or – Select the Search icon in the taskbar, type <code>support</code> in the search box, and then select HP Support Assistant. – or – Select the question mark icon (select products only) in the taskbar.	• Online chat with an HP technician • Support telephone numbers • Replacement parts videos (select products only) • Maintenance and service guides • HP service center locations
<i>Safety & Comfort Guide</i> To access this guide: ■ Select the Search icon in the taskbar, type <code>HP Documentation</code> in the search box, and then select HP Documentation. – or – ■ Go to http://www.hp.com/ergo. IMPORTANT: You must be connected to the internet to access the latest version of the user guide.	• Proper workstation setup • Guidelines for posture and work habits that increase your comfort and decrease your risk of injury • Electrical and mechanical safety information
<i>Regulatory, Safety, and Environmental Notices</i> To access this document: ■ Select the Search icon in the taskbar, type <code>HP Documentation</code> in the search box, and then select HP Documentation.	• Important regulatory notices, including information about Restrictions of Hazardous Substances (RoHS) and proper battery disposal, if needed.
<i>Limited Warranty*</i> To access this document: ■ Select the Search icon in the taskbar, type <code>HP Documentation</code> in the search box, and then select HP Documentation. – or – ■ Go to http://www.hp.com/go/orderdocuments. IMPORTANT: You must be connected to the internet to access the latest version of the user guide.	• Specific warranty information about this computer
*You can find your HP Limited Warranty located with the user guides on your product and/or on the CD or DVD provided in the box. In some countries or regions, HP might provide a printed warranty in the box. For countries or regions where the warranty is not provided in printed format, you can request a copy from http://www.hp.com/go/orderdocuments. For products purchased in Asia Pacific, you can write to HP at POD, PO Box 161, Kitchener Road Post Office, Singapore 912006. Include your product name, and your name, phone number, and postal address.	

2 Components

Your computer features top-rated components. This chapter provides details about your components, where they are located, and how they work.

Locating hardware

Use these instructions to find out what hardware is installed on your computer.

- Select the **Search** icon in the taskbar, type `device manager` in the search box, and then select the **Device Manager** app.

A list displays all the devices installed on your computer.

For information about system hardware components and the system BIOS version number, press `fn+esc` (select products only).

Locating software

Use these instructions to find out what software is installed on your computer:

- Right-click the **Start** button, and then select **Apps and Features**.

Right

Use the illustration and table to identify the components on the right side of the computer.

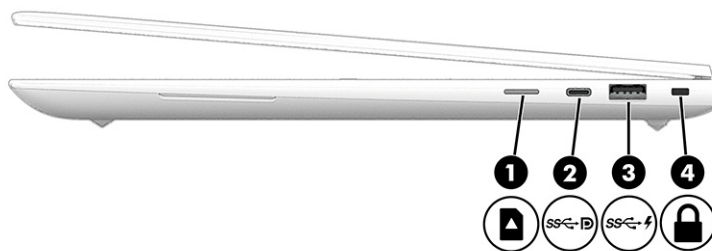


Table 2-1 Right-side components and their descriptions

Component	Description
(1)  microSD™ card reader	Reads optional memory cards that store, manage, share, or access information. To insert a card: 1. Hold the card label-side up, with the connectors facing the computer. 2. Insert the card into the memory card reader, and then press in on the card until it is firmly seated. To remove a card: ■ Press in on the card, and then remove it from the memory card reader.
(2)  USB Type-C® power connector port, SuperSpeed 20 Gbps port, and DisplayPort™ output	Connects a USB device, provides high-speed data transfer, and (for select products) charges small devices (such as a smartphone) when the computer is on or in Sleep mode. NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device. – and – Connects a display device that has a USB Type-C connector, providing DisplayPort output.
(3)  USB SuperSpeed 20 Gbps port with HP Sleep and Charge	Connects a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off. NOTE: Use a standard USB Type-A charging cable or cable adapter (purchased separately) when charging a small external device.
(4)  Security cable slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it might not prevent the computer from being mishandled or stolen.

Left

Use the illustration and table to identify the components on the left side of the computer.

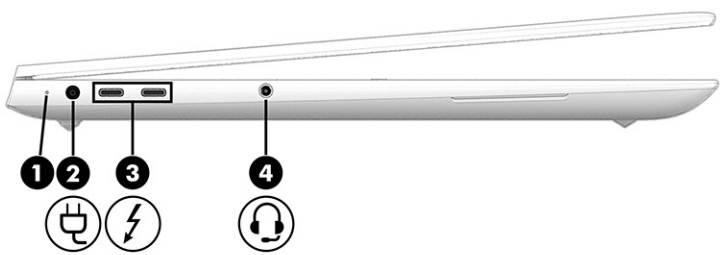


Table 2-2 Left-side components and their descriptions

Component	Description
(1) Battery light	When AC power is connected: • White: The battery charge is greater than 90%. • Amber: The battery charge is from 0 to 90%. • Off: The battery is not charging. When AC power is disconnected (battery not charging): • Blinking amber: The battery has reached a low battery level. When the battery has reached a critical battery level, the battery light begins blinking rapidly. • Off: The battery is not charging.
(2)  Power connector	Connects an AC adapter.
(3)  USB Type-C power connectors and Thunderbolt™ ports with HP Sleep and Charge (2)	Connect a USB device, provides high-speed data transfer, and charges small devices (such as a smartphone), even when the computer is off. NOTE: Use a standard USB Type-C charging cable or cable adapter (purchased separately) when charging a small external device. NOTE: Your computer might also support a Thunderbolt docking station. – and – Connect a display device that has a USB Type-C connector, providing DisplayPort output.
(4)  Audio-out (headphone)/Audio-in (microphone) combo jack	Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional standalone microphones. WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, see the <i>Regulatory, Safety, and Environmental Notices</i>. To access this guide: ■ Select the Search icon in the taskbar, type HP Documentation in the search box, and then select HP Documentation. NOTE: When a device is connected to the jack, the computer speakers are disabled.

Display

Use the illustration and table to identify the display components.

Low blue light mode (select products only)

Your computer display is shipped from the factory in low blue light mode for improved eye comfort and safety. Also, blue light mode automatically adjusts blue light emissions when you are using the computer at night or for reading.

⚠ WARNING! To reduce the risk of serious injury, read the *Safety & Comfort Guide*. It describes proper workstation setup and proper posture, health, and work habits for computer users. The *Safety & Comfort Guide* also provides important electrical and mechanical safety information. The *Safety & Comfort Guide* is available on the web at <http://www.hp.com/ergo>.

📝 NOTE: Choose the illustration that matches your computer.

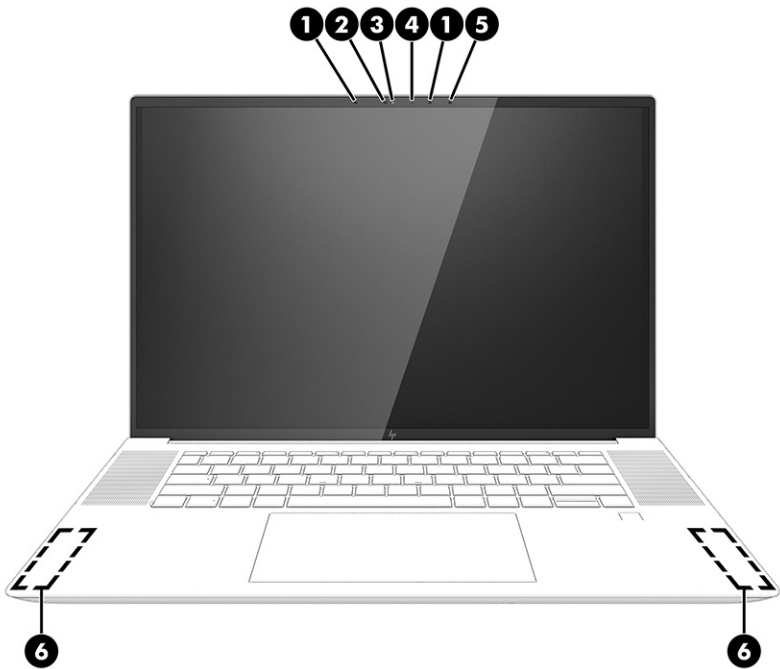


Table 2-3 Display components and their descriptions

Component		Description
(1)	Infrared (IR) LEDs (2)	On: Camera is operating.
(2)	Camera (IR)*	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 28 . 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 48 . NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(3)	Camera (Web)	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 28 . 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 48 . NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(4)	Webcam LED	On: Camera is operating.

Table 2-3 Display components and their descriptions (continued)

Component	Description
(5) Ambient light sensor	Detects light levels in the environment to adjust the camera's noise reduction levels.
(6) Antennas (2)**	Send and receive wireless signals to communicate with wireless local area networks (WLANs).

*The infrared camera and lenses are not visible from the outside of the computer.

**The antennas are not visible from the outside of the computer.

For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

- Select the **Search** icon in the taskbar, type `HP Documentation` in the search box, and then select **HP Documentation**.

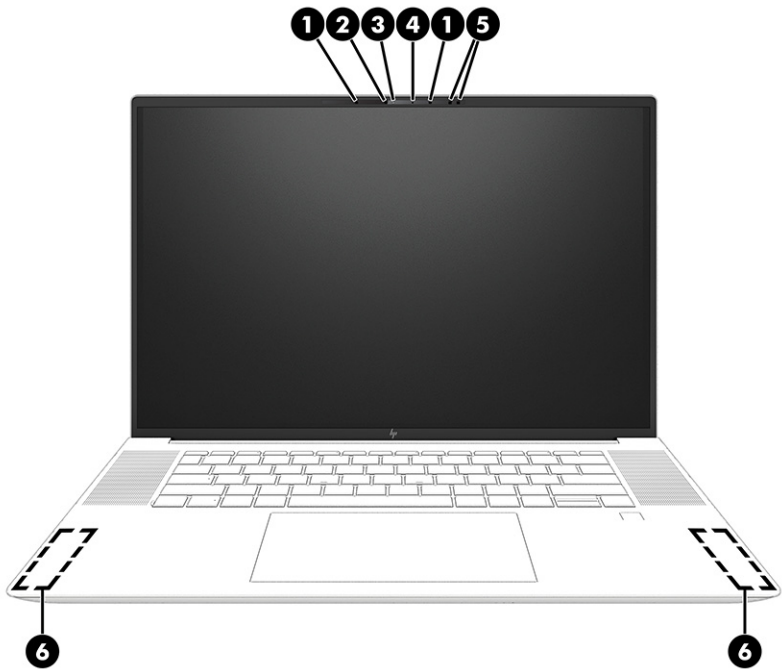


Table 2-4 Display components and their descriptions

Component	Description
(1) Infrared LEDs (2)	On: Camera is operating.
(2) Camera (IR)*	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 28 . 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 48 . NOTE: Camera functions vary depending on the camera hardware and software installed on your product.

Table 2-4 Display components and their descriptions (continued)

Component	Description
(3) Camera (Web)	Allows you to video chat, record video, and record still images. To use your camera, see Using a camera (select products only) on page 28 . 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 48 . NOTE: Camera functions vary depending on the camera hardware and software installed on your product.
(4) Web cam LED	On: Camera is operating.
(5) Ambient light sensors (2)	Detect light levels in the environment to adjust the camera's noise reduction levels.
(6) Antennas (2)**	Send and receive wireless signals to communicate with wireless local area networks (WLANs).

*The infrared camera and lenses are not visible from the outside of the computer.

**The antennas are not visible from the outside of the computer.

For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this guide:

- Select the **Search** icon in the taskbar, type `HP Documentation` in the search box, and then select **HP Documentation**.

Keyboard area

Keyboards can vary by language.



NOTE: The keyboard, including the function keys and power key (select products only), is disabled in stand, tent, and tablet modes. To enable the keyboard, including the power key, change to the clamshell mode.

Touchpad

The touchpad settings and components are described here.

Touchpad settings

You learn how to adjust the touchpad settings and components here.

Adjusting touchpad settings

Use these steps to adjust touchpad settings and gestures.

1. Select the **Search** icon in the taskbar, type `touchpad settings` in the search box, and then press `enter`.
2. Choose a setting.

Turning on the touchpad

Follow these steps to turn on the touchpad.

1. Select the **Search** icon in the taskbar, type `touchpad settings` in the search box, and then press `enter`.

2. Using an external mouse, click the **Touchpad** button.

If you are not using an external mouse, press the **Tab** key repeatedly until the pointer rests on the **touchpad** button. Then press the **spacebar** to select the button.

Touchpad components

Use the illustration and table to identify the touchpad components.

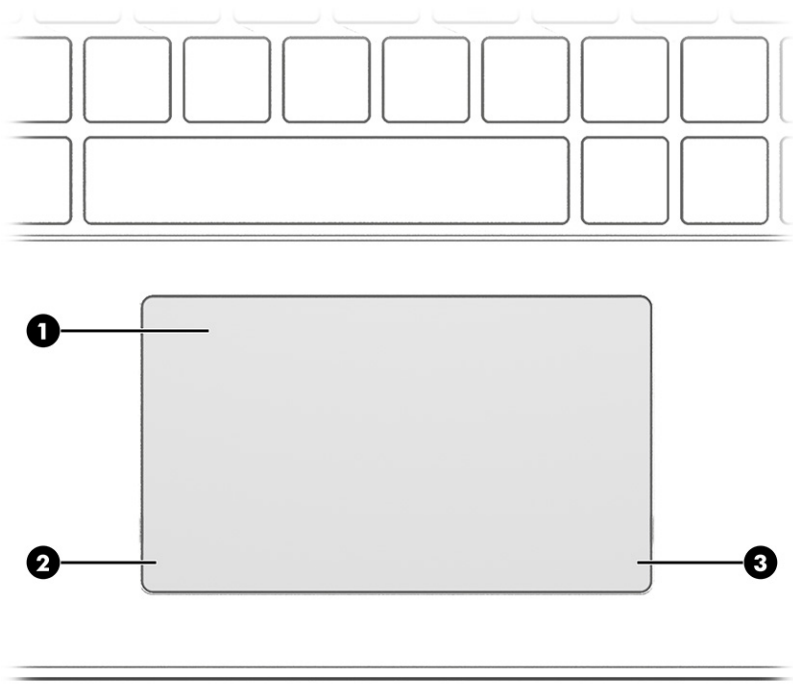


Table 2-5 Touchpad components and their descriptions

Component		Description
(1)	Touchpad zone	Reads your finger gestures to move the pointer or activate items on the screen. NOTE: For more information, see Using touchpad and touch screen gestures on page 24 .
(2)	Left touchpad zone	Functions like the left button on an external mouse.
(3)	Right touchpad zone	Functions like the right button on an external mouse.

Lights

Use the illustration and table to identify the lights on the computer.