



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.

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. 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. Miracast® and Wi-Fi are registered trademarks of Wi-Fi Alliance.

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.

First Edition: March 2022

Document Part Number: N03044-001

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	5
Display	5
Low blue light mode (select products only)	6
Keyboard area	7
Touchpad	7
Touchpad settings	7
Adjusting touchpad settings	7
Turning on the touchpad	7
Touchpad components	8
Lights	8
Button, speakers, camera, and fingerprint reader	10
Special keys	11
Action keys	12
Hot keys (select products only)	14
Bottom	14
Labels	15
3 Network connections	18
Connecting to a wireless network	18
Using the wireless controls	18
Wireless button	18
Operating system controls	18
Connecting to a WLAN	19
Using HP Mobile Broadband (select products only)	20
Using eSIM (select products only)	20
Using GPS (select products only)	21
Using Bluetooth wireless devices (select products only)	21
Connecting Bluetooth devices	21
Using NFC to share information (select products only)	21
Connecting to a wired network	22
Connecting to a local area network (LAN) (select products only)	22
Using HP LAN-Wireless Protection (select products only)	23
Using HP MAC Address Pass Through (select products only)	23

4 Navigating the screen	25
Using touchpad and touch screen gestures	25
Tap.....	25
Two-finger pinch zoom.....	26
Two-finger slide (touchpad and precision touchpad)	26
Two-finger tap (touchpad and precision touchpad).....	26
Three-finger tap (touchpad and precision touchpad)	26
Four-finger tap (touchpad and precision touchpad)	27
Three-finger swipe (touchpad and precision touchpad)	27
Four-finger swipe (precision touchpad)	27
One-finger slide (touch screen)	28
Using an optional keyboard or mouse.....	28
Using an on-screen keyboard (select products only).....	28
5 Entertainment features	29
Using a camera (select products only)	29
Using audio	29
Connecting speakers.....	29
Connecting headphones	29
Connecting headsets	30
Using sound settings	30
Viewing or changing sound settings	30
Using the control panel to view and control audio settings	30
Using video.....	31
Connecting a DisplayPort device using a USB Type-C cable (select products only)	31
Connecting video devices using an HDMI cable (select products only).....	32
Connecting a high-definition TV or monitor using HDMI.....	32
Setting up HDMI audio	33
Turning on HDMI audio.....	33
Turning off HDMI audio	33
Discovering and connecting to Miracast-compatible wireless displays (select products only)	34
Discovering and connecting to Intel WiDi certified displays (select Intel products only)	34
Connecting to Intel WiDi certified displays	34
Opening Intel WiDi.....	34
Using data transfer	34
Connecting devices to a USB Type-C port (select products only)	34
6 Managing power.....	36
Using Sleep and Hibernation	36
Initiating and exiting Sleep.....	36
Initiating and exiting Hibernation (select products only)	37
Shutting down (turning off) the computer	37
Using the Power icon	38
Running on battery power	38
Using HP Fast Charge (select products only).....	38
Displaying battery charge.....	38

Finding battery information in HP Support Assistant (select products only).....	39
Conserving battery power	39
Identifying low battery levels.....	39
Resolving a low battery level.....	39
Resolving a low battery level when external power is available	40
Resolving a low battery level when no power source is available	40
Resolving a low battery level when the computer cannot exit Hibernation.....	40
Factory-sealed battery	40
Running on external power	40
7 Security	42
Protecting the computer.....	42
Using passwords	43
Setting passwords in Windows.....	43
Setting passwords in Computer Setup	43
Managing a BIOS administrator password	44
Setting a new BIOS administrator password.....	44
Changing a BIOS administrator password	45
Deleting a BIOS administrator password.....	45
Entering a BIOS administrator password	46
Using DriveLock Security Options.....	46
Selecting Automatic DriveLock (select products only).....	46
Enabling Automatic DriveLock.....	46
Disabling Automatic DriveLock.....	47
Entering an Automatic DriveLock password.....	47
Selecting manual DriveLock	48
Setting a DriveLock master password	48
Enabling DriveLock and setting a DriveLock user password	49
Disabling DriveLock	49
Entering a DriveLock password	50
Changing a DriveLock password	50
Windows Hello (select products only)	50
Using antivirus software.....	51
Using firewall software	51
Installing software updates.....	51
Using HP Client Security (select products only)	52
Using HP TechPulse (select products only)	52
Using an optional security cable (select products only)	52
Using a fingerprint reader (select products only)	52
8 Maintenance.....	54
Improving performance	54
Using Disk Defragmenter.....	54
Using Disk Cleanup.....	54
Using HP 3D DriveGuard (select products only)	54
Identifying HP 3D DriveGuard status.....	55

Updating programs and drivers.....	55
Cleaning your computer.....	55
Enabling HP Easy Clean (select products only)	55
Removing dirt and debris from your computer.....	56
Cleaning your computer with a disinfectant	56
Caring for wood veneer (select products only)	57
Traveling with or shipping your computer	58
9 Backing up, restoring, and recovering	59
Backing up information and creating recovery media	59
Using Windows tools for backing up	59
Using the HP Cloud Recovery Download Tool to create recovery media (select products only)	59
Restoring and recovering your system.....	59
Creating a system restore	60
Restoring and recovery methods	60
Recovering using HP Recovery media	60
Changing the computer boot order	61
Using HP Sure Recover (select products only).....	61
10 Computer Setup (BIOS), TPM, and HP Sure Start	62
Using Computer Setup	62
Navigating and selecting in Computer Setup	62
Restoring factory settings in Computer Setup.....	62
Updating the BIOS.....	63
Determining the BIOS version.....	63
Preparing for a BIOS update	63
Downloading a BIOS update	64
Installing a BIOS update.....	64
Changing the boot order using the f9 prompt	64
TPM BIOS settings (select products only)	65
Using HP Sure Start (select products only)	65
11 Using HP PC Hardware Diagnostics	66
Using HP PC Hardware Diagnostics Windows (select products only)	66
Using an HP PC Hardware Diagnostics Windows hardware failure ID code	66
Accessing HP PC Hardware Diagnostics Windows.....	66
Accessing HP PC Hardware Diagnostics Windows from HP Help and Support (select products only)	66
Accessing HP PC Hardware Diagnostics Windows from HP Support Assistant	67
Accessing HP PC Hardware Diagnostics Windows from the Start menu (select products only)	67
Downloading HP PC Hardware Diagnostics Windows	67
Downloading the latest HP PC Hardware Diagnostics Windows version from HP.....	67
Downloading the HP PC Hardware Diagnostics Windows from the Microsoft Store	67
Downloading HP Hardware Diagnostics Windows by product name or number (select products only).....	68
Installing HP PC Hardware Diagnostics Windows.....	68
Using HP PC Hardware Diagnostics UEFI	68
Using an HP PC Hardware Diagnostics UEFI hardware failure ID code.....	68
Starting HP PC Hardware Diagnostics UEFI	69

Downloading HP PC Hardware Diagnostics UEFI to a USB flash drive	69
Downloading the latest HP PC Hardware Diagnostics UEFI version	69
Downloading HP PC Hardware Diagnostics UEFI by product name or number (select products only)	70
Using Remote HP PC Hardware Diagnostics UEFI settings (select products only)	70
Downloading Remote HP PC Hardware Diagnostics UEFI	70
Downloading the latest Remote HP PC Hardware Diagnostics UEFI version.....	70
Downloading Remote HP PC Hardware Diagnostics UEFI by product name or number.....	70
Customizing Remote HP PC Hardware Diagnostics UEFI settings	70
12 Specifications	72
Input power	72
Operating environment	73
13 Electrostatic discharge	74
14 Accessibility	75
HP and accessibility	75
Finding the technology tools you need	75
The HP commitment	75
International Association of Accessibility Professionals (IAAP)	76
Finding the best assistive technology	76
Assessing your needs	76
Accessibility for HP products	76
Standards and legislation	77
Standards	77
Mandate 376 – EN 301 549.....	77
Web Content Accessibility Guidelines (WCAG)	77
Legislation and regulations	78
Useful accessibility resources and links	78
Organizations.....	78
Educational institutions.....	78
Other disability resources.....	79
HP links	79
Contacting support	79
Index	80

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 18](#).
- **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 51](#).
- **Get to know your computer**—Learn about your computer features. See [Components on page 3](#) and [Navigating the screen on page 25](#) for additional information.
- **Find installed software**—Access a list of the software preinstalled on the computer:

Select the **Start** button.

– 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 59](#).
- **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 (select products only) 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
<i>HP support</i>	• Online chat with an HP technician
For HP support, go to http://www.hp.com/support , and follow the instructions to find your product.	• Support telephone numbers
– or –	• Replacement parts videos (select products only)
Select the Search icon (select products only) in the taskbar, type <code>support</code> in the search box, and then select HP Support Assistant .	• Maintenance and service guides • HP service center locations

Table 1-1 Additional information (continued)

Resource	Contents
– or –	
Select the question mark icon (select products only) in the taskbar search box, and then select Support .	
<i>Safety & Comfort Guide</i>	• Proper workstation setup • Guidelines for posture and work habits that increase your comfort and decrease your risk of injury • Electrical and mechanical safety information
To access this guide:	
▲ Select the Search icon (select products only) in the taskbar, type <i>HP Documentation</i> 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.	
<i>Regulatory, Safety, and Environmental Notices</i>	• Important regulatory notices, including information about Restrictions of Hazardous Substances (RoHS) and proper battery disposal, if needed.
To access this document:	
▲ Select the Search icon (select products only) in the taskbar, type <i>HP Documentation</i> in the search box, and then select HP Documentation .	
<i>Limited Warranty*</i>	• Specific warranty information about this computer
To access this document:	
▲ Select the Search icon (select products only) in the taskbar, type <i>HP Documentation</i> 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.	
*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 (select products only) 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.

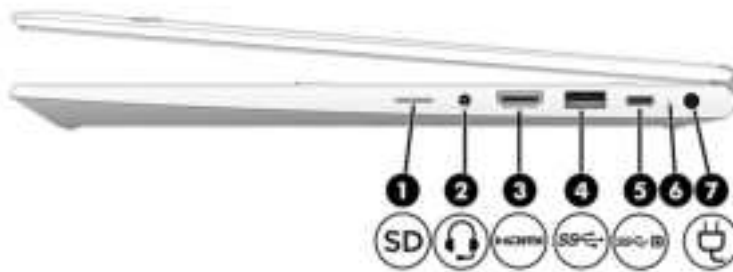


Table 2-1 Right-side components and their descriptions

Component		Description
(1)	 microSD™ memory card reader (select products only)	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.

Table 2-1 Right-side components and their descriptions (continued)

Component	Description
	To remove a card: ▲ Press in on the card, and then remove it from the memory card reader.
(2)  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 (select products only) 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.
(3)  HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High Definition Multimedia Interface (HDMI) device.
(4)  USB SuperSpeed 5 Gbps port	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-A charging cable or cable adapter (purchased separately) when charging a small external device.
(5)  USB Type-C® SuperSpeed 10 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 DisplayPort device that has a USB Type-C connector, providing display output.
(6) Battery light	When AC power is connected: • White: The battery charge is greater than 90 percent. • Amber: The battery charge is from 0 to 90 percent. • 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.

Table 2-1 Right-side components and their descriptions (continued)

Component		Description
(7)		Power connector
		Connects an AC adapter.

Left

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

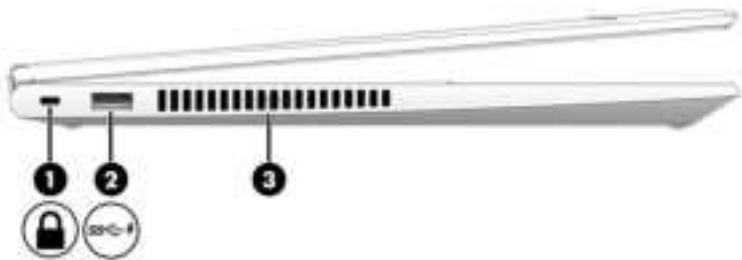


Table 2-2 Left-side components and their descriptions

Component		Description
(1)		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.
(2)		USB SuperSpeed 5 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.
(3)		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.

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>.



Table 2-3 Display components and their descriptions

Component		Description
(1)	WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(2)	Ambient light sensor (select products only)	Adjust the brightness of the display, depending on the ambient light.
(3)	Internal microphones	Record sound.
(4)	Camera light	On: The camera is in use.
(5)	Camera privacy cover	By default, the camera lens is uncovered, but you can slide the camera privacy cover to block the camera's view. To use the camera, slide the camera privacy cover in the opposite direction to reveal the lens.
		NOTE: If you have both front-facing and rear-facing cameras, when one camera lens is revealed and ready to use, the other is concealed.
(6)	Camera(s) (select products only)	Allow(s) 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,

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

Component	Description
	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.
*The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the <i>Regulatory, Safety, and Environmental Notices</i> that applies to your country or region. To access this guide: ▲ Select the Search icon (select products only) in the taskbar, type <code>HP Documentation</code> 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 button (select products only), is disabled in stand, tent, and tablet modes. To enable the keyboard, including the power button, 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 (select products only) 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 (select products only) 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.

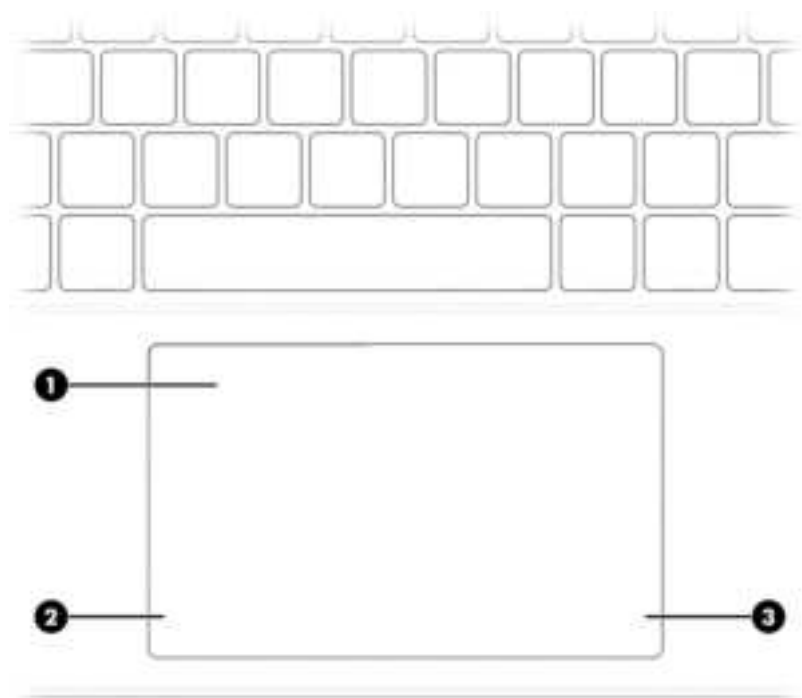


Table 2-4 Touchpad components and their descriptions

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 25 .
(2)	Left touchpad button	Functions like the left button on an external mouse.
(3)	Right touchpad button	Functions like the right button on an external mouse.

Lights

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