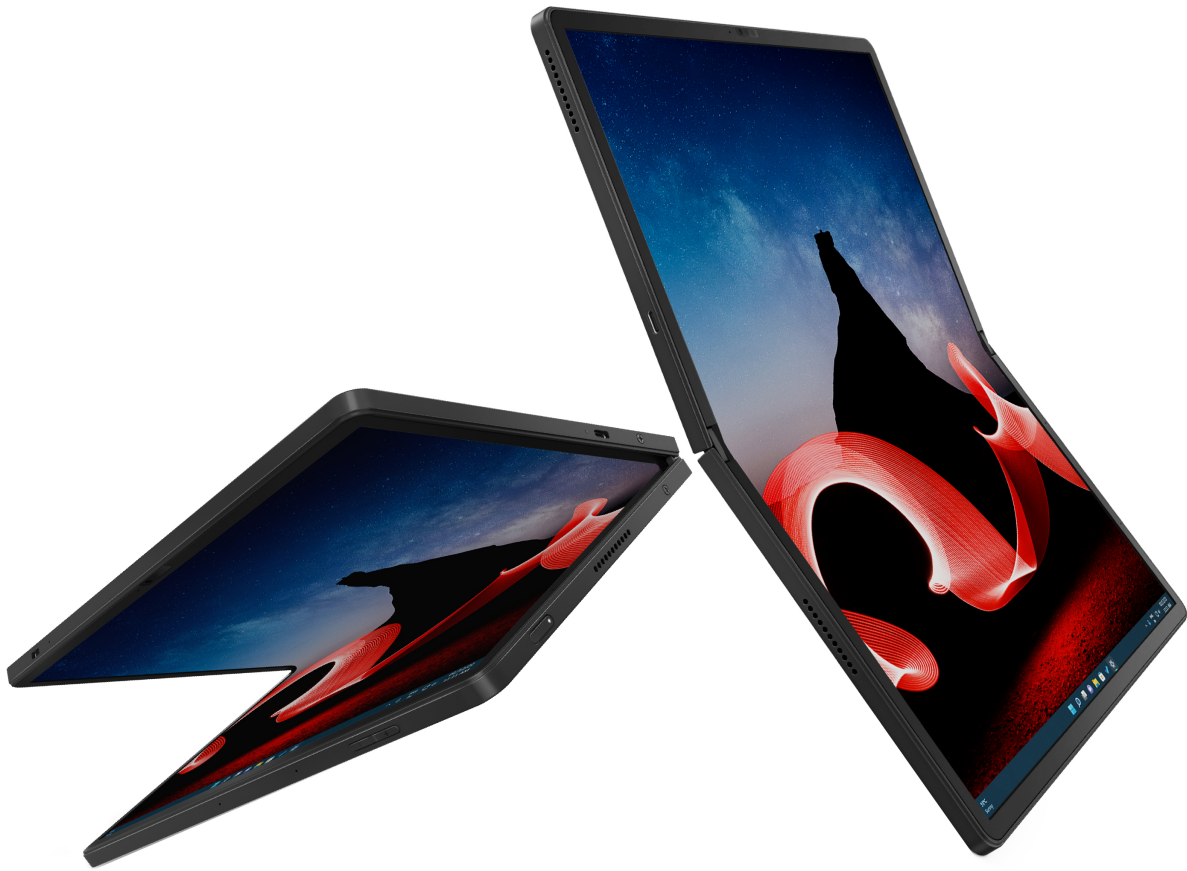


# ThinkPad®

## ThinkPad X1 Fold 16 Gen 1 User Guide



**Lenovo**





## **Read this first**

Before using this documentation and the product it supports, ensure that you read and understand the following:

- *Safety and Warranty Guide*
- *Setup Guide*
- [Generic Safety and Compliance Notices](#)

**First Edition (October 2023)**

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## Discover your Lenovo Foldable Computer

**Thank you for choosing a Lenovo® Foldable Computer! We are dedicated to delivering the best solution to you.**

Before starting your tour, read the following information:

- Illustrations in this documentation might look different from your product.
- Depending on the model, some optional accessories, features, software programs, and user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. To get the latest documentation, go to <https://pcsupport.lenovo.com>.





# Chapter 1. Meet your new Foldable Computer

ThinkPad Fold 16 Gen 1 creates your new experience of the foldable computer.

## Ultra versatility

- High-efficiency data transfer, charging, and video output through two Thunderbolt connectors
- High-speed and superior reliable 5G cellular service\*
- Optimized Smart Displays and new TrackPoint Quick Menu
- Multi modes to transform with you throughout your day

## Upgraded accessories

- Newly designed ThinkPad Bluetooth TrackPoint Keyboard and Stand\*
- Magnetically attached Lenovo Precision Pen\*

## Eco-friendly back cover material

100% recycled material

\* for selected models




## Overview



<https://support.lenovo.com/us/en/videos/vid500168>



Item	Description	Item	Description
USB-C	USB-C® (3.2 Gen 2) connector		Microphone
	Speaker		Power button
	Volume button		USB-C (Thunderbolt™ 4) connector

Item	Description	Item	Description
	Nano-SIM-card tray		Infrared (IR) camera / Camera
	Touch screen		

\* for selected models

### Related topics

- “Connect to a cellular network (for selected models)” on page 8
- “Use the OLED touch screen ” on page 9
- “Smart features (for selected models)” on page 28
- “Log in with your face ID” on page 39

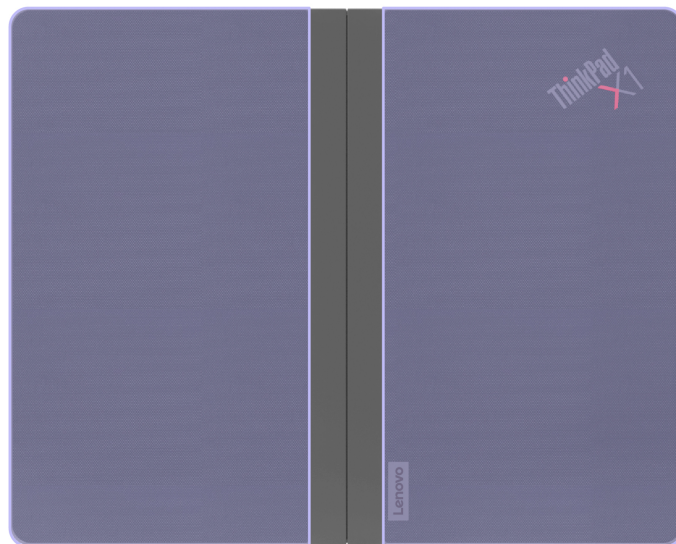
### Important information

Your foldable computer contains magnets. Keep a safe distance away from devices and objects that may be affected by magnets, such as credit cards.



## Rear view

The back cover is made from 100% recycled material. Handle the back cover with care so that you can enjoy this product for a long time.



**Maintenance tips and usage notices for back cover**

- Care for the fabric back cover by regularly wiping with a soft and clean cloth. If the stain is persistent, use a damp cloth moistened with water or light-grade fabric cleaner.
- Do not clean the back cover with alcohol-based solvents, such as benzine or thinners, or other strong chemicals.
- Take special care when cosmetics come in contact with the back cover. If any such products contact with the back cover, use a dry cloth to wipe them off immediately.
- Do not expose the back cover to the sun or moisture for long periods of time. Clean with a soft cloth if the back cover becomes wet. Dry it by dabbing with an absorbent lint-free cloth and keep it out of the direct sunlight. If possible, place your computer in a dry, well-ventilated area.
- Do not use or store your computer in dusty, dirty areas, or extremely hot or cold areas.
- Keep the back cover away from sharp objects and fire.

---

## Features and specifications

For detailed specifications of your computer, go to <https://psref.lenovo.com> and search by products.

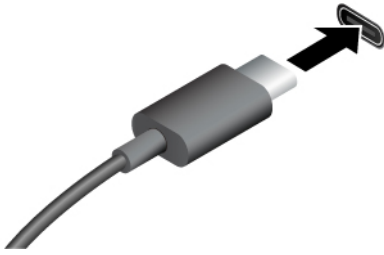
Specification	Description
<b>Memory</b>	Low Power Double Data Rate 5 (LPDDR5) soldered on the system board, up to 32 GB.
<b>Storage device</b>	<ul style="list-style-type: none"><li>• One slot, M.2 2242 solid-state drive, up to 1 TB</li></ul>
<b>Audio</b>	<ul style="list-style-type: none"><li>• Dolby Atmos® Speaker System</li><li>• Dolby Voice®</li></ul>
<b>Display</b>	<ul style="list-style-type: none"><li>• Color display with flexible Organic Light Emitting Diode (OLED) technology and Thin Film Transistor (TFT) technology.</li><li>• Display ratio: 4:3</li><li>• Display resolution: 2560 x 2024 pixels</li><li>• 10-point multi-touch technology</li></ul>
<b>Security features</b>	<ul style="list-style-type: none"><li>• Face authentication</li><li>• User Presence Sensing*</li><li>• Fingerprint reader* (integrated in ThinkPad Bluetooth TrackPoint Keyboard and Stand)</li><li>• Glance Privacy Guard*</li><li>• Glance Privacy Alert*</li><li>• Trusted Platform Module (TPM)*</li></ul>
<b>Wireless features</b>	<ul style="list-style-type: none"><li>• Bluetooth</li><li>• GPS (on wireless WAN models)*</li><li>• Wireless LAN</li><li>• Wireless WAN (5G)*</li></ul> <p><b>Note:</b> The 5G cellular service is provided by authorized mobile service carriers in some countries or regions. You must have a cellular plan from a service carrier to connect to the cellular network. The cellular data plan might vary by location.</p>

\* for selected models

## USB specifications

### Notes:

- Depending on the model, some USB connectors might not be available on your foldable computer.
- On very rare occasions, the USB-C compatible devices connected to USB-C connector might interfere with wireless features. If your computer cannot be connected to Wi-Fi or cellular network, or if your location cannot be pinpointed through the GPS function, detach the USB-C compatible device from the USB connector.
- Use USB to USB-C adapter to attach some non-USB-C devices to your foldable computer.

Connector name	Description
 <ul style="list-style-type: none"> <li>• USB-C (3.2 Gen 1) connector</li> <li>• USB-C (3.2 Gen 2) connector</li> <li>• USB-C (Thunderbolt 3) connector</li> <li>• USB-C (Thunderbolt 4) connector</li> <li>• USB-C (USB 4) connector</li> </ul>	<ul style="list-style-type: none"> <li>• Charge USB-C compatible devices with the output voltage and current of 5 V and 1.5 A.</li> <li>• Connect to an external display: <ul style="list-style-type: none"> <li>– USB-C to VGA: up to 1920 x 1200 pixels, 60 Hz</li> <li>– USB-C (Thunderbolt 4) to DP: up to 5120 x 3200 pixels, 60 Hz</li> <li>– USB-C (3.2 Gen 2) to DP: up to 4096 x 2304 pixels, 60 Hz</li> </ul> </li> <li>• Connect to USB-C accessories to help expand your computer functionality. To purchase USB-C accessories, go to <a href="https://www.lenovo.com/accessories">https://www.lenovo.com/accessories</a>.</li> </ul>

### Statement on USB transfer rate

Depending on many factors such as the processing capability of the host and peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and will be slower than the data rate listed below for each corresponding device.

USB device	Data rate (Gbit/s)
3.2 Gen 1	5
3.2 Gen 2	10
3.2 Gen 2 × 2	20
4 Gen 2 × 2	20
4 Gen 3 × 2	40
Thunderbolt 3	40
Thunderbolt 4	40



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## Chapter 2. Get started with your Foldable Computer





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### Four-in-one Foldable Screen

Your foldable computer features the following modes. Switch between different modes to experience the most of the four-in-one foldable computer.



---

Mode	Recommended scenario(s)
 Landscape mode	<ul style="list-style-type: none"><li>• Working at the desk or tabletop</li><li>• Multi-tasking</li><li>• Watching Movies</li></ul>
 Clamshell mode	<ul style="list-style-type: none"><li>• Using the foldable computer as a normal laptop</li><li>• Using while traveling / in small spaces / typing on lap</li><li>• Writing Emails</li><li>• Multi-tasking</li></ul>
 Book mode	<ul style="list-style-type: none"><li>• Reading</li><li>• Browsing Multiple Webpages</li><li>• Note Taking while Reading</li></ul>
 Portrait mode	<ul style="list-style-type: none"><li>• Joining / Presenting Online Meetings</li><li>• Browsing / Editing Long Documents</li><li>• Split Screen Multi-tasking</li></ul>

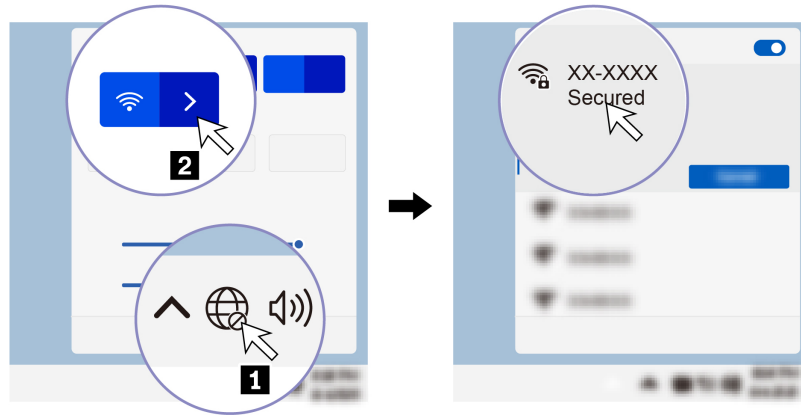
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### Access networks

This section helps you connect to a wireless or wired network.

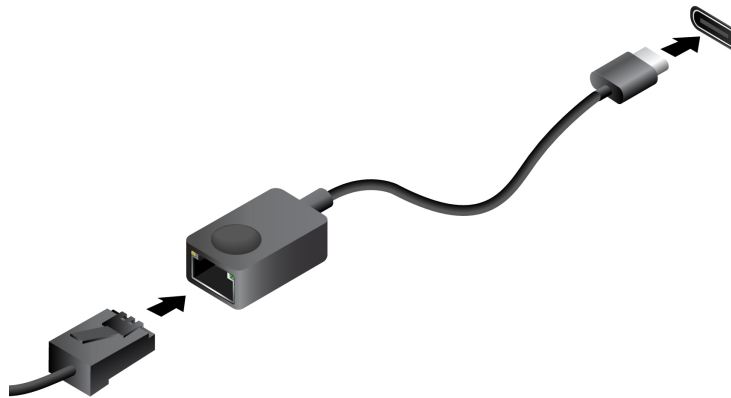
#### Connect to Wi-Fi networks

Click the network icon in the Windows® notification area, and then select a network for connection. Provide required information, if needed.



## Connect to the wired Ethernet (for selected models)

To connect your computer to a local network, you need a Lenovo USB-C to Ethernet Adapter. Lenovo USB-C to Ethernet Adapter is available as an option and shipped with some computer models. You can purchase one from Lenovo at <https://www.lenovo.com/accessories>.



## Connect to a cellular network (for selected models)

To connect a 5G cellular data network, you must have a wireless wide area network (WWAN) card and a Nano-SIM card installed. The Nano-SIM card might come with your computer by countries or regions. If no Nano-SIM-card is shipped, you will need to purchase one from authorized service carriers.

### Notes:

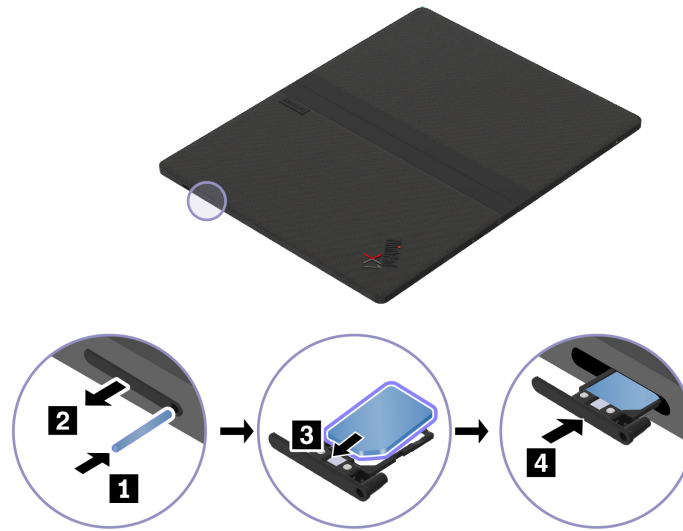
- Depending on model, your computer might have no WWAN card installed.
- The 5G cellular service is provided by authorized mobile service carriers in some countries or regions. You must have a cellular plan from a service carrier to connect to the cellular network. The cellular data plan might vary by locations.
- Network connection speeds might also vary by location, environments, network conditions and other factors.

To establish a cellular connection:

1. Turn off the computer and turn it over.
2. Locate the Nano-SIM card slot.



3. Insert a straightened paper clip into the hole beside the SIM tray to eject the tray. Insert the SIM card into the tray. Note the orientation of the card and ensure that it is seated correctly.



4. Turn on the computer.
5. Click the network icon, and then select the cellular network icon from the list. Provide required information, if needed.

## Turn on the Airplane mode

When the Airplane mode is enabled, all wireless features are disabled.

1. Type Airplane mode in the Windows search box and then press Enter.
2. Turn on the Airplane mode.

---

## Interact with your computer

Your computer provides you various ways to navigate the screen.

### Use the OLED touch screen

#### Use the touch gestures

Your foldable computer display supports the multi-touch function, you can navigate the screen with simple touch gestures. For more touch gestures, refer to <https://support.microsoft.com/windows>.

**Note:** Some gestures might not be available when you are using certain apps.

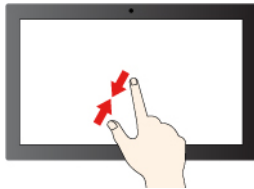
**Illustration and description**



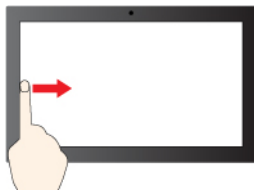
Tap once to single click



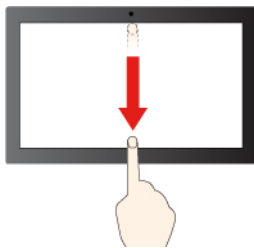
Tap and hold to right-click



Zoom out



Swipe from the left: open widget panel



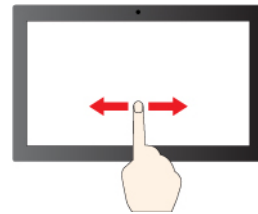
Swipe downwards shortly: show title bar

Swipe downwards: close the current app

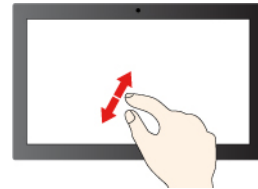
**Illustration and description**



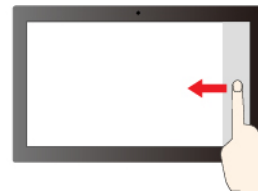
Tap twice quickly to double-click



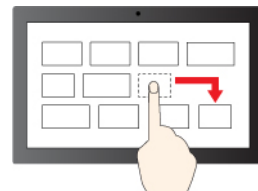
Slide to scroll through items



Zoom in



Swipe from the right: open Notification Center



Drag

## Use the On-Screen Keyboard

You can use the On-Screen Keyboard when your foldable computer is in portrait mode, landscape mode or clamshell mode.

To use the On-Screen Keyboard, tap the keyboard icon in the toolbar as shown. Then the On-Screen Keyboard is displayed.



**Note:** TrackPoint, fingerprint reader and special keys functions are not supported on the On-Screen Keyboard.

## Maintenance tips and usage notices for OLED screen

Follow the instructions in daily use to maintain the OLED screen.

- Do not attach any adhesives to the display, such as a screen protector or a sticker.
- Do not apply excessive pressure or place any metallic objects on the screen. Otherwise, the touch panel could be damaged or malfunctioning.
- Do not scratch the screen with hard or sharp objects or drop them on the screen. Only use objects and accessories that are recommended for use with the ThinkPad X1 Fold 16 Gen 1.
- Do not use fingernails, gloved fingers, or other incompatible objects for touch input. Use clean fingers or an approved pen such as Lenovo Precision Pen or Lenovo Precision Pen 2.
- Do not place any objects inside when folding the computer.
- Avoid splash and wipe off liquids from the screen as soon as possible. Any extended contact with the screen could result in deformations and color fading.
- Turn off your computer before cleaning the screen. Use a dry, soft, and lint-free cloth or a piece of absorbent cotton to remove fingerprints or dust from the screen. Do not apply solvents to the cloth.
- You might notice a crease or pattern at the center of the screen due to the unique display materials. But it is a normal characteristic of the foldable OLED display. It does not affect the display's quality, lifespan, and performance. It will not hinder using the device.
- When the computer is folded, you might see bright bands along the inside of the fold, especially when the screen content is white or bright. This is a normal characteristic of the foldable OLED display. It will not affect the display's quality, lifespan, and performance. It does not hinder using the device.

## Use ThinkPad Bluetooth TrackPoint Keyboard and Stand (for selected models)

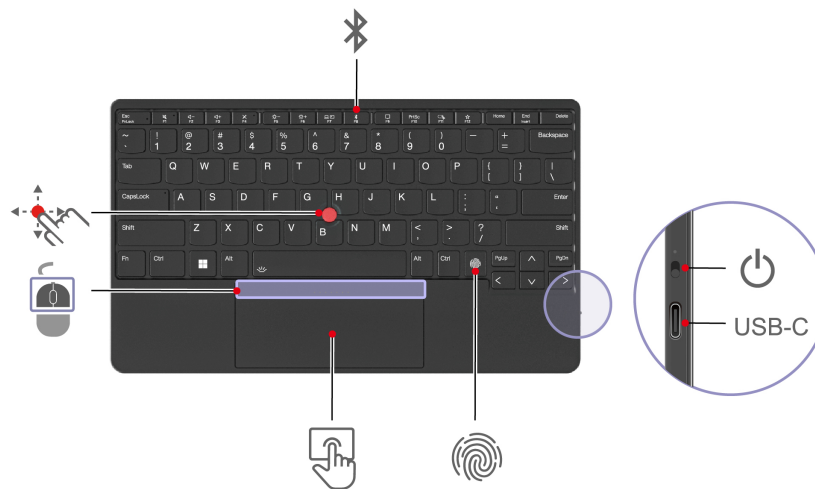
Your foldable computer might come with the ThinkPad Bluetooth TrackPoint Keyboard and Stand (hereafter referred to as the keyboard, model: TKBBTDU811), a wireless, magnetic keyboard with the Haptic Touchpad, TrackPoint® pointing stick and a detachable keyboard stand. You can connect the keyboard to your foldable computer via a USB-C cable or Bluetooth. Use the keyboard to work more easily and effectively.



<https://support.lenovo.com/us/en/videos/vid500169>

The keyboard is available as an option. You can purchase one from Lenovo at <https://www.lenovo.com/accessories>.

### Keyboard overview



Item	Description	Item	Description
	Bluetooth key		Power switch
USB-C	USB-C connector		Fingerprint reader
	Haptic Touchpad		TrackPoint buttons
	TrackPoint pointing stick		

### Related topics

- “Use the TrackPoint pointing device” on page 18
- “Use the Haptic Touchpad” on page 19
- “Log in with your fingerprint (for selected models)” on page 39

### Use the keyboard

Your foldable computer might be shipped with the keyboard pre-paired with Bluetooth, or you might need to purchase one separately. This section provides the guidance on how to use the keyboard in different cases.

- **For the pre-paired keyboard shipped with your foldable computer**

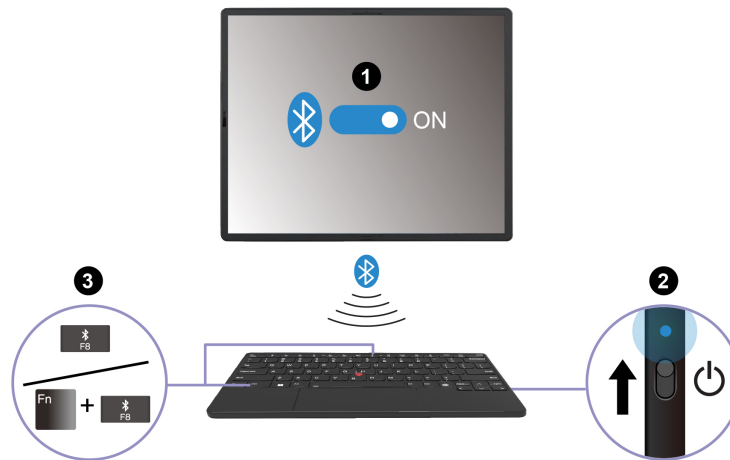
To use the keyboard, turn on your foldable computer and the keyboard. The keyboard is paired with your foldable computer automatically.

**Notes:** Before using the keyboard, ensure that:

- The keyboard is close to your foldable computer to establish the Bluetooth connection.
- The Bluetooth function is enabled on your foldable computer.
- The keyboard and your foldable computer are not connected via USB-C cables.

- **For the keyboard purchased separately**

Pair the keyboard before using. To pair the keyboard, do the following:



1. Enable Bluetooth function and Swift Pair function in the Bluetooth settings on your foldable computer.
2. Turn on the keyboard and the LED indicator blinks in blue.
3. Press and hold F8 or Fn + F8 for about three seconds.
4. Follow the on-screen instructions.

After the keyboard is paired, the LED indicator turns off.


















**Note:** Before pairing the keyboard, ensure that the keyboard is close to your foldable computer to establish the Bluetooth connection.

**Notes:**

- When the keyboard connected via Bluetooth has been idle for 10 minutes, it enters sleep mode to save power.
- Once the keyboard enters sleep mode, the Haptic Touchpad, TrackPoint pointing device and fingerprint reader cannot work. Press any key to wake the keyboard.

## Use the keyboard shortcuts

The special keys on the keyboard help you work more effectively.

Key / Key combination	Function
	Invoke the special function printed as an icon on each key or standard function of F1–F12 function keys.
	FnLock indicator on: standard function FnLock indicator off: special function
	Enable / disable speakers
	Decrease volume
	Increase volume
	Enable / disable microphones
	Darken display
	Brighten display
	Manage external displays
	Launch Bluetooth settings
	Open Notification Center
	Print screen
	Open the Windows snipping tool
	Customize the function of this key on the Vantage app
	Function as Insert Key
	Toggle keyboard backlight (for selected models)
	Fingerprint reader

## Use the detachable keyboard stand

The ThinkPad Bluetooth TrackPoint Keyboard comes with a detachable keyboard stand (hereafter referred to as the stand). You can use the keyboard with the stand to enable more using modes.

### Attach the keyboard to the stand

Align the magnetic zone of the keyboard with the metal bar of the stand as shown. When the keyboard gets close enough, it attaches magnetically to the stand.



### **Detach the keyboard from the stand**

To detach the keyboard, remove the stand by pulling it away.

### **Maintenance tips and usage notices for the stand**

The stand is made of suede. To ensure your user experience and ensure that you enjoy the stand longer, follow the instructions to maintain and clean your stand.

- Do not apply foundation, cream, or other cosmetics or chemicals to the suede. Otherwise, the stand will be dyed or stained.
- Do not clean the stand with wet hands or cloth. Otherwise, the suede surface might fade.
- Do not expose the stand to the sun or moisture for long periods of time.
- Clean the stand with a soft brush.
- Dry the stand if it gets wet accidentally.
- Excessive rubbing on the suede surface might cause wearing or discoloration, but will not affect the functionality of the stand.
- The color of the stand might vary depending on the arrangement of the nap on the suede surface and the way the stand is exposed to the light.

### **Use the keyboard in different modes**

The keyboard can work with your foldable computer in the landscape mode, clamshell mode, portrait mode and carry mode.

## Landscape mode



## Clamshell mode

The keyboard attaches magnetically to the foldable computer bezel. When placing the keyboard onto the foldable computer, ensure that the stand is detached from the keyboard and the camera side is upward. Otherwise, the keyboard cannot attach.





## Portrait mode



## Carry mode

The keyboard with the stand attaches magnetically to the bottom of your foldable computer in the carry mode.

**Note:** Ensure that the stand side attaches to the bottom of your foldable computer.



## Charge the keyboard

You can use a USB Power Delivery (USB PD) adapter and a USB 2.0 USB-C to USB-C cable or the ThinkPad 65W Slim AC Adapter (USB Type-C, for selected models) to charge the keyboard. The keyboard is fully charged in about two hours.

Output rating of the Keyboard: 5 V dc, 1 A

The following illustration shows how to charge the keyboard with a USB PD adapter and a USB 2.0 USB-C to USB-C cable.

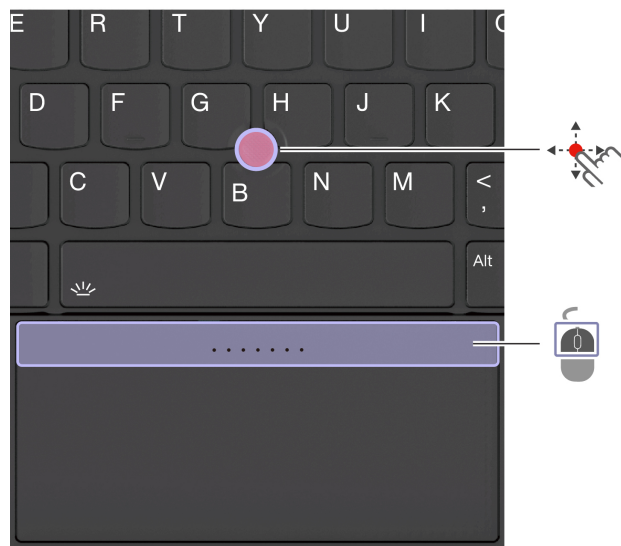


The LED indicator is solid amber during charging and turns solid green when the keyboard is fully charged.

### Use the TrackPoint pointing device

The TrackPoint pointing device enables you to perform all the functions of a traditional mouse, such as pointing, clicking, and scrolling.

#### Use the TrackPoint pointing device



#### TrackPoint pointing stick

Use your finger to apply pressure to the pointing-stick nonslip cap in any direction parallel to the keyboard. The pointer on the screen moves accordingly. The higher the pressure applied, the faster the pointer moves.



#### TrackPoint buttons

The left-click button and right-click button correspond to the left and right buttons on a traditional mouse. Press and hold the dotted middle button while using your finger to applying pressure to the pointing stick in the vertical or horizontal direction. Then, you can scroll through the document, Web site, or apps.

Your computer supports TrackPoint Quick Menu, see “TrackPoint Quick Menu” on page 31.

### Disable the TrackPoint pointing stick

The TrackPoint pointing stick is active by default. To disable the TrackPoint pointing stick:

1. Open the **Start** menu, and then click **Settings** → **Bluetooth & devices** → **Mouse**.
2. Click **TrackPoint settings** and turn off the TrackPoint.

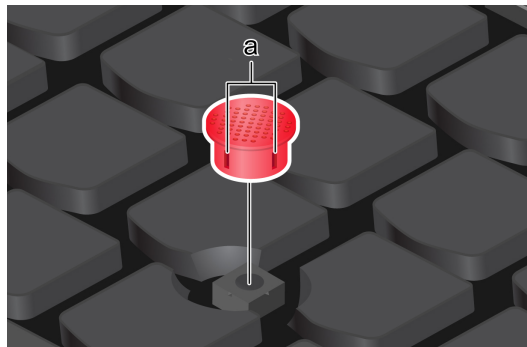
### Enable the TrackPoint buttons

The TrackPoint buttons are disabled by default. To enable the TrackPoint buttons:

1. Open the **Start** menu, and then click **Settings** → **Bluetooth & devices** → **Touchpad**.
2. In the Sensel Haptic Touchpad section, click **Settings**.
3. In the TrackPoint Buttons section, turn on **Use top zone as TrackPoint buttons**.

### Replace the pointing-stick nonslip cap

**Note:** Ensure that the new cap has grooves **a**.





### Use the Haptic Touchpad

You can use the Haptic Touchpad to perform all the pointing, clicking, and scrolling functions of a traditional mouse.

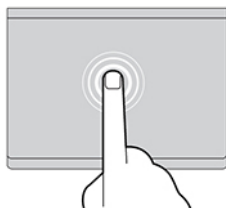
### Use the Haptic Touchpad



Item	Description	Item	Description
	Left-click zone		Right-click zone

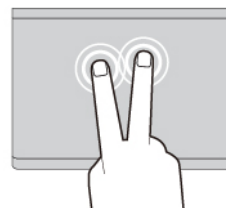
## Use the touch gestures

### Illustration and description

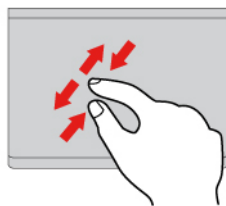


Tap once to select or open an item.

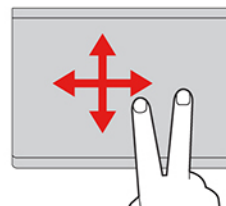
### Illustration and description



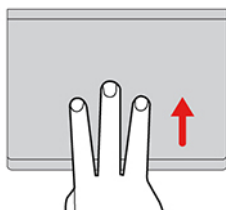
Tap twice quickly to display a shortcut menu.



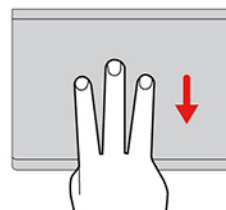
Two-finger zoom in or zoom out.



Scroll through items.



Open the task view to see all open windows.



Show the desktop.

### Notes:

- When using two or more fingers, ensure that you position your fingers slightly apart.
- Some gestures are not available if the last action was done from the TrackPoint pointing device.
- Some gestures are only available when you are using certain apps.
- If the Haptic Touchpad surface is stained with oil, turn off the computer first. Then, gently wipe the Haptic Touchpad surface with a soft and lint-free cloth moistened with lukewarm water or computer cleaner.

For more gestures, see the help information of the pointing device.

### Enable or disable the Haptic Touchpad

1. Open the **Start** menu, and then click **Settings → Devices → Touchpad**.
2. In the Touchpad section, turn on or turn off the **Touchpad** control.

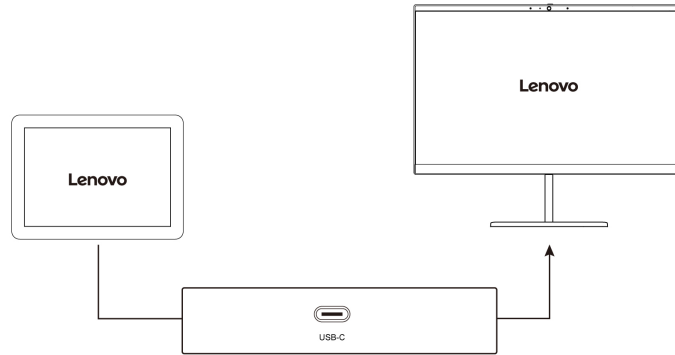
**Note:** Ensure that the Haptic Touchpad is enabled before using.

## Connect to an external display

Connect your computer to a projector or a monitor to give presentations or expand your workspace.

### Connect to a wired display

If your computer cannot detect the external display, right-click a blank area on the desktop and select display settings. Then follow the on-screen instructions to detect the external display.



### Supported resolution

The following table lists the supported maximum resolution of the external display.

Connect the external display to	Supported resolution
USB-C (3.2 Gen 2) connector	Up to 5K / 60 Hz
Thunderbolt 4 connector	Up to 8K / 60 Hz

**Note:** The refresh rate higher than 60 Hz can also be supported. If you set the refresh rate higher than 60 Hz, the maximum resolution might be limited.

### Connect to a wireless display

To use a wireless display, ensure that both your computer and the external display support the Miracast® feature.

Press Windows logo key + K and then select a wireless display to connect with.

### Set the display mode

Press F7 or Fn + F7 and then select a display mode of your preference.

### Change display settings

1. Right-click a blank area on the desktop and select display settings.
2. Select the display that you want to configure and change display settings of your preference.

You can change the settings for both the computer display and the external display. For example, you can define which one is the main display and which one is the secondary display. You also can change the resolution and orientation.

---





## Use Lenovo Precision Pen (for selected models)

The Lenovo Precision Pen (hereafter referred to as the pen) enables a more precise and easier way of writing and sketching. It attaches magnetically to your foldable computer.

 <https://support.lenovo.com/us/en/videos/vid500169>



---

Item	Description
Eraser button	
	To erase text or drawings, hold the button to erase the object in supported apps.
Click button	
	To right-click, hold the button and tap the screen in supported apps.
LED indicator	
	When the LED indicator blinks in white, the Bluetooth is enabled
Bluetooth button	
	To enable Bluetooth, press and hold the button for three seconds.

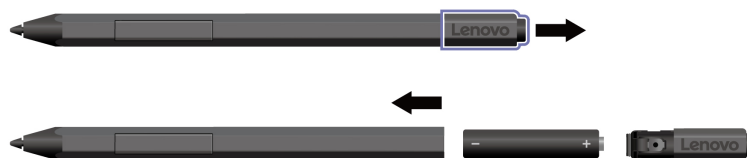
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### Notes:

- The default function of each barrel button might vary in different apps.
- To customize the barrel button functions, use Lenovo Pen Settings. If Lenovo Pen Settings is not installed on your computer, download and install the latest WinTab driver from <https://support.lenovo.com>.
- Lenovo Precision pen is not waterproof. Keep the pen away from water and excessive moisture. To purchase Lenovo Precision Pen, go to <https://www.lenovo.com/accessories>.

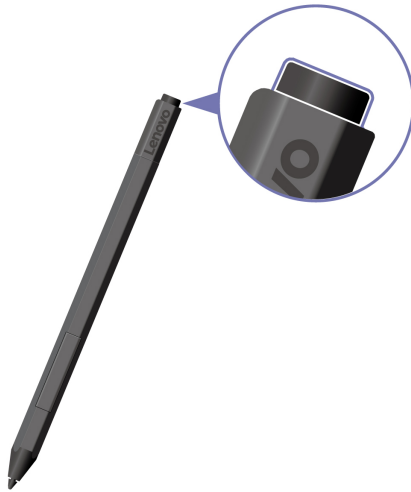
### Install the battery for Lenovo Precision Pen


Depending on the model, your pen might not be installed with a battery. To install an AAAA alkaline battery, do the following:



### Pair Lenovo Precision Pen

1. Press and hold the Bluetooth button on the pen for at least 3 seconds until the LED indicator blinks in white.



2. Click the Action Center icon  and right-click the **Bluetooth** icon. Select **Go To Settings → Add Bluetooth or other device → Bluetooth**.
3. Select **Lenovo Precision Pen** and start pairing.

### Store Lenovo Precision Pen

Attach the Lenovo Precision Pen to the magnetic side of your computer as shown.



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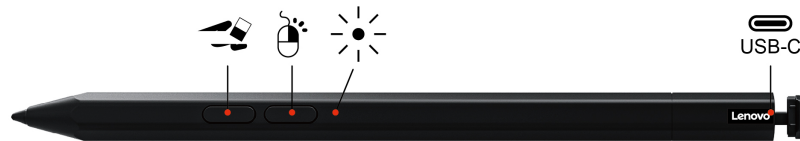
## Use Lenovo Precision Pen 2 (for selected models)





The Lenovo Precision Pen 2 (a rechargeable stylus pen, hereafter referred to as the pen) enables you to write and draw in a natural manner. To purchase the pen, go to <https://www.lenovo.com/accessories>.

### Notes:

- Lenovo Precision Pen 2 does not attach magnetically to your foldable computer.
- The color of the pen might vary by countries or regions. Depending on the models, the pen might look slightly different from the illustrations in this topic.

### Pen overview



Item	Description
Eraser button 	To erase text or drawings, hold the button to erase the object in supported apps.
Click button 	To right-click, hold the button and tap the screen in supported apps.
LED indicator 	When the LED indicator blinks in amber, the pen battery power is low. The LED indicator is solid amber during charging and turns solid white when the pen is fully charged. The pen is fully charged in about two hours.
USB-C connector 	Use the ac power adapter that comes with your foldable computer to charge the pen.

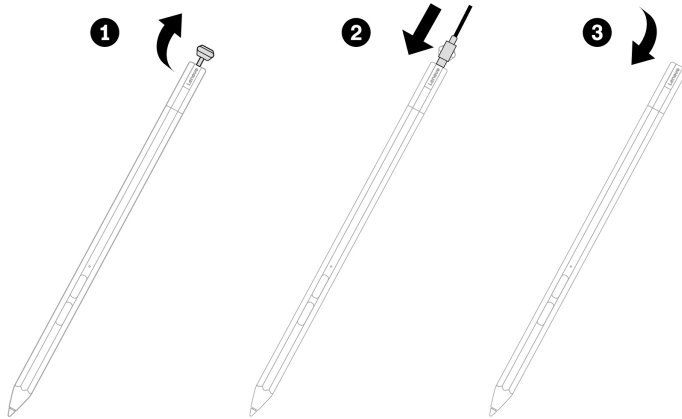
### Notes:

- The default function of each barrel button might vary in different apps.
- To customize the barrel button functions, use Lenovo Pen Settings. If Lenovo Pen Settings is not installed on your computer, download and install the latest WinTab driver from <https://support.lenovo.com>.



## Charge the pen

1. Remove the pen cap in the direction as shown.
2. Connect the pen to a charger with a USB-C cable.
3. Install the pen cap back on the pen.



## Maintenance tips

- The pen is not waterproof. Keep the pen away from water and excessive moisture.
- If possible, place your pen in a well-ventilated and dry area without direct exposure to sunshine.
- Do not use or store the pen in a place where excessive changes in temperature might occur such as in a car.
- The pen contains pressure sensors. Apply an appropriate amount of pressure when writing on the screen. Do not subject the pen to shock or vibration.



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## Chapter 3. Explore your Foldable Computer

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### Lenovo apps

This section provides introduction to the Vantage, Smart Displays and Lenovo Voice apps.

### Lenovo Commercial Vantage

The Lenovo Commercial Vantage app (hereafter referred to as Vantage app) is a customized one-stop solution to help you maintain your computer with automated updates and fixes, configure hardware settings, and get personalized support.

To access the Vantage app, type *Lenovo Commercial Vantage* in the Windows search box.

#### Notes:

- The available features vary depending on the computer model.
- The Vantage app makes periodic updates of the features to keep improving your experience with your computer. The description of features might be different from that on your actual user interface. Ensure that you use the latest version of Vantage app, and apply Windows Update to get the latest updates.

The Vantage app enables you to:

- Know the device status easily and customize device settings.
- Download and install UEFI BIOS, firmware, and driver updates to keep your computer up-to-date.
- Monitor your computer health, and secure your computer against outside threats.
- Scan your computer hardware and diagnose hardware problems.
- Look up warranty status (online).
- Access *User Guide* and helpful articles.
- Temporarily disable the keyboard, screen, trackpad, and TrackPoint pointing device for cleaning.

### Smart Displays



Smart Displays app helps you work efficiently and smart when you connect multiple external displays.

To access the app, type *Smart Displays* in the Windows search box.

#### Key features

The app can:

- Automatically detect the connected external display, save the layout of all the windows on it, and resume the layout when the same external display is reconnected.
- Help you manage, edit, save, and delete the layouts of the windows. You can launch the layouts on your computer or the connected external displays as desired.

#### Notes:

- The available features and languages vary depending on computer models and delivery of countries and regions.
- Smart Displays makes periodic updates of the features to keep improving your experience. The description of features might be different from that on your actual user interface.

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## Smart features (for selected models)

You can use the smart features in Glance by Mirametrix® and Commercial Vantage app to improve your security, productivity, digital wellness and save the battery power.

### Notes:

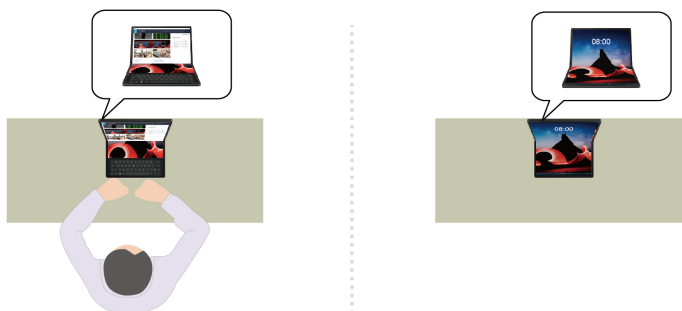
- Depending on the model, some features might not be available on your computer.
- Ensure you create your face ID with the IR camera. See “Log in with your face ID” on page 39.
- If Glance is uninstalled, you can request it through <https://support.lenovo.com/contactus>.

To enable the features, do the following:

- The features marked <sup>1</sup> are powered by Glance by Mirametrix. Type Glance in the Windows search box, press Enter and turn on the feature of your preference.
- The features marked <sup>2</sup> are enabled by Commercial Vantage. Open Commercial Vantage, click **Device** → **Smart Assist**, turn on **User Presence Sensing** and turn on the feature of your preference.

### Intelligent login and auto-lock

- **Presence Detection** <sup>1</sup>: Keep your computer awake when in use and lock the computer screen automatically when your head moves out of the camera range.

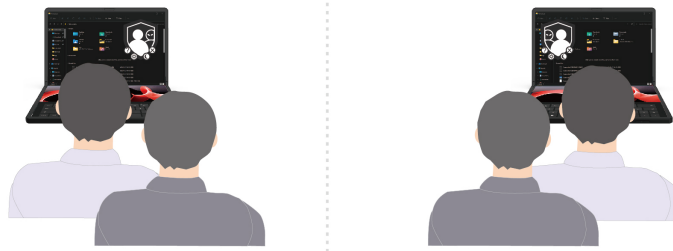


- **Zero Touch Login** <sup>2</sup>: Wake your computer from sleep mode. With Windows Hello Facial Recognition, you can log in without touching your computer.
- **Zero Touch Lock** <sup>2</sup>: Lock your computer screen automatically whenever you step away.

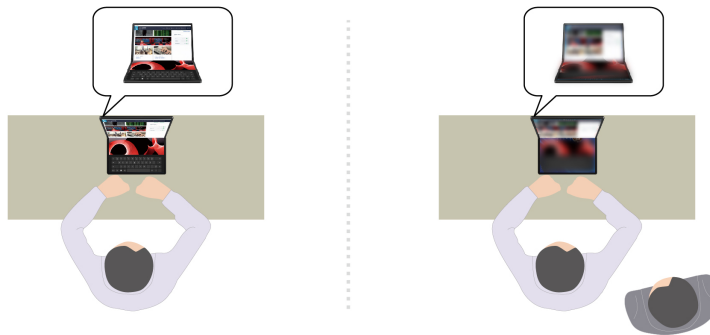


## Privacy features

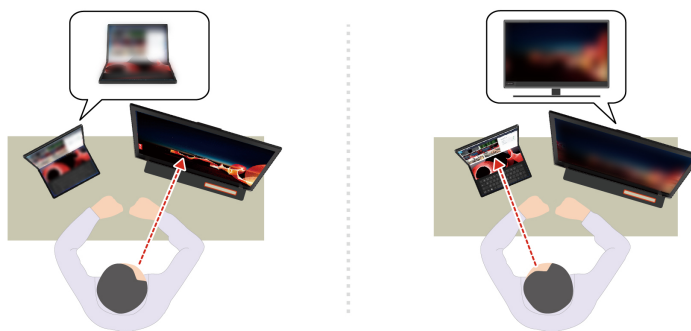
- **Privacy Alert**<sup>1</sup>: When a shoulder surfer is detected, an alert icon appears on your computer screen.



- **Privacy Guard**<sup>1</sup>: When a shoulder surfer is detected, your screen is blurred. Press Alt+F2 to cancel the blur effect.

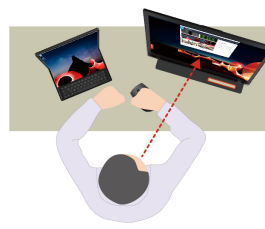


- **Smart Display**<sup>1</sup>: Blur screens you are not looking at. If you are not facing any screen, all screens are blurred. Press Alt+F2 to cancel the blur effect.



## Productivity features

- **Snap Window**<sup>1</sup>: Move windows seamlessly to the monitor you are addressing when using multiple monitors. Simply click and hold the title bar as you would normally, and bring your attention to the monitor on which you want that window to appear. The window jumps automatically to the monitor of attention.



- **Smart Pointer**<sup>1</sup>: Relocate the pointer to the location you are currently looking. When the pointer moves from one screen to another, it is temporarily shown larger.



**Note:** Snap Window and Smart Pointer only work when your computer is connected to external displays.

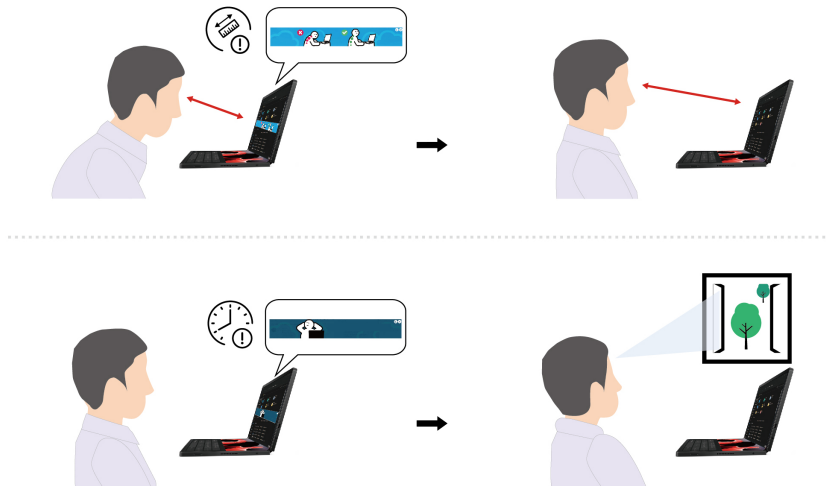
#### Power-saving feature

- **Adaptive Dimming**<sup>2</sup>: Track your face movement to recognize your attention focus. When you are facing away, the display will dim to save battery power.



## Digital wellness features

- **Posture Warning**<sup>1</sup>: Remind you to adjust your posture if slouching is detected.
- **20/20/20 Rule**<sup>1</sup>: Remind you to look away from the screen and relax your eyes for 20 seconds every 20 minutes.



**Notes:** For the features marked <sup>2</sup> :

- These features do not work in the following cases:
  - the computer is in book mode or is used as a tablet on the desk.
  - the computer is in hibernation mode or is turned off.
  - the computer display is closed or the camera is covered.
  - the computer is connected to an external display.
  - you set the power options in Windows OS settings to never turn off the display.
- These features might not work properly in the following cases:
  - when used in bright back light or very dark environment.
  - when your face is partially hidden by your dress.
  - when the camera recognizes the face image behind you (e.g. poster, TV).
- These features use metadata from your camera to detect your presence and attention. Lenovo does not collect or store any personal data with these features.
- For some countries or regions, these features might be disabled according to local regulations.

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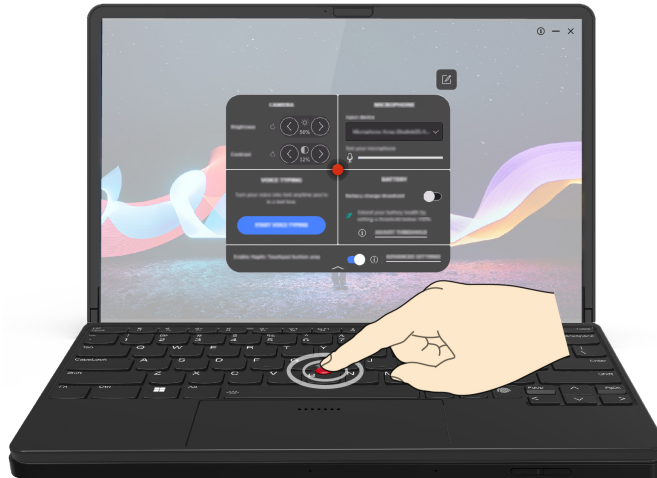
## TrackPoint Quick Menu

### Launch the TrackPoint Quick Menu

- **For models with the ThinkPad Bluetooth TrackPoint Keyboard and Stand**

Double-tap the TrackPoint pointing stick to launch the TrackPoint Quick Menu.

The TrackPoint Quick Menu is enabled by default. Press Fn+G to disable or enable the double-tapping gesture. When disabled, it cannot be launched by double-tapping the TrackPoint pointing stick.



**Note:** It is recommended that you use the TrackPoint Quick Menu with the ThinkPad Bluetooth TrackPoint Keyboard and Stand to have the best user experience.


- **For models without the ThinkPad Bluetooth TrackPoint Keyboard and Stand**

Type TrackPoint Quick Menu in the Windows search box and then press Enter to launch the TrackPoint Quick Menu.


### Use the TrackPoint Quick Menu



<https://support.lenovo.com/us/en/videos/vid500170>

You can click the edit button  to rearrange the features in the preview panel, or drag and drop the features on the right to the preview panel to customize your quick menu.

- **Camera**

You can adjust the brightness and contrast of the camera, and restore the settings to default by tapping the reset button .

- **Microphone**

You can mute your computer, and adjust the sound effect of your microphone by selecting the following modes:

- Center mode: Capture the speaker's voice.
- Spatial mode: Capture the speaker's voice and the ambience.

**Note:** When internal microphone is not supported by Dolby or the Dolby driver is disabled, an input device list will be displayed instead. The list provides options and one volume bar to test your microphone.

- **Voice typing**

You can convert the speech to text in the text box. Click **START VOICE TYPING** to invoke the text box.

- **Battery**

You can extend the battery life by setting the charging threshold below 100%.

To set the threshold, enable the feature and click **ADJUST THRESHOLD**. Then set the charge threshold in the Vantage app.

- **Audio playback**



You can select the output device of your preference and set the volume of your selected channel or mute it.

- **Noise suppression**

You can suppress your own background noise and the noise from other meeting participants.

- Off: Disable noise suppression.
- Low: Suppress low-level background noise.
- High: Suppress all non-speech background noise.

**Note:** The feature does not work when Dolby Voice is off. Click the link in NOISE SUPPRESSION to help you enable it.

- **Enable Haptic Touchpad button area** (for models with the ThinkPad Bluetooth TrackPoint Keyboard and Stand only)

You can enable or disable the TrackPoint buttons. When the Haptic Touchpad button area is enabled, it works as the TrackPoint buttons corresponding to the left and right buttons on a traditional mouse. When the Haptic Touchpad button area is disabled, it becomes part of the Haptic Touchpad. You can also click **ADVANCED SETTINGS** to enter OS settings to customize your TrackPoint features.

**Notes:**

- The TrackPoint Quick Menu does not work on split screens.
- The features may vary due to periodic updates. For details of the version installed on your computer, click the flyout ⓘ at the top-right corner of the page and click **LEARN MORE**.

---

## Color calibration

The factory color calibration feature is available on computer models with the embedded display. This feature enables you to render color images or graphics on your display close to the original intent as much as possible.

For computer with the factory color calibration feature, the AICCP color profiles are preinstalled. You can switch between calibrated color profiles and non-calibrated color profiles as desired:

1. Open the **Start** menu, and then click **Settings → Display**.
2. Follow the on-screen instructions to select a color profile as desired.

**Note:** The calibration data is stored in the embedded display nonvolatile memory. It can be restored after you reset the computer.

---

## Intelligent cooling

The Intelligent Cooling feature helps you adjust power consumption, computer temperature, and performance.

The Intelligent Cooling feature is adjusted through Power mode or Battery saver in Windows Settings.

Do the following to select a preferred mode:

1. Right-click the battery icon in the task bar to access power, sleep and battery settings.
  2. Locate the power section and choose one of the following power modes.
- **Best Power efficiency:** power consumption and performance are lowered to get your computer cooler and more eco-friendly, and to get the best battery life.

- **Balanced:** your computer is adjusted automatically to achieve the best mix of power consumption, battery life and computer performance based on the amount of system activity.
- **Best Performance:** the maximum performance is prioritized, allowing higher temperature.

---

## Manage power

Use the information in this section to achieve the best balance between performance and power efficiency.

### Check the battery status

Go to **Settings** → **System** to check the battery status. For more details about your battery, refer to the Vantage app.

### Charge the computer

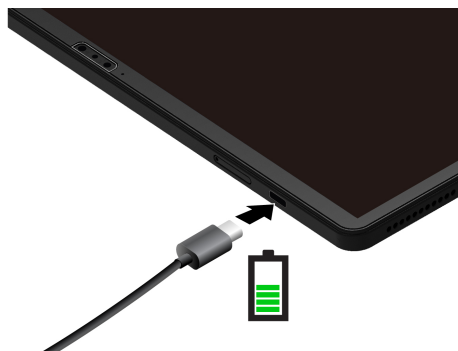
#### Use ac power

Power source of the ac power adapter:

- Power: 65 W
- Sine-wave input at 50 Hz to 60 Hz
- Input rating of the ac power adapter: 100 V to 240 V ac, 50 Hz to 60 Hz
- Output rating of the ac power adapter: 20 V dc, 3.25 A

When the battery power is low, charge your battery by connecting your computer to ac power with the supplied power adapter. The 65 W ac power adapter supports the rapid charge function, the battery is 80% charged in about one hour when the computer is turned off. The actual charging time depends on the battery size, the physical environment, and whether you are using the computer.

Battery charging is also affected by its temperature. The recommended temperature range for charging the battery is between 10°C (50°F) and 35°C (95°F).



**Notes:** To maximize the life of the battery:

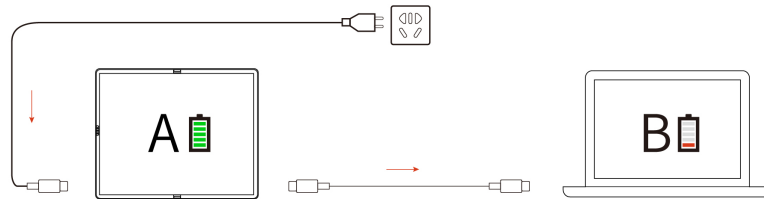
- Use the battery until the charge is depleted and recharge the battery completely before using it. Once the battery is fully charged, it must discharge to 94% or lower before it will be allowed to recharge again.
- The battery may optimize its full charge capacity based on your usage. After prolonged periods of limited use, full battery capacity may not be available until you discharge to as low as 20% and recharge completely. For more information, refer to the power section of the Vantage app.

## Use P-to-P 2.0 (Peer to Peer 2.0) charging function

The USB-C (Thunderbolt 4) connectors on the computer feature the Lenovo-unique P-to-P 2.0 charging function. To use the function, ensure that **Always On USB** and **Charge in Battery Mode** are enabled in UEFI BIOS of your computers, so that the function works even when the computers are off or in hibernation mode.

To enable **Always On USB** and **Charge in Battery Mode**:

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Click **Config** → **USB**, and then to enable **Always On USB** and **Charge in Battery Mode**.



**Note:** The actual charging speed of your computer depends on many factors, such as the remaining battery power of the computers, the wattage of the ac power adapter, and whether you are using the computers.

## Change the power settings

For ENERGY STAR® compliant computers, the following power plan takes effect when your computer has been idle for a specified duration:

- Turn off the display: After 10 minutes
- Put the computer to sleep: After 10 minutes

To reset the power plan:

1. Go to **Control Panel** and view by Large icons or Small icons.
2. Click **Power Options**.
3. Choose or customize a power plan of your preference.

To reset the power button function:

1. Go to **Control Panel** and view by Large icons or Small icons.
2. Click **Power Options**, and then click **Choose what the power buttons do** on the left pane.
3. Change the settings as you prefer.

---

## Transfer data

Quickly share your files using the built-in Bluetooth among devices with the same features.

## Set up a Bluetooth connection

You can connect all types of Bluetooth-enabled devices to your computer, such as a keyboard, a mouse, a smartphone, or speakers. To ensure successful connection, place the devices at most 10 meters (33 feet) from the computer.

1. Type Bluetooth in the Windows search box and then press Enter.
2. Turn on Bluetooth, if it is off.

3. Select a Bluetooth device, and then follow the on-screen instructions.

## Accessories

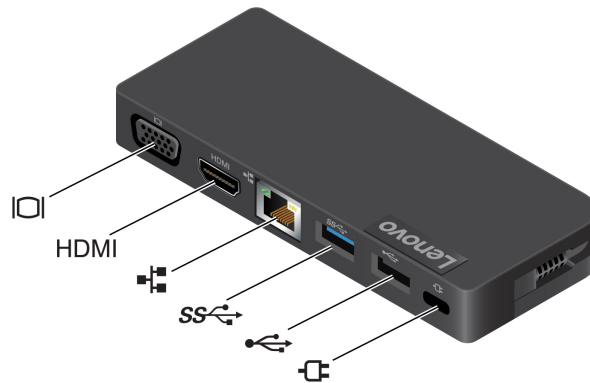
This section provides instructions on how to use hardware accessories to expand your computer functionalities.






### Lenovo Powered USB-C Travel Hub (for selected models)

The Lenovo Powered USB-C Travel Hub provides quick and easy connections between your computer and computer accessories.

The Lenovo Powered USB-C Travel Hub is available as an option and shipped with some computer models. You can purchase one from Lenovo at <https://www.lenovo.com/accessories>.

#### Overview



Item	Description	Item	Description
	VGA connector	HDMI	HDMI™ connector
	Ethernet connector		USB-A 3.2 Gen 1 connector
	USB-A 2.0 connector		Power connector

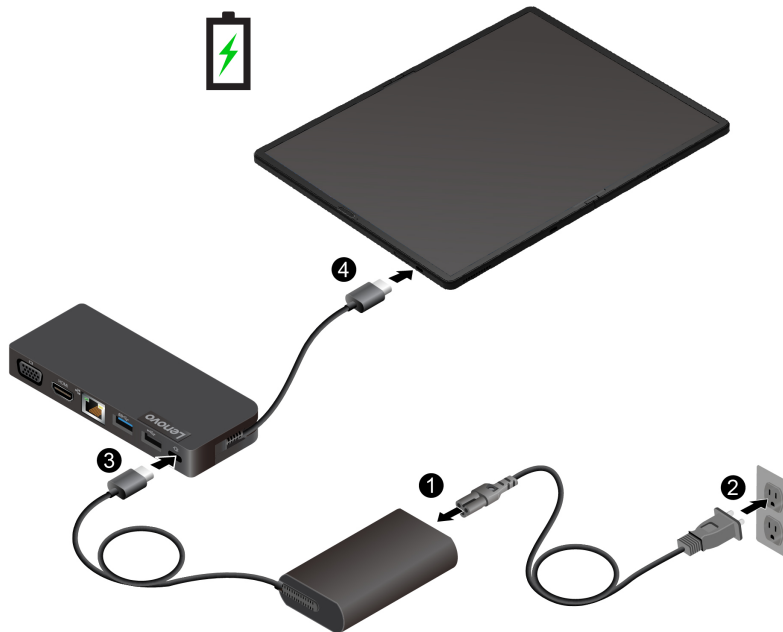
#### Use the Lenovo Powered USB-C Travel Hub

Before you use the hub with your foldable PC, download and install the latest driver at: [https://support.lenovo.com/accessories/lenovo\\_powerd\\_usb-c\\_travel\\_hub](https://support.lenovo.com/accessories/lenovo_powerd_usb-c_travel_hub)

Connect the Lenovo Powered USB-C Travel Hub to either USB-C connector on your foldable PC.



### Charge the Lenovo Powered USB-C Travel Hub



For more information, refer to the documentation of the hub.

### Purchase accessories

Lenovo has a number of hardware accessories and upgrades to help expand the functionalities of your computer. Options include memory modules, storage devices, network cards, port replicators or docking stations, batteries, power adapters, keyboards, mice, and more.

To shop at Lenovo, go to <https://www.lenovo.com/accessories>.



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## Chapter 4. Secure your Foldable Computer and information

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### Log in with your fingerprint (for selected models)

Before enrollment, ensure that the keyboard is connected properly to your foldable computer via either a USB-C cable or Bluetooth. Then enroll your fingerprints and unlock the computer by scanning your fingerprints on the fingerprint reader key.

1. Type Sign-in options in the Windows search box and then press Enter.
2. Select the fingerprint setting and then follow the on-screen instruction to enroll your fingerprint.

**Note:** It is recommended that you put your finger at the center of the fingerprint reader during enrollment and enroll more than one fingerprint in case of any injuries to your fingers. After the enrollment, the fingerprints are associated with the Windows password automatically.

3. Log in with your fingerprint.



### Associate your fingerprints with UEFI BIOS passwords

You can associate your fingerprints with your power-on password and NVMe password. See “Associate your fingerprints with passwords (for selected models)” on page 42.

#### Maintenance tips:

- Do not scratch the surface of the reader with anything hard.
- Do not use or touch the reader with a wet, dirty, wrinkled, or injured finger.

---

### Log in with your face ID

Create your face ID and unlock your computer by scanning your face:

1. Type Sign-in options in the Windows search box and then press Enter.
2. Select the face ID setting and then follow the on-screen instruction to create your face ID.

---

### Protect data against power loss

NVMe (Non-Volatile Memory express) M.2 solid-state drive features the Lenovo-unique PLP (Power Loss Protection) function to avoid data loss or damage. If your computer is not responding and you might have to shut down your computer by pressing and holding the power button for several seconds. In this case, the PLP function enables your computer data to be saved timely. However, there is no guarantee that all data is saved in any situation. To check the type of your M.2 solid-state drive:

1. Restart the computer. When the logo screen is displayed, press F10 to enter the Lenovo diagnostics window.
2. On the TOOLS tab, select **SYSTEM INFORMATION → STORAGE** using the arrow keys.
3. Locate the **Device Type** section to check the information

---

## UEFI BIOS passwords

You can set passwords in UEFI (Unified Extensible Firmware Interface) BIOS (Basic Input/Output System) to strengthen the security of your computer.

### Password types

You can set a power-on password, supervisor password, system management password, or NVMe password in UEFI BIOS to prevent unauthorized access to your computer. However, you are not prompted to enter any UEFI BIOS password when your computer resumes from sleep mode.

#### Power-on password

If you set a power-on password, a window is displayed on the screen when you turn on the computer. Enter the correct password to use the computer.

#### Supervisor password

The supervisor password protects the system information stored in UEFI BIOS. When entering the UEFI BIOS menu, enter the correct supervisor password in the window prompted. You also can press Enter to skip the password prompt. However, you cannot change most of the system configuration options in UEFI BIOS.

If you have set both the supervisor password and power-on password, you can use the supervisor password to access your computer when you turn it on. The supervisor password overrides the power-on password.

#### System management password

The system management password can also protect the system information stored in UEFI BIOS like a supervisor password, but it has lower authority by default. The system management password can be set through the UEFI BIOS menu or through Windows Management Instrumentation (WMI) with the Lenovo client-management interface.

You can enable the system management password to have the same authority as the supervisor password to control security-related features. To customize the authority of the system management password through the UEFI BIOS menu:

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Security → Password → System Management Password Access Control**.
3. Follow the on-screen instructions.

If you have set both the supervisor password and the system management password, the supervisor password overrides the system management password. If you have set both the system management password and the power-on password, the system management password overrides the power-on password.

#### NVMe passwords

The NVMe password prevents unauthorized access to the data on the storage drive. When an NVMe password is set, you are prompted to type a correct password each time you try to access the storage drive.

- **Single Password**



When a Single NVMe password is set, the user must enter the user NVMe password to access files and applications on the storage drive.

- **Dual Password (User + Admin)**

The admin NVMe password is set and used by a system administrator. It enables the administrator to access any storage drive in a system or any computer connected in the same network. The administrator can also assign a user NVMe password for each computer in the network. The user of the computer can change the user NVMe password as desired, but only the administrator can remove the user NVMe password.

When prompted to enter an NVMe password, press F1 to switch between the admin NVMe password and user NVMe password.

**Notes:** The NVMe password is not available in the following situations:

- A Trusted Computing Group (TCG) Opal-compliant storage drive and a TCG Opal management software program are installed in the computer, and the TCG Opal management software program is activated.
- An eDrive storage drive is installed in the computer preinstalled with the Windows operating system.

## Set, change, and remove a password

Before you start, print these instructions.

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Security** → **Password** by using the arrow keys.
3. Select the password type. Then, follow the on-screen instructions to set, change, or remove a password.

You should record all your passwords and store them in a safe place. If you forget any of your passwords, any potential repair actions required are not covered under warranty.

### What to do if you forget your power-on password

If you forget your power-on password, do the following to remove the power-on password:

- If you have set a supervisor password and remember it:
  1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
  2. Select **Security** → **Password** → **Power-On Password** by using the arrow keys.
  3. Type the current supervisor password in the **Enter Current Password** field. Then, leave the **Enter New Password** field blank, and press Enter twice.
  4. In the Changes have been saved window, press Enter.
  5. Press F10 to save changes and exit the UEFI BIOS menu.
- If you have not set a supervisor password, contact a Lenovo authorized service provider to have the power-on password removed.

### What to do if you forget your NVMe password

If you forget your NVMe password (Single password) or both user and admin NVMe passwords (Dual password), Lenovo cannot reset your passwords or recover data from the storage drive. You can contact a Lenovo authorized service provider to have the storage drive replaced. A fee will be charged for parts and service. If the storage drive is a CRU (Customer Replaceable Unit), you can also contact Lenovo to purchase a new storage drive to replace the old one by yourself. To check whether the storage drive is a CRU and the relevant replacement procedure, see “What are CRUs” on page 55.

## What to do if you forget your supervisor password

If you forget your supervisor password, there is no service procedure to remove the password. You have to contact a Lenovo authorized service provider to have the system board replaced. A fee will be charged for parts and service.

## What to do if you forget your system management password

If you forget your system management password, do the following to remove the system management password:

- If you have set a supervisor password and remember it:
  1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
  2. Select **Security → Password → System Management Password** by using the arrow keys.
  3. Type the current supervisor password in the **Enter Current Password** field. Then, leave the **Enter New Password** field blank, and press Enter twice.
  4. In the Changes have been saved window, press Enter.
  5. Press F10 to save changes and exit the UEFI BIOS menu.
- If you have not set a supervisor password, contact a Lenovo authorized service provider to have the system management password removed.

## Associate your fingerprints with passwords (for selected models)

Do the following to associate your fingerprints with the power-on password and NVMe password:

1. Turn off and then turn on the computer.
2. When prompted, scan your finger on the fingerprint reader.
3. Enter your power-on password, NVMe password, or both as required. The association is established.

When you start the computer again, you can use your fingerprints to log in to the computer without entering your Windows password, power-on password, or NVMe password. To change settings, enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45. Then select **Security → Fingerprint**.

**Attention:** If you always use your fingerprint to log in to the computer, you might forget your passwords. Write down your passwords and keep them in a safe place.

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## FIDO (Fast Identity Online) authentication

Your computer supports FIDO (Fast Identity Online) authentication feature. This feature works as an alternative to password-based authentication to achieve passwordless authentication. This feature only works when a power-on password is set in UEFI BIOS and the FIDO2 USB device is registered in ThinkShield™ Passwordless Power-On Device Manager. With this feature, you can input the power-on password or use the registered FIDO2 USB device to power on your computer.

### Register your FIDO2 USB device in ThinkShield Passwordless Power-On Device Manager

1. Turn on the computer.
2. Press F12 during the power-on process.
3. If you set a power-on password, you are prompted to enter the correct password.
4. Select **App Menu → ThinkShield Passwordless Power-On Device Manager** and press Enter.
5. Insert the FIDO2 USB device to register the device by following steps:
  - a. Select the available FIDO2 USB device that you want to register in the **Discovered Devices** field.
  - b. Click **Yes** in the displayed window to confirm the device you selected.

- c. If you set a power-on password, you are prompted to enter the correct password.
- d. The **User operation request** window is displayed. You are prompted to press the button on the connected FIDO2 USB device, and then follow the on-screen instruction to close the window.
- e. Press Esc to exit and restart your computer.

**Notes:**

- If you want to unregister your devices, click the available FIDO2 USB device that you want to unregister in the **My Device** field and enter the correct power-on password for verification.
- If you use more than one FIDO2 USB device with a common identifier for registration, only one device is available.

**Log in to the System with Passwordless Power-On Authentication**

1. Restart the computer.
2. **ThinkShield Passwordless Power-On Authentication** window is displayed.
3. Insert your registered FIDO2 USB device for detection.
4. Then follow the on-screen instruction to press the button on your FIDO2 USB device for verification.
5. After your device is verified, the power-on process continues.

**Note:** You should insert the FIDO2 USB device or enter the power-on password within 60 seconds. Otherwise, your computer will shut down automatically.



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## Chapter 5. Configure advanced settings

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### UEFI BIOS

UEFI BIOS is the first program that the computer runs. When the computer turns on, UEFI BIOS performs a self test to make sure that various devices in the computer are functioning.

#### Enter the UEFI BIOS menu

To enter the UEFI BIOS menu, do the following:

1. Restart the computer. When the logo screen is displayed, tap the prompt. The Startup Interrupt Menu window is displayed.
2. In the Startup Interrupt Menu window, tap **F1** to enter the UEFI BIOS menu.

**Note:** If you have set the supervisor password, enter the correct password when prompted. You also can press Enter to skip the password prompt and enter the UEFI BIOS menu. However, you cannot change the system configurations that are protected by the supervisor password.

#### Navigate in the UEFI BIOS interface

You can navigate in the UEFI BIOS interface by pressing the following keys:

- F1: General Help
- F9: Setup Defaults
- F10: Save and Exit
- F5 / F6: Change boot priority order
- ↑ ↓ or PgUp / PgDn: Select / Scroll page
- ← →: Move keyboard focus
- Esc: Back / Close dialog
- Enter: Select / Open submenu

#### Set the system date and time

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Date/Time** and set the system date and time as desired.
3. Press F10 to save changes and exit.

#### Change the startup sequence

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Startup → Boot**. Then, press Enter. The default device order list is displayed.

**Note:** No bootable device is displayed if the computer cannot start from any devices, or the operating system cannot be found.

3. Set the startup sequence as desired.
4. Press F10 to save the changes and exit.

To change the startup sequence temporarily:

1. Restart the computer. When the logo screen is displayed, tap the prompt. The Startup Interrupt Menu window is displayed.
2. In the Startup Interrupt Menu window, tap **F12**.
3. Select the device that you want the computer to start from and press Enter.

## View UEFI BIOS Event logs

The UEFI BIOS Event log viewer provides the brief information about UEFI BIOS events. Do the following to view the logs:

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Main → BIOS Event log**. Then, press Enter. The UEFI BIOS Event log interface is displayed.
3. Navigate the interface by pressing the following keys, and then check details by selecting each item.
  - ↑ ↓: Move keyboard focus
  - PgUp / PgDn: Scroll page
  - Enter: Select
  - F3: Exit

The following UEFI BIOS event logs might be listed on your screen depending on UEFI BIOS activities. Each log consists of a date, a time, and a description of the event.

- **Power On** event: This log shows the Power On Self Test (POST) routine has started with the power-on process. It includes the power-on reason, the boot mode, and the shutdown reason.
- **Subcomponent Code Measurement** event: This log shows the subcomponent code measurement has worked. It includes the validation result of each component.
- **System Preboot Authentication** event: This log shows what credential is provided to gain preboot authentication. It includes the installed password, the password type, the input device, and the authentication result.
- **BIOS Password Change** event: This log shows the change history of the UEFI BIOS passwords. It includes the password type, the type and result of the event.
- **Subcomponent Self-healing** event: This log shows the information about the subcomponent where the recovery event occurred. It includes the cause and result of the event, and the recovered firmware version.
- **BIOS Setup Configuration Change** event: This log shows the change history of the UEFI BIOS Setup configuration. It includes the item name and value.
- **Device Change** event: This log shows the change history of devices. It includes the cause and type of the event.
- **System Boot** event: This log shows which device was utilized to boot the system. It includes the boot option, the description, and the file path list.
- **System Tamper** event: This log shows the occurrence of system tamper events. It includes the cause and type of the event.
- **POST Error** event: This log shows the occurrence of errors during the POST routine. It includes the error code.
- **Flash Update** event: This log shows the occurrence of flash update. It includes the cause and result of the event, and the updated firmware version.
- **Set On-Premise** event: This log shows the change history of on-premise boot settings. It includes the value of on-premise settings and the change method.
- **Capsule Update** event: This log shows the occurrence of UEFI capsule firmware update. It includes the cause and result of the event, and the updated firmware version.

- **Log Cleared** event: This log shows UEFI BIOS event logs are cleared. It includes the cause and result of the event.
- **Shutdown / Reboot** event: This log shows the UEFI BIOS is successfully shut down or the system is rebooted. It includes the cause and type of the event.

## Detect memory retraining (for Intel models only)

Memory retraining is a process to initialize the memory module and run diagnostic tests for the memory module in your computer. The memory retraining might occur during POST if any of the following situations is detected:

- Memory module replacement
- Total Memory Encryption setting change in UEFI BIOS
- Memory Reference Code (MRC) change when UEFI BIOS update

When memory retraining occurs, the screen might be blank. You might see the LED indicators on Esc, F1, and F4 blinking sequentially to indicate the progress. Do not press the power button to interrupt the process. Wait a few minutes until the logo screen is displayed.

## Reset system to factory defaults

This feature allows you to reset the UEFI BIOS to the factory default settings, including all UEFI BIOS settings and internal data. It helps you wipe user data in case that you want to dispose of or reuse your computer.

1. Restart the computer and enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
2. Select **Security** → **Reset System to Factory Defaults** and press Enter.
3. Several warning windows might be displayed. Do the following before resetting the system to the factory default settings:
  - a. Deactivate the Absolute Persistence Module.
  - b. Remove the NVMe password if you have set one.
4. For computer models with RAID settings, a window is displayed to remind you of data damage. Select **Yes** to proceed.
5. A window is displayed to confirm all UEFI BIOS settings will be reset. Select **Yes** to proceed.

**Note:** If the **Intel AMT control** and **Absolute Persistence(R) Module** are permanently disabled, these settings cannot be reset successfully.

6. Enter the supervisor password, system management password or power-on password in the window prompted.

Your computer will restart immediately. It takes a few minutes to complete the initialization process. Your computer screen might be blank during this process. This is normal and you should not interrupt it.

## Recover the UEFI BIOS

If the UEFI BIOS is corrupted or maliciously attacked, it can self-recover and restore your computer from the last uncorrupted and secure backup. This function protects your computer data.

During the UEFI BIOS self-recovery, the screen might be blank. You can check the progress based on blinking modes of the LED indicators on Esc, F1, and F4. For details, refer to the following table.

**Note:** Do not press the power button to interrupt the progress. Wait a few minutes until the logo screen is displayed.

Blinking modes	Self-recovery progress
LED indicator on Esc blinks	0% to 32%
LED indicators on Esc and F1 blink simultaneously	33% to 65%
LED indicators on Esc, F1 and F4 blink simultaneously	66% to 100%

## Update UEFI BIOS

When you install a new program, device driver, or hardware component, you might need to update UEFI BIOS.

Download and install the latest UEFI BIOS update package by one of the following methods:

- Open the Vantage app to check the available update packages. If the latest UEFI BIOS update package is available, follow the on-screen instructions to download and install the package.
- Go to <https://pcsupport.lenovo.com> and select the entry for your computer. Then, follow the on-screen instructions to download and install the latest UEFI BIOS update package.

**Note:** During the UEFI BIOS update process, MRC change might cause memory retraining. Memory retraining is a process to initialize the memory module and run diagnostic tests for the memory module in your computer. When memory retraining occurs, the screen might be blank. You might see the LED indicators on Esc, F1, and F4 blinking sequentially to indicate the progress. Do not press the power button to interrupt the process. Wait a few minutes until the logo screen is displayed.

To know more about UEFI BIOS, visit Knowledge Base of your computer at <https://pcsupport.lenovo.com>.

## Install a Windows operating system and drivers

This section provides instructions on installing a Windows operating system and device drivers.

### Install a Windows operating system

Microsoft constantly makes updates to the Windows operating system. Before installing a particular Windows version, check the compatibility list for the Windows version. For details, go to <https://support.lenovo.com/us/en/solutions/windows-support>.

#### Attention:

- It is recommended that you update your operating system through official channels. Any unofficial update might cause security risks.
  - The process of installing a new operating system deletes all the data on your internal storage drive, including the data stored in a hidden folder.
1. If you are using the Windows BitLocker® Drive Encryption feature and your computer has a Trusted Platform Module, ensure that you have disabled the feature.
  2. Ensure that the security chip is set to **Active**.
    - a. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.
    - b. Select **Security** → **Security Chip** and press Enter. The **Security Chip** submenu opens.
    - c. Ensure that the security chip for TPM 2.0 is set to **Active**.
    - d. Press F10 to save the settings and exit.
  3. Connect the drive that contains the operating system installation program to the computer.
  4. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.



5. Select **Startup → Boot** to display the **Boot Priority Order** submenu.
6. Select the drive that contains the operating system installation program, for example, **USB HDD**. Then, press Esc.

**Attention:** After you change the startup sequence, ensure that you select the correct device during a copy, a save, or a format operation. If you select the wrong device, the data on that device might be erased or overwritten.

7. Select **Restart** and ensure that **OS Optimized Defaults** is enabled. Then, press F10 to save the settings and exit.
8. Follow the on-screen instructions to install the device drivers and necessary programs.
9. After installing the device drivers, apply Windows Update to get the latest updates, for example the security patches.

### **Install device drivers**

You should download the latest driver for a component when you notice poor performance from that component or when you added a component. This action might eliminate the driver as the potential cause of a problem. Download and install the latest driver by one of the following methods:

- Open the Vantage app to check the available update packages. Select the update packages you want, and then follow the on-screen instructions to download and install the packages.
- Go to <https://pcsupport.lenovo.com> and select the entry for your computer. Then, follow the on-screen instructions to download and install necessary drivers and software.




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## Chapter 6. Help and support

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### Frequently asked questions

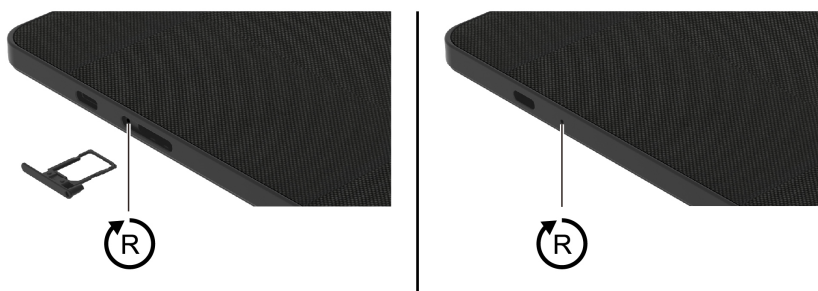
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Question	Solution
How do I access <b>Control Panel</b> ?	Type Control Panel in the Windows search box and then press Enter.
How do I turn off my computer?	Open the <b>Start</b> menu and click  <b>Power</b> . Then, click <b>Shut down</b> .
How do I partition my storage drive?	<a href="https://support.lenovo.com/solutions/ht503851">https://support.lenovo.com/solutions/ht503851</a>

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1. Press and hold the power button until the computer turns off. Then, restart the computer.
2. If step 1 does not work:
  - For models with emergency reset holes: Insert a straightened paper clip into the emergency reset hole to cut off power supply temporarily. Then, restart the computer with ac power connected.

What do I do if my computer stops responding?



- For models without an emergency reset hole:
  - For models with the removable battery, remove the removable battery and disconnect all power sources. Then, reconnect to ac power and restart the computer.
  - For models with the built-in battery, disconnect all power sources. Press and hold the power button for about seven seconds. Then, reconnect to ac power and restart the computer.

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What do I do if I spill liquid on the computer?

1. Carefully unplug the ac power adapter and turn off the computer immediately. The more quickly you stop the current from passing through the computer the more likely you will reduce damage from short circuits.

**Attention:** Although you might lose some data or work by turning off the computer immediately, leaving the computer on might make your computer unusable.
2. Do not try to drain out the liquid by turning over the computer. If your computer has keyboard drainage holes on the bottom, the liquid will be drained out through the holes.
3. Wait until you are certain that all the liquid is dry before turning on your computer.

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How do I enter the UEFI BIOS menu?

Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 45.

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Question	Solution
Where can I get the latest device drivers and UEFI BIOS?	<ul style="list-style-type: none"> <li>• From the Vantage app. See “Enter the UEFI BIOS menu” on page 45 and “Update UEFI BIOS” on page 48.</li> <li>• Download from Lenovo Support Web site at <a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a>.</li> </ul>
What do I do if the LCD goes black when I turn on the computer?	<p>To run LCD Self-Test:</p> <ol style="list-style-type: none"> <li>1. Ensure that the computer is connected to the ac power adapter.</li> <li>2. Press the power button for about seven seconds to turn off the computer.</li> <li>3. Press Fn, left Ctrl, and the power button at the same time. If the computer displays five solid colors in sequence across the entire screen, it indicates that the LCD functions normally.</li> <li>4. The test lasts for about 20 seconds and then exits automatically. You also can press the power button to exit the test.</li> </ol>

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## Error messages

If you see a message that is not included in the following table, record the error message first, then shut down the computer and call Lenovo for help. See “Lenovo Customer Support Center” on page 57.

Message	Solution
0190: Critical low-battery error	The computer turned off because the battery power is low. Connect the ac power adapter to the computer and charge the batteries.
0191: System Security - Invalid remote change requested	The system configuration change has failed. Confirm the operation and try again.
0199: System Security - Security password retry count exceeded.	This message is displayed when you enter a wrong supervisor password more than three times. Confirm the supervisor password and try again.
0271: Check Date and Time settings.	The date or the time is not set in the computer. Enter the UEFI BIOS menu and set the date and time.
210x/211x: Detection/Read error on HDDx/SSDx	The storage drive is not working. Reinstall the storage drive. If the problem still exists, replace the storage drive.
Error: The non-volatile system UEFI variable storage is nearly full.	<p><b>Note:</b> This error indicates that the operating system or programs cannot create, modify, or delete data in the non-volatile system UEFI variable storage due to insufficient storage space after POST.</p> <p>The non-volatile system UEFI variable storage is used by the UEFI BIOS and by the operating system or programs. This error occurs when the operating system or programs store large amounts of data in the variable storage. All data needed for POST, such as UEFI BIOS setup settings, chipset, or platform configuration data, are stored in a separate UEFI variable storage.</p> <p>Tap the screen after the error message is displayed, and follow the on-screen instructions to enter the UEFI BIOS menu. A dialog asks for confirmation to clean up the storage. If you select “Yes”, all data that were created by the operating system or programs will be deleted except global variables defined by the Unified Extensible Firmware Interface Specification. If you select “No”, all data will be kept, but the operating system or programs will not be able to create, modify, or delete data in the storage.</p> <p>If this error happens at a service center, Lenovo authorized service personnel will clean up the non-volatile system UEFI variable storage using the preceding solution.</p>

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## Self-help resources

Use the following self-help resources to learn more about the computer and troubleshoot problems.

Resources	How to access?
Troubleshooting and FAQ	<ul style="list-style-type: none"><li>• <a href="https://www.lenovo.com/tips">https://www.lenovo.com/tips</a></li><li>• <a href="https://forums.lenovo.com">https://forums.lenovo.com</a></li></ul>
Accessibility information	<a href="https://www.lenovo.com/accessibility">https://www.lenovo.com/accessibility</a>
Reset or restore Windows	<ul style="list-style-type: none"><li>• Use Lenovo recovery options.<ol style="list-style-type: none"><li>1. Go to <a href="https://support.lenovo.com/HowToCreateLenovoRecovery">https://support.lenovo.com/HowToCreateLenovoRecovery</a>.</li><li>2. Follow the on-screen instructions.</li></ol></li><li>• Use Windows recovery options.<ol style="list-style-type: none"><li>1. Go to <a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a>.</li><li>2. Detect your computer or manually select your computer model.</li><li>3. Navigate to the troubleshooting menu to diagnose the operating system for recovery instructions.</li></ol></li></ul>
Use the Vantage app to: <ul style="list-style-type: none"><li>• Configure device settings.</li><li>• Download and install UEFI BIOS, drivers, and firmware updates.</li><li>• Secure your computer from outside threats.</li><li>• Diagnose hardware problems.</li><li>• Check the computer warranty status.</li><li>• Access <i>User Guide</i> and helpful articles.</li></ul> <p><b>Note:</b> The available features vary depending on the computer model.</p>	Type Vantage in the Windows search box and then press Enter.
Product documentation: <ul style="list-style-type: none"><li>• <i>Safety and Warranty Guide</i></li><li>• <i>Generic Safety and Compliance Notices</i></li><li>• <i>Setup Guide</i></li><li>• <i>This User Guide</i></li><li>• <i>Regulatory Notice</i></li></ul>	Go to <a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a> . Then, follow the on-screen instructions to filter out the documentation you want.

Resources	How to access?
<p>Lenovo Support Web site with the latest support information of the following:</p> <ul style="list-style-type: none"> <li>• Drivers and software</li> <li>• Diagnostic solutions</li> <li>• Product and service warranty</li> <li>• Product and parts details</li> <li>• Knowledge base and frequently asked questions</li> </ul>	<p><a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a></p>
<p>Windows help information</p>	<ul style="list-style-type: none"> <li>• Open the Start menu and click <b>Get Help or Tips</b>.</li> <li>• Use Windows Search or the Cortana® personal assistant.</li> <li>• Microsoft support Web site: <a href="https://support.microsoft.com">https://support.microsoft.com</a></li> </ul>

## Windows label

Your computer might have a Windows Genuine Microsoft label affixed to ac adapter depending on the following factors:

- Your geographic location
- Edition of Windows that is preinstalled

Go to <https://www.microsoft.com/en-us/howtotell/Hardware.aspx> for illustrations of the various types of Genuine Microsoft labels.

- In the People's Republic of China, the Genuine Microsoft label is required on all computer models preinstalled with any edition of the Windows operating system.
- In other countries and regions, the Genuine Microsoft label is required only on computer models licensed for Windows Pro editions.

The absence of a Genuine Microsoft label does not indicate that the preinstalled Windows version is not genuine. For details on how to tell whether your preinstalled Windows product is genuine, refer to the information provided by Microsoft at <https://www.microsoft.com/en-us/howtotell/default.aspx>.

There are no external, visual indicators of the Product ID or Windows version for which the computer is licensed. Instead, the Product ID is recorded in the computer firmware. Whenever a Windows product is installed, the installation program checks the computer firmware for a valid, matching Product ID to complete the activation.

In some cases, an earlier Windows version might be preinstalled under the terms of the Windows Pro edition license downgrade rights.

## What are CRUs

Customer Replaceable Units (CRUs) are parts that can be upgraded or replaced by the customer. The computers contain the following types of CRUs:

- **Self-service CRUs:** Refer to parts that can be installed or replaced easily by customer themselves or by trained service technicians at an additional cost.

- **Optional-service CRUs:** Refer to parts that can be installed or replaced by customers with a greater skill level. Trained service technicians can also provide service to install or replace the parts under the type of warranty designated for the customer's machine.

If you intend on installing a CRU, Lenovo will ship the CRU to you. CRU information and replacement instructions are shipped with your product and are available from Lenovo at any time upon request. You might be required to return the defective part that is replaced by the CRU. When return is required: (1) return instructions, a prepaid shipping label, and a container will be included with the replacement CRU; and (2) you might be charged for the replacement CRU if Lenovo does not receive the defective CRU within thirty (30) days of your receipt of the replacement CRU. For full details, see the Lenovo Limited Warranty documentation at [https://www.lenovo.com/warranty/llw\\_02](https://www.lenovo.com/warranty/llw_02).

Refer to the following CRU list for your computer.

### Self-service CRUs

- ac power adapter
- Lenovo Precision Pen\*
- Lenovo Precision Pen 2\*
- Nano-SIM-card tray\*
- Power cord
- ThinkPad Bluetooth TrackPoint Keyboard\*
- Detachable keyboard stand\*
- USB 2.0 USB-C to USB-C cable\*

\* for selected models

**Note:** Replacement of any parts not listed above, including the built-in rechargeable battery, must be done by a Lenovo-authorized repair facility or technician. Go to <https://support.lenovo.com/partnerlocator> for more information.

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## Call Lenovo

If you have tried to correct the problem yourself and still need help, you can call Lenovo Customer Support Center.

## Before you contact Lenovo

Prepare the following before you contact Lenovo:

1. Record the problem symptoms and details:
  - What is the problem? Is it continuous or intermittent?
  - Any error message or error code?
  - What operating system are you using? Which version?
  - Which software applications were running at the time of the problem?
  - Can the problem be reproduced? If so, how?
2. Record the system information:
  - Product name
  - Machine type and serial number

The following illustration shows where to find the machine type and serial number of your computer.





## Lenovo Customer Support Center

During the warranty period, you can call Lenovo Customer Support Center for help.

### Telephone numbers

For a list of the Lenovo Support phone numbers for your country or region, go to <https://pcsupport.lenovo.com/supportphonenumber> for the latest phone numbers.

**Note:** Phone numbers are subject to change without notice. If the number for your country or region is not provided, contact your Lenovo reseller or Lenovo marketing representative.

### Services available during the warranty period

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- Lenovo hardware repair - If the problem is determined to be caused by Lenovo hardware under warranty, trained service personnel are available to provide the applicable level of service.
- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) that apply to your hardware available.

### Services not covered

- Replacement or use of parts not manufactured for or by Lenovo or nonwarranted parts
- Identification of software problem sources
- Configuration of UEFI BIOS as part of an installation or upgrade
- Changes, modifications, or upgrades to device drivers
- Installation and maintenance of network operating systems (NOS)
- Installation and maintenance of programs

For the terms and conditions of the Lenovo Limited Warranty that apply to your Lenovo hardware product, go to:

- [https://www.lenovo.com/warranty/llw\\_02](https://www.lenovo.com/warranty/llw_02)
- <https://pcsupport.lenovo.com/warrantylookup>

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## **Purchase additional services**

During and after the warranty period, you can purchase additional services from Lenovo at <https://pcsupport.lenovo.com/warrantyupgrade>.

Service availability and service name might vary by country or region.

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## Appendix A. Compliance information

For compliance information, refer to *Regulatory Notice* at <https://pcsupport.lenovo.com> and *Generic Safety and Compliance Notices* at [https://pcsupport.lenovo.com/docs/generic\\_notices](https://pcsupport.lenovo.com/docs/generic_notices).

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### Certification-related information

Product name	Compliance ID	Machine type(s)
ThinkPad X1 Fold 16 Gen 1	TP00144A	21ES and 21ET
ThinkPad X1 Fold 16 Gen 1 5G <sup>3</sup>	TP00144A0 <sup>4</sup>	

<sup>3</sup> for mainland China only / <sup>4</sup> for India only

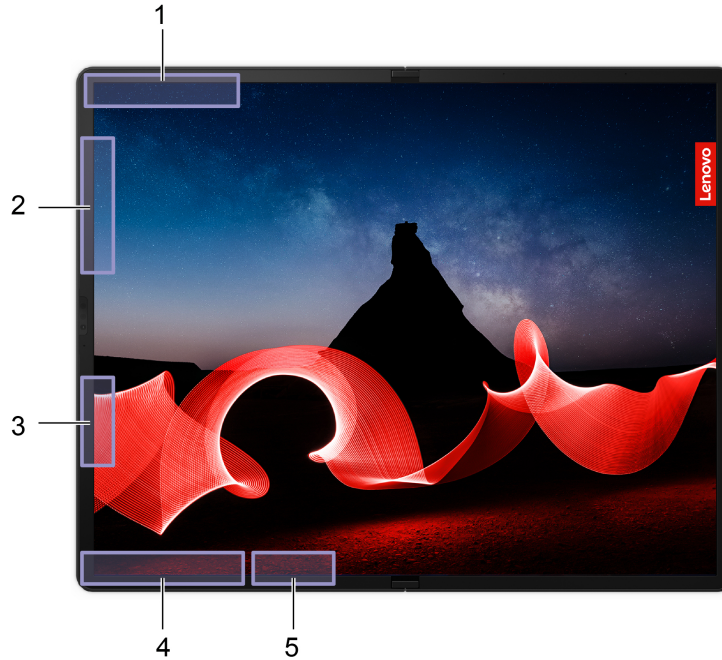
Further compliance information related to your product is available at <https://www.lenovo.com/compliance>.

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### Locate the UltraConnect wireless antennas

Your computer has an UltraConnect™ wireless antenna system. You can enable wireless communication wherever you are.

The following illustration shows the antenna locations on your computer:



- ❶ Wireless WAN antenna (main)\*
- ❷ Wireless WAN antenna (MIMO1)\* and Wireless LAN antenna (auxiliary)
- ❸ Wireless LAN antenna (main)\* / Wireless WAN antenna (MIMO2)\*
- ❹ Wireless WAN antenna (auxiliary)\*
- ❺ Wireless LAN antenna (main)\*

\* for selected models

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## Operating environment

### Maximum altitude (without pressurization)

3048 m (10 000 ft)

### Temperature

- Operating (the computer is **unfolded**): 5°C to 35°C (41°F to 95°F)
- Storage and transportation in **original shipping packaging** (the computer is **unfolded**): -20°C to 60°C (-4°F to 140°F)
- **Storage without packaging:**
  - The computer is **unfolded**: 5°C to 43°C (41°F to 109°F)
  - The computer is **folded**: 5°C to 40°C (41°F to 104°F)

**Note:** When you charge the battery, its temperature must be no lower than 10°C (50°F).

### Relative humidity

- Operating: 8% to 95% at wet-bulb temperature 23°C (73°F)
- Storage and transportation: 5% to 95% at wet-bulb temperature 27°C (81°F)

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## Appendix B. Notices and trademarks

### Notices

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