

P15 Gen 2/T15g Gen 2/P17 Gen 2  
User Guide

**ThinkPad**



**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 (June 2021)**

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## About this documentation

- 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 computer

## Front view

P15 Gen 2 and T15g Gen 2



	Infrared camera * / Camera *		Webcam privacy shutter *
	Microphone *		Touch screen *
	Power button		TrackPoint® pointing stick
	Fingerprint reader		Trackpad
	TrackPoint buttons		Speaker



### **Webcam privacy shutter**

Slide the webcam privacy shutter to cover or uncover the camera lens. It is designed to protect your privacy.

## P17 Gen 2



	Infrared camera * / Camera *		Webcam privacy shutter *
	Microphone *		Power button
	TrackPoint® pointing stick		Fingerprint reader
	Trackpad		TrackPoint buttons
	Speaker		

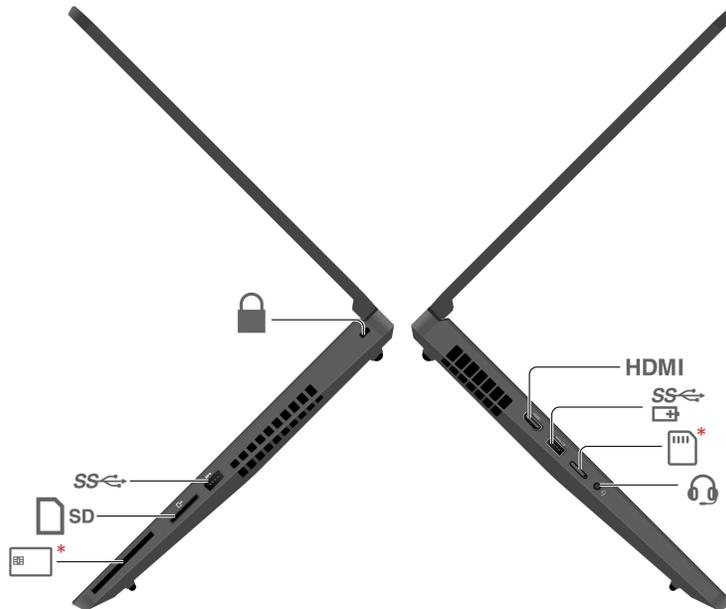
\* for selected models

### Webcam privacy shutter

Slide the webcam privacy shutter to cover or uncover the camera lens. It is designed to protect your privacy.



## Side view

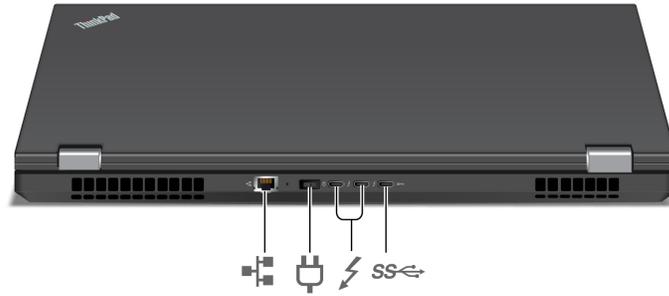


<b>HDMI</b>	HDMI™ connector		Always on USB 3.2 connector Gen 1
	Nano-SIM-card tray		Audio connector
	Smart-card slot*		SD card reader
	USB 3.2 connector Gen 1		Security-lock slot

### HDMI HDMI connector

The HDMI connector on your computer supports the HDMI 2.1 standard by default. If you connect an external display to your computer through the HDMI connector with an uncertified HDMI cable, the external display might not work. In this case, use a certified HDMI 2.1 cable instead.

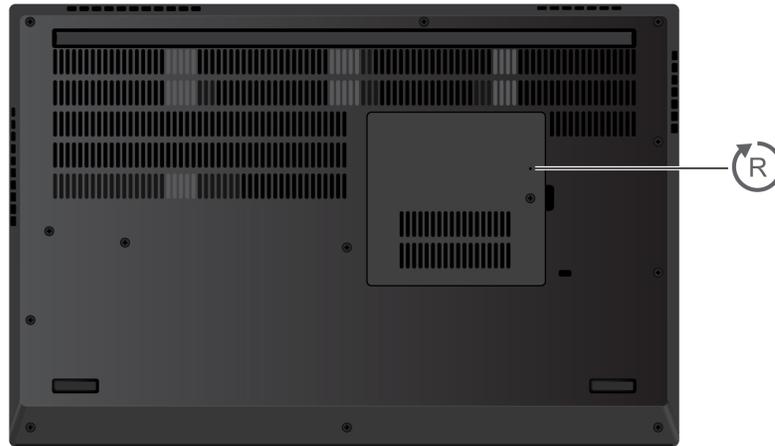
## Rear view



	Ethernet connector		Power connector
	USB-C (Thunderbolt 4) connectors		USB-C (3.2 Gen 2) connector

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## Bottom view



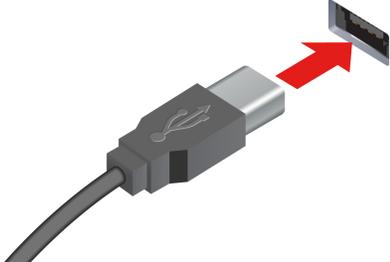
### Emergency-reset hole

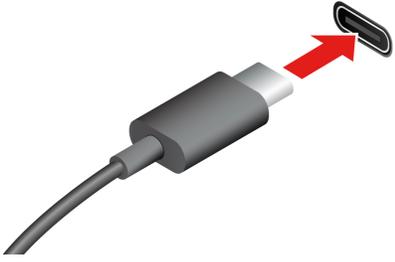
If the computer stops responding and you cannot turn it off by pressing the power button, reset your computer:

1. Disconnect your computer from ac power.
2. Insert a straightened paper clip into the hole to cut off power supply temporarily.
3. Connect your computer to ac power and then turn on your computer.

## USB connectors

**Note:** Depending on the model, some USB connectors might not be available on your computer.

Connector name	Description
 <ul style="list-style-type: none"> <li>•  USB 2.0 connector</li> <li>•  USB 3.2 connector Gen 1</li> <li>•  USB 3.2 connector Gen 2</li> </ul>	<p>Connect USB-compatible devices, such as a USB keyboard, USB mouse, USB storage device, or USB printer.</p>

 <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>•  Thunderbolt 3 connector (USB-C)</li> <li>•  Thunderbolt 4 connector (USB-C)</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. If the connected device supports USB Power Delivery, the output current can reach 3 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 to DP: up to 5120 x 3200 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>
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### 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 / 3.1 Gen 1	5
3.2 Gen 2 / 3.1 Gen 2	10
3.2 Gen 2 × 2	20
Thunderbolt 3 connector (USB-C)	40
Thunderbolt 4 connector (USB-C)	40

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## Chapter 2. Get started with your computer

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### Get started with your desktop



#### Launch an app

- Use the super key (with the Windows logo) or open the Activities menu on the top left and type in the name of the application you want to launch.
- Click the "show application" menu (For the Fedora operating system, you can see the menu after opening Activities menu) on the lower left and type in the name of the application you want to launch.

#### Launch settings

Select the system menu arrow on the top right and click on **Settings**.

#### Get support

- For the Ubuntu operating system, see the Ubuntu documentation site at <https://help.ubuntu.com/lts/ubuntu-help/index.html>.
- For the Fedora operating system, see the Fedora project wiki at [https://fedoraproject.org/wiki/Fedora\\_Project\\_Wiki](https://fedoraproject.org/wiki/Fedora_Project_Wiki).
- The Gnome desktop is installed by default and is designed to be simple and easy to use. Details on using Gnome are available by launching the Help application or online at <https://help.gnome.org/users/>.

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## Manage networks

Your computer helps you connect to the world through a wired or wireless network.

### Connect to Wi-Fi networks

1. Click the system menu arrow on the top right. A list of available wireless networks is displayed.

2. Select a network available for connection. Provide required information, if needed.

## Airplane mode

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

To enable or disable the Airplane mode:

1. Use the system menu drop down (top right) and choose **Settings**.
2. Click the Wi-Fi option.
3. Turn on or turn off the **Airplane mode** switch.

---

## Interact with your computer

Your computer provides you various ways to navigate the screen.

### Use the camera

- Take pictures or record videos by using the **Cheese** application. The indicator next to the camera is on when the camera is in use.
- If you use other apps that support photographing, video chatting, and video conference, the camera starts automatically when you enable the camera-required feature from the app.

**Note:** IR function is currently limited in Linux. Make sure the regular camera mode is selected if you see gray lines.

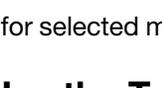
### Use the keyboard shortcuts

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

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	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
	Enable / disable wireless

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	Open / collapse notification center
	Answer incoming calls on Microsoft Teams
	Decline incoming calls on Microsoft Teams
	Open the Vantage app. You can customize the function of this key on the Vantage app.
	Open calculator
	Enter sleep mode
	Open Snipping Tool
	Toggle keyboard backlight (for selected models)
	Break operation
	Pause operation
	Scroll contents
	Send system request
	Enter sleep mode To wake up the computer, press Fn or the power button.
	Go to beginning
	Go to end

\* for selected models

## 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



### 1. Pointing stick

Use your index finger or middle finger to apply pressure to the pointing-stick nonslip cap in any direction parallel to the keyboard. The pointer on the screen moves accordingly but the pointing stick itself does not move. The higher the pressure applied, the faster the pointer moves.

### 2. Left-click button

Press to select or open an item.

### 3. Right-click button

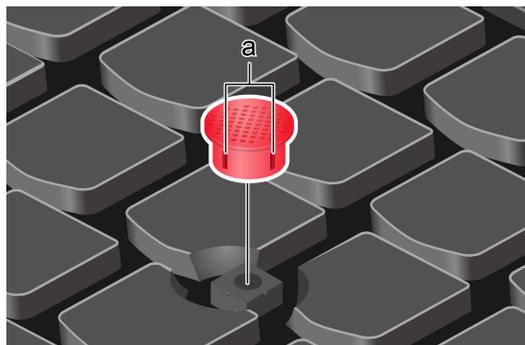
Press to display a shortcut menu.

### 4. Middle button

Press and hold the dotted middle button while applying pressure to the pointing stick in the vertical or horizontal direction. Then, you can scroll through the document, Web site, or apps.

## Replace the pointing-stick nonslip cap

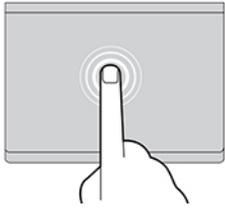
**Note:** Ensure that the new cap has grooves **a**.



## Use the trackpad

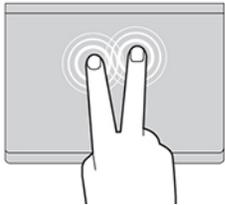
The entire trackpad surface is sensitive to finger touch and movement. You can use the trackpad to perform all the pointing, clicking, and scrolling functions of a traditional mouse. Tap on the surface of the trackpad with one finger to perform the left-click action, with two fingers to perform the right-click action.

### Use the touch gestures



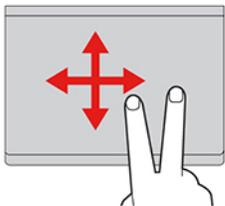
#### Tap

Tap anywhere on the trackpad with one finger to select or open an item.



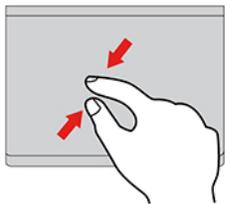
#### Two-finger tap

Tap anywhere on the trackpad with two fingers to display a shortcut menu.



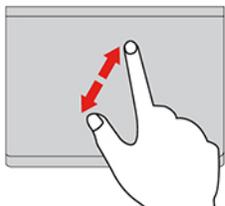
#### Two-finger scroll

Put two fingers on the trackpad and move them in the vertical or horizontal direction. This action enables you to scroll through the document, Web site, or apps.



#### Two-finger zoom out

Put two fingers on the trackpad and move them closer together to zoom out.



#### Two-finger zoom in

Put two fingers on the trackpad and move them farther apart to zoom in.

#### Notes:

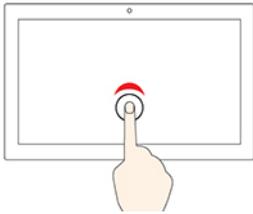
- When using two or more fingers, ensure that you position your fingers slightly apart.
- Some gestures are not available if the last action was done from the TrackPoint pointing device.
- Some gestures are only available when you are using certain apps.
- If the trackpad surface is stained with oil, turn off the computer first. Then, gently wipe the trackpad 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.

## Use the multi-touch screen (for selected models)

If your computer display supports the multi-touch function, you can navigate the screen with simple touch gestures.

**Note:** Some gestures might not be available depending on the app you use.



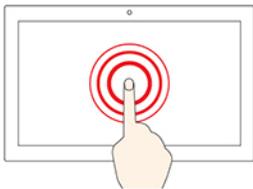
### Tap once

- From the **Start** menu: Open an app or item.
- From the desktop: Select an app or item.
- In an open app: Perform an action such as **Copy**, **Save**, and **Delete**, depending on the app.



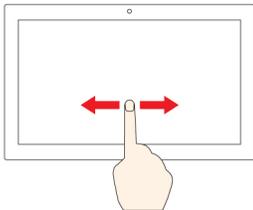
### Tap twice quickly

Open an app or item from the desktop.



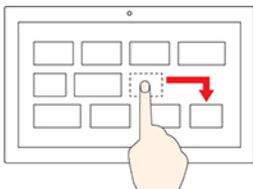
### Tap and hold

Open a shortcut menu.



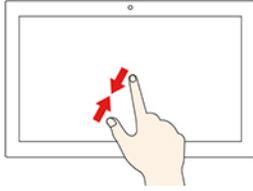
### Slide

Scroll through items, such as lists, pages, and photos.



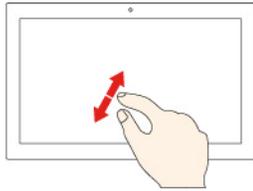
### Drag an item to the location you want

Move an object.



#### Move two fingers closer together

Zoom out.



#### Move two fingers farther apart

Zoom in.

### Tips

- Turn off the computer before cleaning the multi-touch screen.
- Use a dry, soft, and lint-free cloth or a piece of absorbent cotton to remove fingerprints or dust from the multi-touch screen. Do not apply solvents to the cloth.
- The multi-touch screen is a glass panel covered with a plastic film. Do not apply pressure or place any metallic object on the screen, which might damage the touch panel or cause it to malfunction.
- Do not use fingernails, gloved fingers, or inanimate objects for input on the screen.
- Regularly calibrate the accuracy of the finger input to avoid a discrepancy.

## 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

1. Connect the external display to an appropriate video connector on your computer.
2. Connect the external display to an electrical outlet.
3. Turn on the external display.

If your computer cannot detect the external display, right-click a blank area on the desktop, and then click **Display settings**.

### Set the display mode

Press  or  +  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.
3. 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.

**Note:** If you set a higher resolution for the computer display than the external display, only part of the screen can be displayed on the external display.

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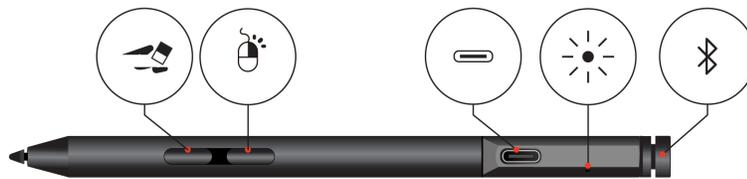
## Use ThinkPad Pen Pro (for selected models)

The ThinkPad Pen Pro is an electronic pen stored in the pen slot. To use the pen, slide it out of the slot.

### Notes:

- The ThinkPad Pen Pro is not waterproof. Keep the pen away from water and excessive moisture.
- To purchase the ThinkPad Pen Pro, go to <https://www.lenovo.com/accessories>.
- The default function of each barrel button might vary in different apps.
- To customize the barrel button functions, launch the settings application and go to the "Wacom Tablet" option.

### Pen overview



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#### Bottom barrel button



To erase text or drawings, hold the button to erase the object in supported apps.

---

#### Top barrel button



To right-click, hold the button and tap the screen in supported apps.

---

#### USB-C connector



Use the ac power adapter that comes with your computer to charge the pen.

---

#### LED indicator



When the LED indicator blinks in amber, the pen battery power is low. The LED indicator is in solid amber during charging and is solid green when the pen is fully charged. The pen is fully charged in about two hours.

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#### Top pen button



Hold the top pen button for at least three seconds to enable Bluetooth pairing on the pen.

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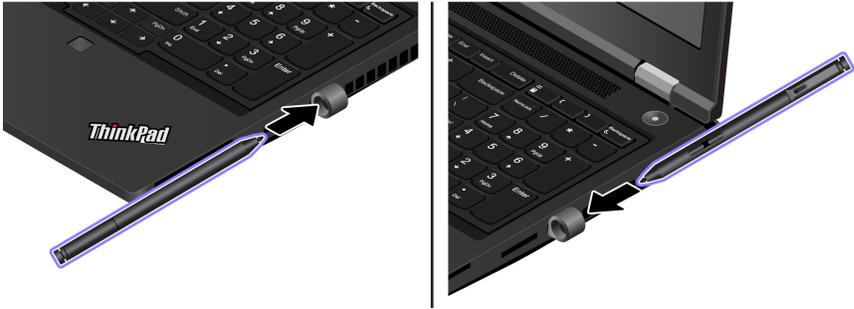
### Notes:

#### Store the pen

The pen is delivered with a pen holder. To store the pen on the computer:

1. Insert the pen holder into the USB connector on the computer.

2. Insert the pen into the pen holder in any ways as shown.





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## Chapter 3. Explore your computer

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### Use the Intelligent Cooling feature

The Intelligent Cooling feature enables your computer to work in the following three modes:

- Balanced mode: balanced performance and fan speed
- Performance mode: the highest performance and normal fan speed
- Ultra-performance mode: the best performance and higher fan speed

Your computer starts up in performance mode by default, do the following to switch to preferred mode:

- Press Fn+L to switch to balanced mode.
- Press Fn+M to switch to performance mode.
- Press Fn+H to switch to ultra-performance mode.

---

### Set the power plan

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

*Table 1. Default power plan (when plugged into ac power)*

<ul style="list-style-type: none"><li>• Turn off the display: After 5 minutes</li><li>• Put the computer to sleep: After 20 minutes</li></ul>
---

To reset the power plan to achieve the best balance between performance and power saving:

1. Click on the battery symbol in the system menu drop down box and select **Power Settings**.
2. Choose or customize a power plan of your preference.

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### Connect to a Bluetooth-enabled device

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

1. Turn on Bluetooth on the computer.
  - Click the system menu drop down (top right) and choose **Settings**.
  - Choose the Bluetooth menu and enable Bluetooth with the toggle button at the top.
2. Any discoverable devices will be shown in the **Devices** list.
3. Select a Bluetooth device, and then follow the on-screen instructions.

Your Bluetooth-enabled device and computer will automatically connect the next time if the two devices are in range of each other with Bluetooth turned on. You can use Bluetooth for data transfer or remote control and communication.

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## Enabling Nvidia proprietary drivers in Fedora (for selected models)

Your computer might come with an Nvidia card. The Nvidia proprietary drivers that will enable you to take advantage of performance benefits and new graphics functionality are not installed by default with Fedora.

To enable the proprietary drivers:

1. Launch the **Software** utility.
2. From the top right selection box choose Software Repositories.
3. Enable third party repositories.
4. Enable **RPM Fusion for Fedora → Nonfree → Nvidia Driver** and close the Software Repositories window.
5. Go to the updates tab and click on the curved arrow on the top left to refresh the software cache. Reboot the machine and launch the Software utility again.
6. Select **Add-ons** on the bottom right and choose the **Hardware Drivers** tab.
7. Select **NVIDIA Linux Graphics Driver**.
8. Select **Install** and wait for the installation to complete. This can take a few minutes.
9. Reboot and confirm Nvidia drivers are running using the **nvidia-settings** utility.

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## Accessories

This chapter provides instructions on how to use hardware accessories to expand your computer capabilities.

### Purchase options

Lenovo has a number of hardware accessories and upgrades to help expand the capabilities 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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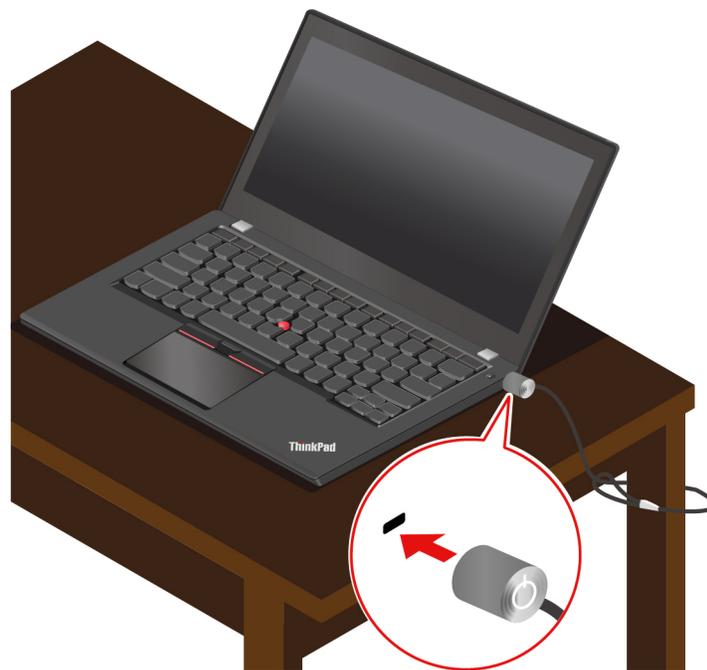
## Chapter 4. Secure your computer and information

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### Lock the computer

Lock your computer to a desk, table, or other fixtures through a compatible security cable lock.

**Note:** The slot supports cable locks that conform to the Kensington MiniSaver® lock standards using Cleat™ locking technology. Do not attempt to use other types of cable locks that use a rotating T-bar™ locking mechanism. You are responsible for evaluating, selecting, and implementing the locking device and security feature. Lenovo makes no comments, judgments, or warranties about the function, quality, or performance of the locking device and security feature. Cable locks for your product are available from Lenovo at <https://www.lenovoquickpick.com/>.



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### Use the fingerprint reader (for selected models)

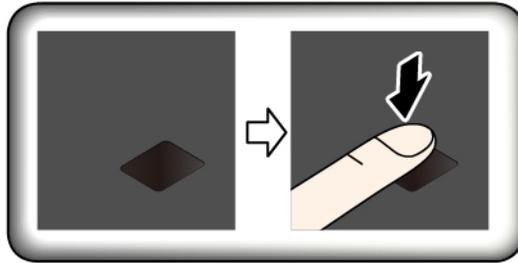
If your computer comes with a fingerprint reader, you can use it to enroll your fingerprints. After enrollment, you can tap your finger on the fingerprint reader to log in to the system.

#### Enroll your fingerprints

Open the system menu and then click **Settings → Users → Fingerprint Login**. Then, follow the on-screen instructions to finish the enrollment.

During the enrollment, the fingerprints are associated with the user password automatically. It is recommended that you enroll more than one fingerprint in case of any injuries to your fingers.

## Log in with your fingerprint



### Maintain the fingerprint reader

To ensure that the fingerprint reader works correctly, do not:

- Scratch the surface of the reader with anything hard.
- Use or touch the reader with a wet, dirty, wrinkled, or injured finger.

---

## Use passwords

This section introduces types of passwords in UEFI (Unified Extensible Firmware Interface) BIOS (Basic Input/Output System) and how to set, change, and remove a password.

### Password types

You can set a power-on password, supervisor password, system management password, or hard disk 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.

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 25.

**Note:** When you are prompted to enter the password, enter the correct supervisor password if a supervisor password has been set, or enter the correct system management password if no supervisor password has been set. Otherwise, you cannot change the configurations in the following steps.

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.

### Hard disk passwords

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

To set the hard disk password, select one of the following types:

- **User hard disk password only**

When a user hard disk password is set without a master hard disk password, the user must enter the user hard disk password to access files and applications on the storage drive.

- **Master hard disk password + User hard disk password**

The master hard disk 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 hard disk password for each computer in the network. The user of the computer can change the user hard disk password as desired, but only the administrator can remove the user hard disk password.

When prompted to enter a hard disk password, press F1 to switch between the master hard disk password and user hard disk password.

**Note:** The hard disk password is not available when 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.

## Set, change, and remove a password

Before you start, print these instructions.

1. Restart the computer. When the logo screen is displayed, press F1 to enter the UEFI BIOS menu.
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. Restart the computer. When the logo screen is displayed, immediately press F1.
  2. Type the supervisor password to enter the UEFI BIOS menu.
  3. Select **Security → Password → Power-On Password** by using the arrow keys.

4. Type the current supervisor password in the **Enter Current Password** field. Then, leave the **Enter New Password** field blank, and press Enter twice.
  5. In the Changes have been saved window, press Enter.
  6. 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 hard disk password**

If you forget your user hard disk password or both user and master hard disk passwords, 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 Chapter 6 “CRU replacement” on page 27.

#### **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. Restart the computer. When the logo screen is displayed, immediately press F1.
  2. Type the supervisor password to enter the UEFI BIOS menu.
  3. Select **Security** → **Password** → **System Management Password** by using the arrow keys.
  4. Type the current supervisor password in the **Enter Current Password** field. Then, leave the **Enter New Password** field blank, and press Enter twice.
  5. In the Changes have been saved window, press Enter.
  6. 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.

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## Chapter 5. Configure advanced settings

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### UEFI BIOS

This section introduces what is UEFI BIOS and the operations you can perform in UEFI BIOS.

#### What is UEFI BIOS

UEFI BIOS is the first program that the computer runs when the computer is turned on. UEFI BIOS initializes the hardware components and loads the operating system and other programs. Your computer comes with a setup program with which you can change UEFI BIOS settings.

#### Enter the UEFI BIOS menu

Restart the computer. When the logo screen is displayed, press 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

**Attention:** The default configurations are already optimized for you in **boldface**. Improper change of the configurations might cause unexpected results.

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

F1	Display the General Help screen.
F9	Restore to the default settings.
F10	Save your configuration and exit.
F5	Change to a lower value.
F6	Change to a higher value.
↑ ↓	Locate an item.
← →	Select a tab.
Esc	Exit the submenu and return to the parent menu.
Enter	Enter the selected tab or submenu.

#### Change the startup sequence

1. Restart the computer. When the logo screen is displayed, press F1.
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, press F12.
2. Select the device that you want the computer to start from and press Enter.

## Set the system date and time

1. Restart the computer. When the logo screen is displayed, press F1.
2. Select **Date/Time** and set the system date and time as desired.
3. Press F10 to save changes and exit.

## 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:

- Use the fwupdmgr or software utility to check LVFS for firmware updates.
- 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.

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## Chapter 6. CRU replacement

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).

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### CRU list

The following is a list of CRUs of your computer.

#### Self-service CRUs

- ac power adapter
- Bottom door
- Nano-SIM-card tray \*
- Power cord
- Lenovo Pen Pro (for selected models of P15 Gen 2 and T15g Gen 2)

#### Optional-service CRUs

- Keyboard
- Memory module
- M.2 solid-state drive
- Service bracket

\* 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/partnerlocation> for more information.

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### Disable the built-in battery

Before replacing any CRU, ensure that you disable the built-in battery.

To disable the built-in battery:

1. Restart your computer. When the logo screen is displayed, immediately press F1 to enter the UEFI BIOS menu.

2. Select **Config** → **Power**. The **Power** submenu is displayed.
3. Select **Disable Built-in Battery** and press Enter.
4. Select **Yes** in the Setup Confirmation window. The built-in battery is disabled and the computer turns off automatically. Wait three to five minutes to let the computer cool.

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## Replace a CRU

Follow the replacement procedure to replace a CRU.

### Bottom door

#### Prerequisite

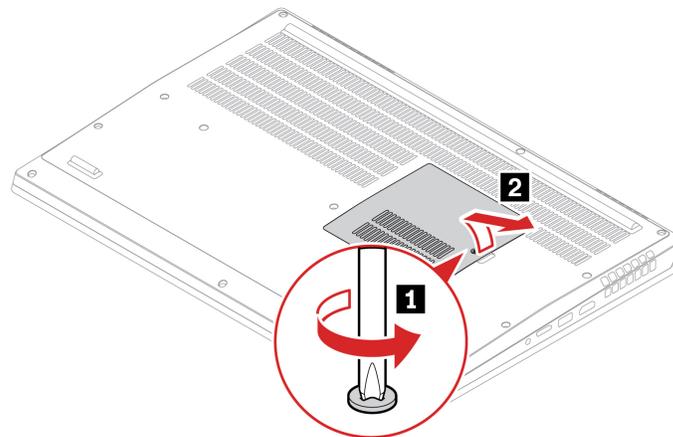
Before you start, read [Generic Safety and Compliance Notices](#) and print the following instructions.

**Note:** Do not remove the bottom door when your computer is connected to ac power. Otherwise, there might be a risk of short circuits.

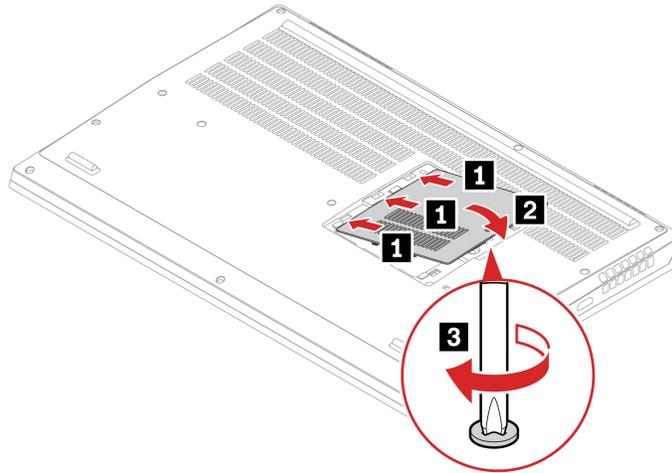
For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn over the computer.

#### Removal procedure



## Installation procedure



## Troubleshooting

If the computer does not start up after you reinstall the bottom door, disconnect the ac power adapter and then reconnect it to the computer.

## Keyboard

### Prerequisite

Before you start, read [Generic Safety and Compliance Notices](#) and print the following instructions.

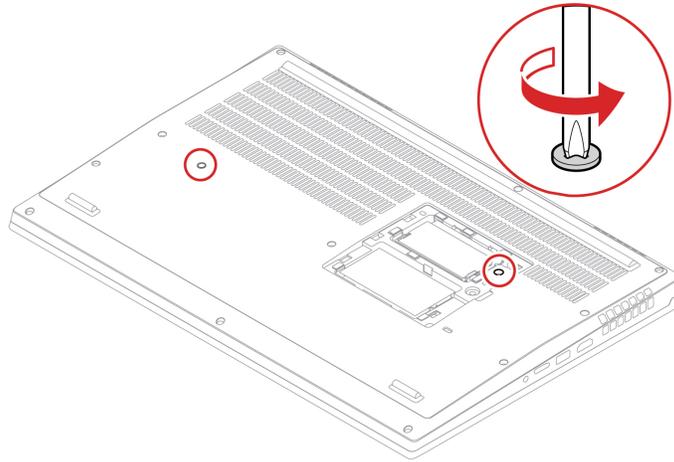
For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Remove the bottom door. See “Bottom door” on page 28.

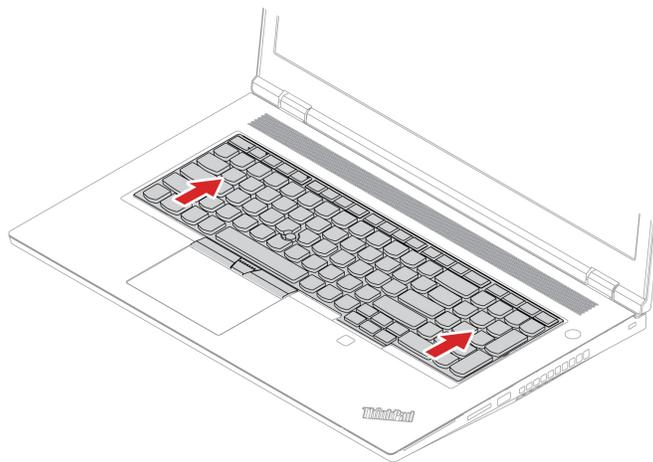
### Removal procedure

**Note:** You might be instructed to slide the keyboard frame forward or backward in some of the following steps. In this case, ensure that you do not press or hold the keys while sliding the keyboard frame. Otherwise, the keyboard frame cannot be moved.

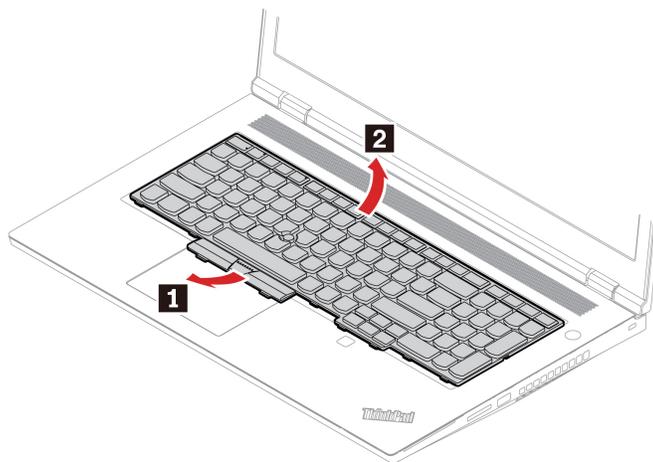
1. Loosen the screws that secure the keyboard.



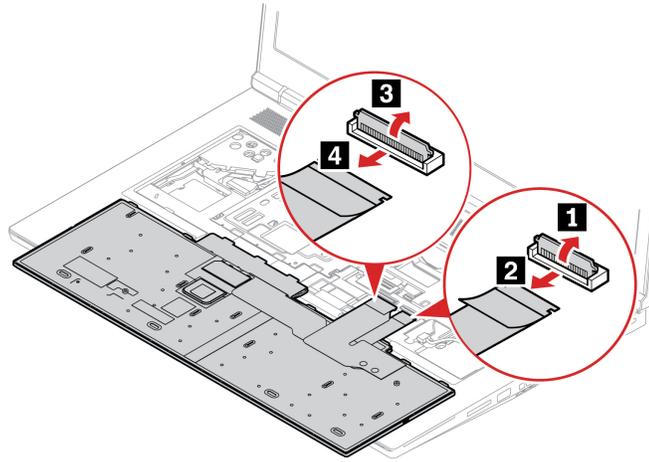
2. Push the keyboard in the direction as shown by arrows to release the latches from the keyboard bezel.



3. Pivot the keyboard slightly upward **1** and then turn the keyboard over **2**.



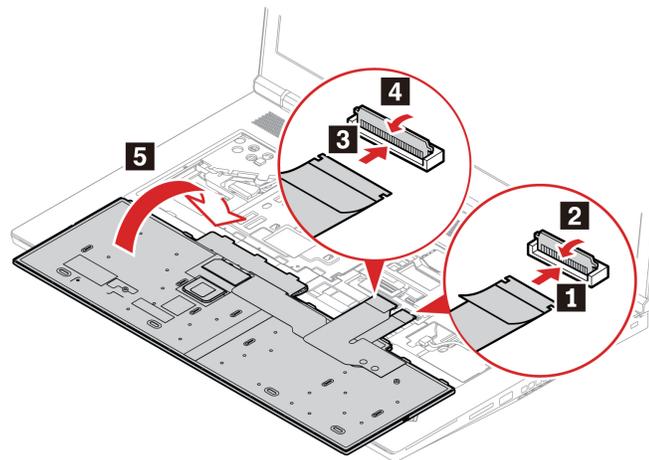
4. Put the keyboard on the palm rest as shown and detach the connectors. Then, remove the keyboard.



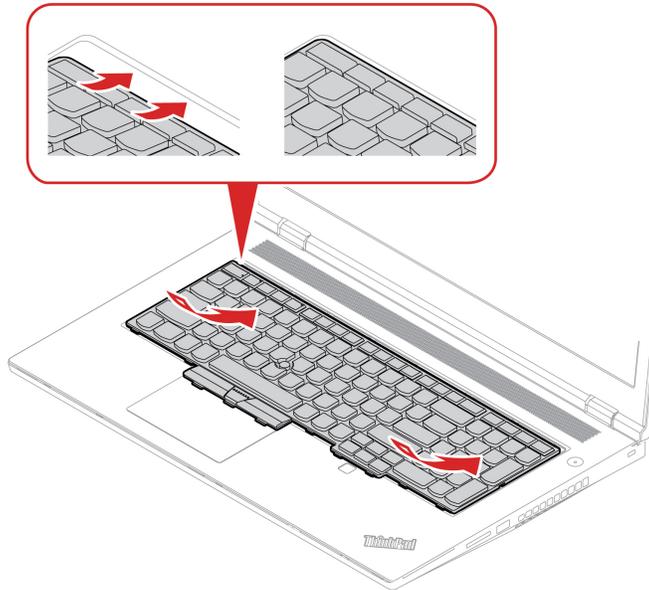
### Installation procedure

**Note:** You might be instructed to slide the keyboard frame forward or backward in some of the following steps. In this case, ensure that you do not press or hold the keys while sliding the keyboard frame. Otherwise, the keyboard frame cannot be moved.

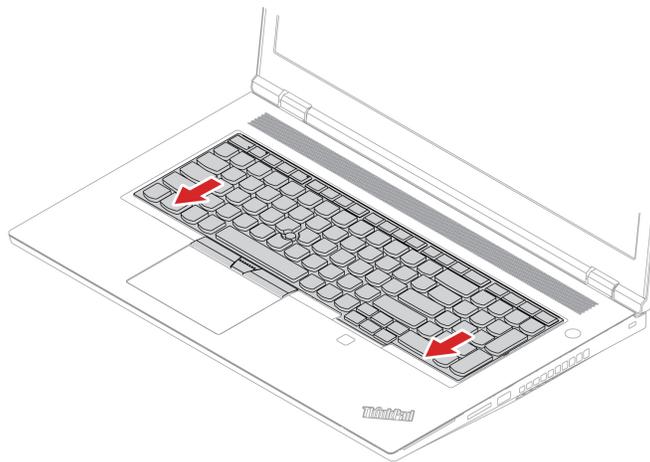
1. Attach the connectors and then turn the keyboard over.



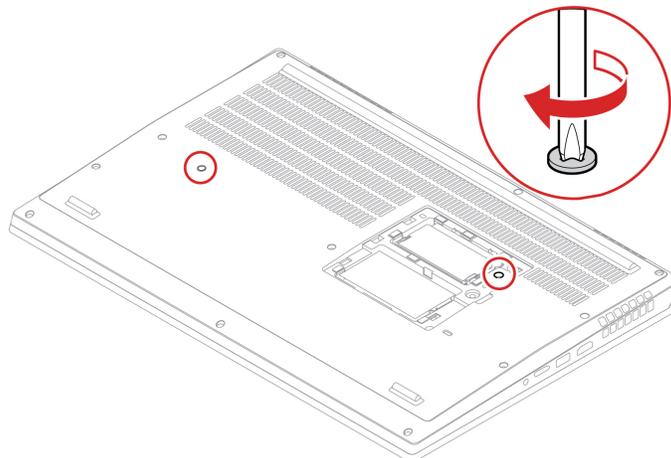
2. Insert the keyboard into the keyboard bezel as shown. Ensure that the top edge of the keyboard (the edge that is close to the display) is under the keyboard bezel.



3. Slide the keyboard in the direction as shown. Ensure that the latches are secured under the keyboard frame.



4. Turn the computer over and tighten the screws to secure the keyboard.



5. Connect the ac power adapter and all disconnected cables to the computer.

## Service bracket

### Prerequisite

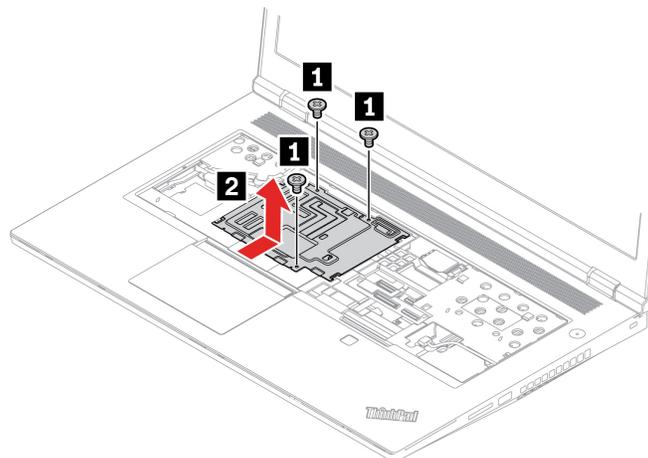
Before you start, read [Generic Safety and Compliance Notices](#) and print the following instructions.

**Attention:** Do not touch the contact edge of the memory module. Otherwise, the memory module might get damaged.

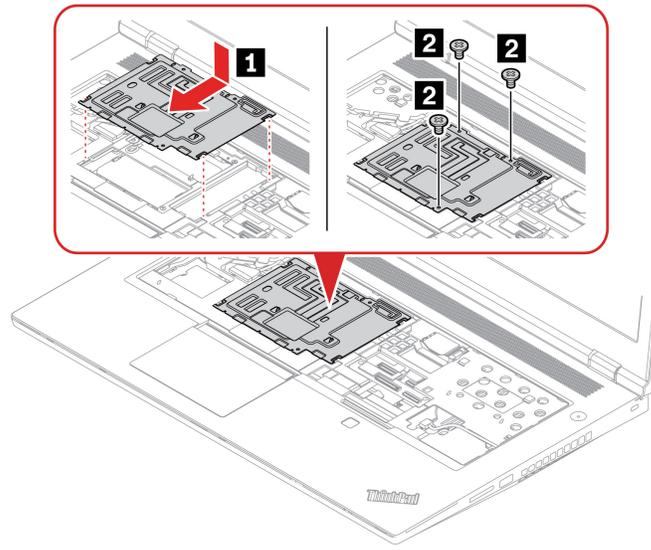
For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn the computer over.
4. Remove the bottom door. See “Bottom door” on page 28.
5. Remove the keyboard. See “Keyboard” on page 29.

### Removal procedure



## Installation procedure



## M.2 solid-state drive

### Prerequisite

Before you start, read [Generic Safety and Compliance Notices](#) and print the following instructions.

**Attention:** The M.2 solid-state drive is sensitive. Inappropriate handling might cause damage and permanent loss of data.

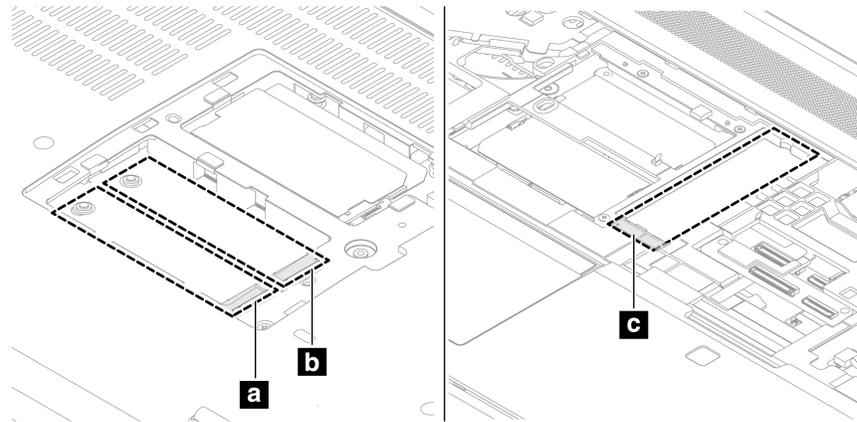
When handling the M.2 solid-state drive, observe the following guidelines:

- Replace the M.2 solid-state drive only for upgrade or repair. The M.2 solid-state drive is not designed for frequent changes or replacement.
- Before replacing the M.2 solid-state drive, make a backup copy of all the data that you want to keep.
- Do not apply pressure to the M.2 solid-state drive.
- Do not touch the contact edge or circuit board of the M.2 solid-state drive. Otherwise, the M.2 solid-state drive might get damaged.
- Do not make the M.2 solid-state drive subject to physical shocks or vibration. Put the M.2 solid-state drive on a soft material, such as cloth, to absorb physical shocks.

Your computer comes with three M.2-solid-state-drive slots in total. Slot **a** and slot **b** are under the bottom door, and slot **c** is under the keyboard. When you configure the M.2-solid-state-drive slot in the UEFI BIOS menu, ensure that you select the correct menu item.

- Slot **a**: NVMe1
- Slot **b**: NVMe2
- Slot **c**: NVMe0

**Note:** For better performance, when you install a Gen-4 M.2 solid-state drive, ensure that you install it in slot **c**.

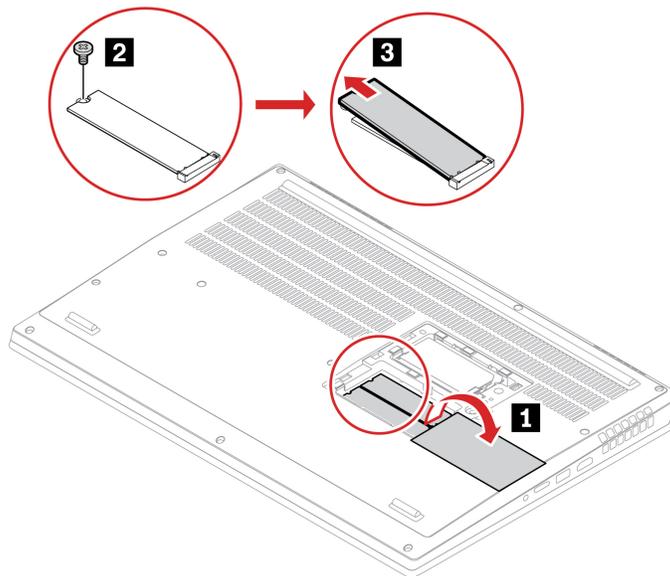


### M.2 solid-state drive under the bottom door

For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn the computer over.
4. Remove the bottom door. See “Bottom door” on page 28.

### Removal procedure

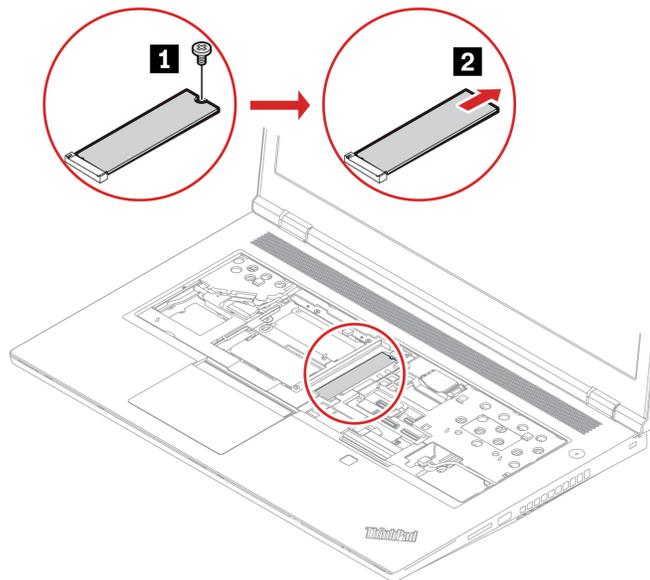


## M.2 solid-state drive under the keyboard

For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn the computer over.
4. Remove the bottom door. See “Bottom door” on page 28.
5. Remove the keyboard. See “Keyboard” on page 29.
6. Remove the service bracket. See “Service bracket” on page 33.

### Removal procedure



## Memory module

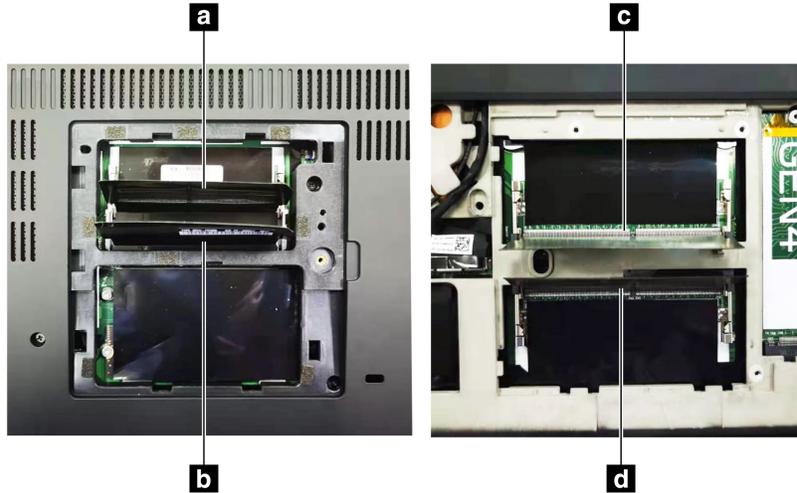
### Prerequisite

Before you start, read [Generic Safety and Compliance Notices](#) and print the following instructions.

**Attention:** Do not touch the contact edge of the memory module. Otherwise, the memory module might get damaged.

## Important notice about memory module installation

Your computer comes with four memory module slots, and supports up to 128 GB memory module in total. Slot **a** and slot **b** are under the bottom door, and slot **c** and slot **d** are under the keyboard. When installing or replacing a memory module, use the following guidelines for better performance:



**Important:** It is recommended that you follow below installation rules. Otherwise, the computer might either not start or not perform well.

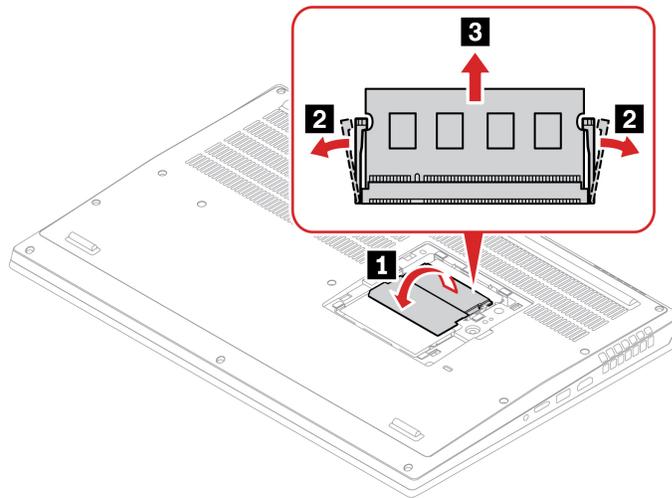
- To install one or two memory modules in total, install it/them in the slots under the bottom cover. Do not install it/them in the slots under the keyboard.
- To install three or four memory modules in total, install two memory modules in the slots under the bottom cover first. Then install the third and fourth memory modules in the slots under the keyboard.
- Your computer supports up to 128 GB memory module in total, and it is recommended that you use memory modules with the same capacity and speed for best dual-channel memory performance.
- Replace only with a memory module of the type recommended by Lenovo.

### Memory module under the bottom door

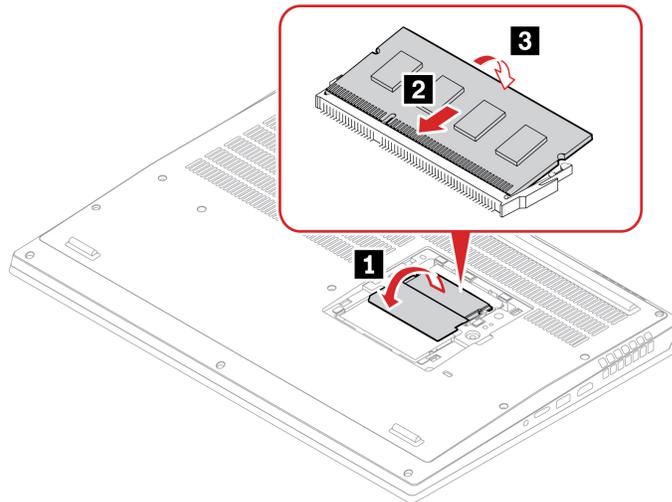
For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn the computer over.
4. Remove the bottom door. See “Bottom door” on page 28.

## Removal procedure



## Installation procedure

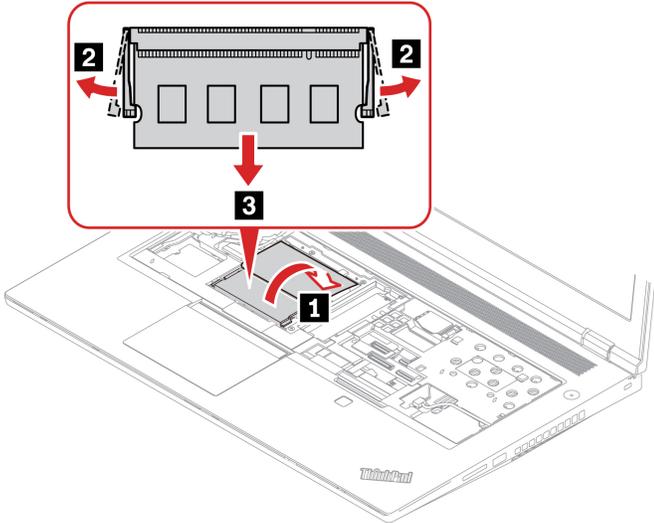


## Memory module under the keyboard

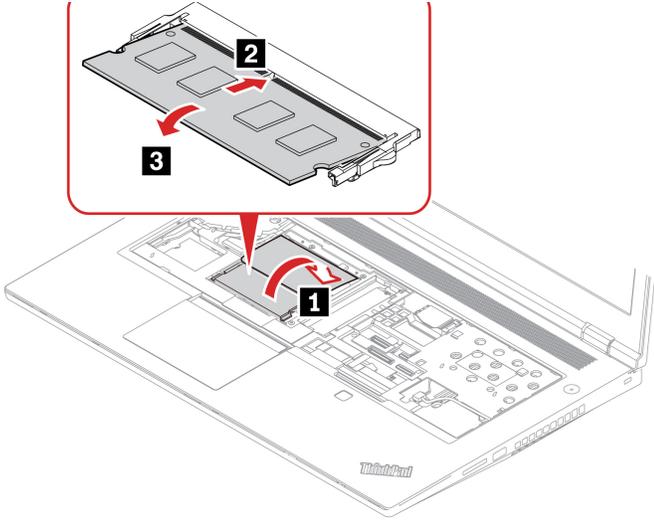
For access, do the following:

1. Disable the built-in battery. See “Disable the built-in battery” on page 27.
2. Turn off the computer and disconnect the computer from ac power and all connected cables.
3. Close the computer display and turn the computer over.
4. Remove the bottom door. See “Bottom door” on page 28.
5. Remove the keyboard. See “Keyboard” on page 29.
6. Remove the service bracket. See “Service bracket” on page 33.

**Removal procedure**



**Installation procedure**





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## Chapter 7. Help and support

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### Frequently asked questions

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How do I access <b>Settings</b> ?	Open the system menu drop down (top right) and click <b>Settings</b> .
How do I turn off my computer?	From the system menu (top right) click  , and then click <b>Power Off</b> .
What do I do if my computer stops responding.	<ol style="list-style-type: none"><li>1. Press and hold the power button until the computer turns off. Then, restart the computer.</li><li>2. If step 1 does not work:<ul style="list-style-type: none"><li>• For models with an emergency reset hole: Insert a straightened paper clip into the emergency reset hole to cut off power supply temporarily. Then, restart the computer with ac power connected.</li><li>• For models without an emergency reset hole:<ul style="list-style-type: none"><li>– For models with the removable battery, remove the removable battery and disconnect all power sources. Then, reconnect to ac power and restart the computer.</li><li>– 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.</li></ul></li></ul></li></ol>
What do I do if I spill liquid on the computer?	<ol style="list-style-type: none"><li>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. <b>Attention:</b> Although you might lose some data or work by turning off the computer immediately, leaving the computer on might make your computer unusable.</li><li>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.</li><li>3. Wait until you are certain that all the liquid is dry before turning on your computer.</li></ol>
How do I enter the UEFI BIOS menu?	Restart the computer. When the logo screen is displayed, press F1 to enter the UEFI BIOS menu.
How do I disable my trackpad?	<ol style="list-style-type: none"><li>1. Open the system menu, and then click <b>Settings → Mouse &amp; Touchpad</b>.</li><li>2. In the Touchpad section, turn off the <b>Touchpad</b> control.</li></ol>
Where can I get the latest device drivers and UEFI BIOS?	Use the Software application to check for updates. It should notify when new firmware is available on LVFS ( <a href="https://fwupd.org/">https://fwupd.org/</a> ).

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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 46.

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. Press F1 after the error message is displayed 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>
Fan error. Press ESC to startup with limited performance	The thermal fan might not work correctly. After the error message is displayed, press ESC within five seconds to start up the computer with limited performance. Otherwise, the computer will shut down immediately. If the problem still exists when you starts up next time, have your computer serviced.

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## Beep errors

Lenovo SmartBeep technology enables you to decode beep errors with your smartphone when a black screen occurs with beeps from your computer. To decode the beep error with Lenovo SmartBeep technology:

1. Go to <https://support.lenovo.com/smartbeep> or scan the following QR Code.



2. Download the proper diagnostic app and install it on your smartphone.
3. Run the diagnostic app and place the smartphone near the computer.
4. Press Fn on your computer to emit the beep again. The diagnostic app decodes the beep error and shows possible solutions on the smartphone.

**Note:** Do not attempt to service a product yourself unless instructed to do so by the Customer Support Center or product documentation. Only use a Lenovo-authorized service provider to repair your product.

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## Self-help resources

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

### Access product documentation

- *Safety and Warranty Guide*
- *Setup Guide*
- *This User Guide*
- *Regulatory Notice*

### Visit the Lenovo support Web site

<https://pcsupport.lenovo.com>

- Drivers and software
- Diagnostic solutions
- Product and service warranty
- Product and parts details
- Knowledge base and frequently asked questions

### Access the Lenovo Limited Warranty

This product is covered by the terms of the Lenovo Limited Warranty (LLW), version L505-0010-02 08/2011. You can view the LLW in a number of languages from the following Web site. Read the Lenovo Limited Warranty at:

[https://www.lenovo.com/warranty/llw\\_02](https://www.lenovo.com/warranty/llw_02)

The LLW also is preinstalled on the computer. To access the LLW, go to `/opt/Lenovo`

If you cannot view the LLW either from the Web site or from your computer, contact your local Lenovo office or reseller to obtain a printed version of the LLW.

### Access Linux distributions

Linux is an open-source operating system, and popular Linux distributions include Ubuntu and Fedora.

To learn more about the Ubuntu operating system, go to:

<https://www.ubuntu.com>

To learn more about the Fedora operating system, go to:

<https://getfedora.org/>

### Get support information

If you need help, service, technical assistance, or more information about the Linux operating system or other applications, contact the provider of the Linux operating system or the provider of the application. If you need the service and support for hardware components shipped with your computer, contact Lenovo.

To access the latest *User Guide* and *Safety and Warranty Guide*, go to:

<https://pcsupport.lenovo.com>

## Access open-source information

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You may send your request in writing to the address below accompanied by a check or money order for \$15 to:

*Lenovo Legal Department  
Attn: Open Source Team / Source Code Requests  
8001 Development Dr.  
Morrisville, NC 27560*

Please include the version of the OS and the version of the Linux Kernel pre-shipped on this Device as part of your request. Be sure to provide a return address.

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## Call Lenovo

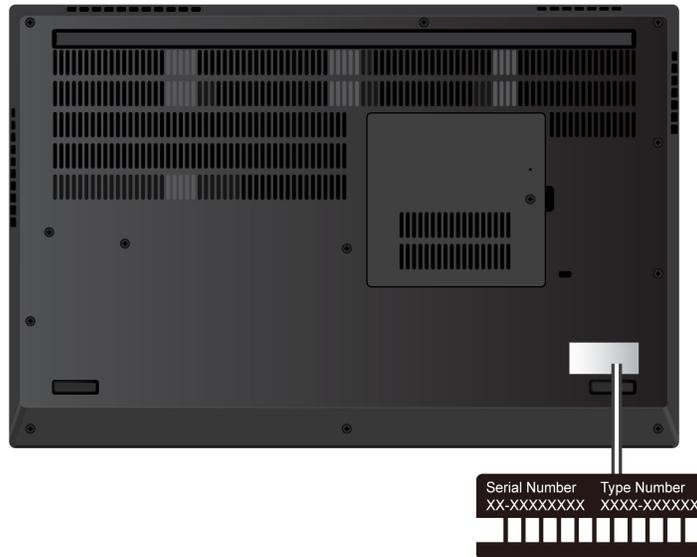
If you have tried to correct the problem yourself and still need help, you can call Lenovo Customer Support Center.

## 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/supportphonenumberlist> 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. Ergonomic information

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### Ergonomic information

Good ergonomic practice is important to get the most from your personal computer and to avoid discomfort. Arrange your workplace and the equipment you use to suit your individual needs and the kind of work that you perform. In addition, use healthy work habits to maximize your performance and comfort when using your computer.

Working in the virtual office might mean adapting to frequent changes in your environment. Adapting to the surrounding light sources, active seating, and the placement of your computer hardware, can help you improve your performance and achieve greater comfort.

This example shows someone in a conventional setting. Even when not in such a setting, you can follow many of these tips. Develop good habits, and they will serve you well.



**General posture:** Make minor modifications in your working posture to deter the onset of discomfort caused by long periods of working in the same position. Frequent short breaks from your work also help to prevent minor discomfort associated with your working posture.

**Display:** Position the display to maintain a comfortable viewing distance of 510 mm to 760 mm (20 inches to 30 inches). Avoid glare or reflections on the display from overhead lighting or outside sources of light. Keep the display screen clean and set the brightness to levels that enable you to see the screen clearly. Press the brightness control keys to adjust display brightness.

**Head position:** Keep your head and neck in a comfortable and neutral (vertical, or upright) position.

**Chair:** Use a chair that gives you good back support and seat height adjustment. Use chair adjustments to best suit your comfort posture.

**Arm and hand position:** If available, use chair arm rests or an area on your working surface to provide weight support for your arms. Keep your forearms, wrists, and hands in a relaxed and neutral (horizontal) position. Type with a soft touch without pounding the keys.

**Leg position:** Keep your thighs parallel to the floor and your feet flat on the floor or on a footrest.

#### What if you are traveling?

It might not be possible to observe the best ergonomic practices when you are using your computer while on the move or in a casual setting. Regardless of the setting, try to observe as many of the tips as possible.

Sitting properly and using adequate lighting, for example, helps you maintain desirable levels of comfort and performance. If your work area is not in an office setting, ensure to take special note of employing active sitting and taking work breaks. Many product solutions are available to help you modify and expand your computer to best suit your needs. You can find some of these options at <https://www.lenovo.com/accessories>. Explore your options for docking solutions and external products that provide the adjustability and features that you want.

### **Questions about vision?**

The visual display screens of notebook computers are designed to meet the highest standards. These visual display screens provide you with clear, crisp images and large, bright displays that are easy to see, yet easy on the eyes. Any concentrated and sustained visual activity can be tiring. If you have questions on eye fatigue or visual discomfort, consult a vision-care specialist for advice.

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## Appendix B. Compliance information

**Note:** For more compliance information, refer to *Safety and Compliance Guide* at <https://pcsupport.lenovo.com>.

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### Certification-related information

Product name	Compliance ID	Machine type(s)
ThinkPad P15 Gen 2	<ul style="list-style-type: none"><li>• TP00124C</li><li>• TP00124C0<sup>1</sup></li><li>• TP00124C1<sup>1</sup></li><li>• TP00124C2<sup>1</sup></li></ul>	20YQ and 20YR
ThinkPad T15g Gen 2	<ul style="list-style-type: none"><li>• TP00124C</li><li>• TP00124C0<sup>1</sup></li><li>• TP00124C2<sup>1</sup></li></ul>	20YS and 20YT
ThinkPad P17 Gen 2	<ul style="list-style-type: none"><li>• TP00125C</li><li>• TP00125C0<sup>1</sup></li></ul>	20YU and 20YV

<sup>1</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:

### P15 Gen 2 / T15g Gen 2



- 1** Wireless LAN antenna (auxiliary)
- 2** Wireless WAN antenna (main, for selected models)
- 3** Wireless WAN antenna (auxiliary, for selected models)
- 4** Wireless LAN antenna (main)
- 5** 4x4 MIMO Wireless-WAN antenna (Main, for selected models)
- 6** 4x4 MIMO Wireless-WAN antenna (Auxiliary, for selected models)

## P17 Gen 2



- 1** Wireless LAN antenna (main)
- 2** Wireless WAN antenna (main, for selected models)
- 3** Wireless WAN antenna (auxiliary, for selected models)
- 4** Wireless LAN antenna (auxiliary)
- 5** 4x4 MIMO Wireless-WAN antenna (Main, for selected models)
- 6** 4x4 MIMO Wireless-WAN antenna (Auxiliary, for selected models)

## Federal Communications Commission (FCC) Supplier's Declaration of Conformity

Product name	Compliance ID	Machine type(s)
ThinkPad P15 Gen 2	<ul style="list-style-type: none"> <li>• TP00124C</li> <li>• TP00124C0<sup>1</sup></li> <li>• TP00124C1<sup>1</sup></li> <li>• TP00124C2<sup>1</sup></li> </ul>	20YQ and 20YR
ThinkPad T15g Gen 2	<ul style="list-style-type: none"> <li>• TP00124C</li> <li>• TP00124C0<sup>1</sup></li> <li>• TP00124C2<sup>1</sup></li> </ul>	20YS and 20YT
ThinkPad P17 Gen 2	<ul style="list-style-type: none"> <li>• TP00125C</li> <li>• TP00125C0<sup>1</sup></li> </ul>	20YU and 20YV

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Lenovo is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:  
 Lenovo (United States) Incorporated  
 7001 Development Drive  
 Morrisville, NC 27560  
 Email: FCC@lenovo.com



### FCC ID and IC Certification information

You can find the FCC and IC Certification information through one of the following methods:

- Through an electronic-label screen (E-label screen) preinstalled on your computer.

To access the E-label screen, restart the computer. When the logo screen is displayed, press F9, or tap the prompt to enter the Startup Interrupt menu and the Regulatory Information option subsequently.

- On a physical label attached to the outside of your computer shipping carton.

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## Korea SAR statement

무선설비 전파 혼신 (사용주파수 2400~2483.5 , 5725~5825 무선제품해당)

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## Operating environment

### Maximum altitude (without pressurization)

3048 m (10 000 ft)

### Temperature

- Operating: 5°C to 35°C (41°F to 95°F)
- Storage and transportation in original shipping packaging: -20°C to 60°C (-4°F to 140°F)
- Storage without packaging: 5°C to 43°C (41°F to 109°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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## Regulatory labels

Depending on your country or region, you can find the government-required regulatory information through one of the following methods:

- On a physical label attached to the outside of your computer shipping carton
- On a physical label attached to your computer
- Through an electronic-label screen (E-label screen) preinstalled on your computer

To access the E-label screen, restart the computer. When the logo screen is displayed, press F9, or tap the prompt to enter the Startup Interrupt menu and the Regulatory Information option subsequently.

### Korean E-label notice

이 제품은 전자적표시(e-labelling)가 되어있습니다.



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## Appendix C. Notices and trademarks

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