

## Access Glance by Mirametrix

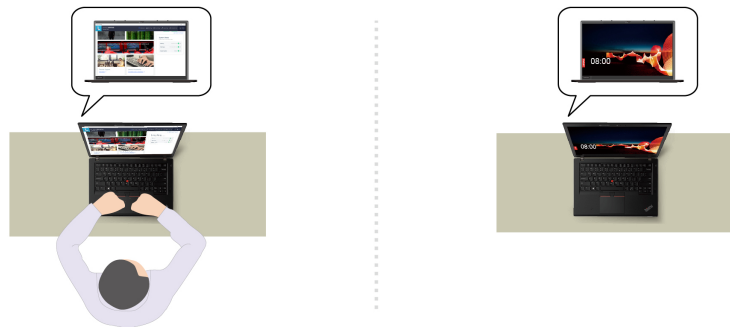
- Open the **Start** menu and click **Glance by Mirametrix**.
- Use Windows Search.

**Note:** If Glance is uninstalled, you can request it through <https://support.lenovo.com/contactus>.

## Explore key features

Depending on the model, some features might not be available on your computer.

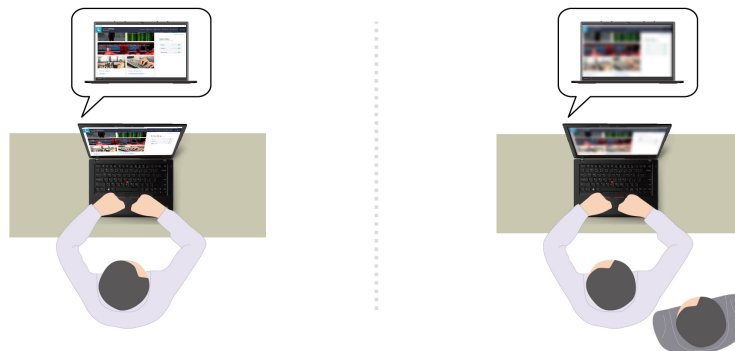
- **Protect privacy**
  - **Presence Detection:** Keep your computer awake when in use and automatically lock the computer when your head moves out of the camera range.



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



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



- **Smart Display:** 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.



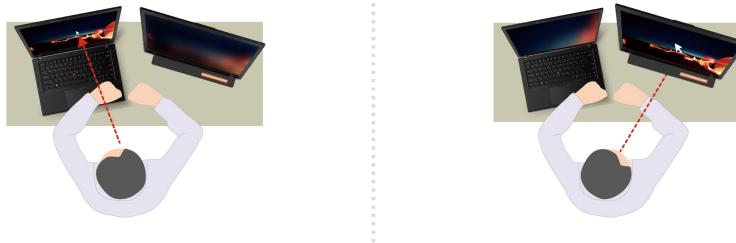
**Note:** If your computer comes with an ePrivacy screen, it can work with Glance to achieve better privacy protection. For details, go to <https://support.lenovo.com/us/en/videos/vid500144>.

- **Improve productivity**

- **Snap Window:** When you select a window on one screen and turn your face to another, the window automatically snaps to the top center of the screen you are facing.



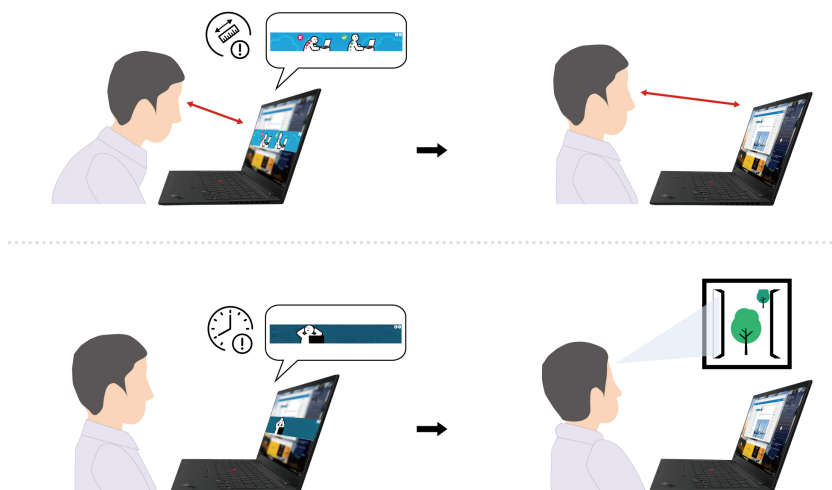
- **Smart Pointer:** Relocate the pointer to the screen you are facing. When the pointer moves from one screen to another, it is temporarily drawn large.



**Note:** Snap Window and Smart Pointer only work when your computer is connected to external displays. Ensure that external displays are placed at the same height of your computer.

- **Promote digital wellness**




- **Posture check:** Remind you to adjust your posture once you hunch toward the screen.
- **20/20/20 Alert:** Remind you to look away from the screen and relax your eyes for 20 seconds every 20 minutes.

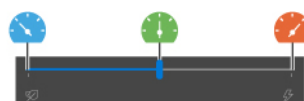


## Intelligent cooling

The Intelligent Cooling feature helps you adjust fan speed, computer temperature and performance. This feature works in auto mode by default. Press Fn+T to switch between manual mode and auto mode.

### Manual mode

-  Quiet mode: the least fan noise
-  Balanced mode: balanced performance and fan noise
-  Performance mode: the highest performance and normal fan noise



on ac power





on battery power

Do the following to select the preferred mode:

1. Click the battery status icon in the Windows notification area.
2. Move the slider to the left or right to select your preferred mode.

### Auto mode

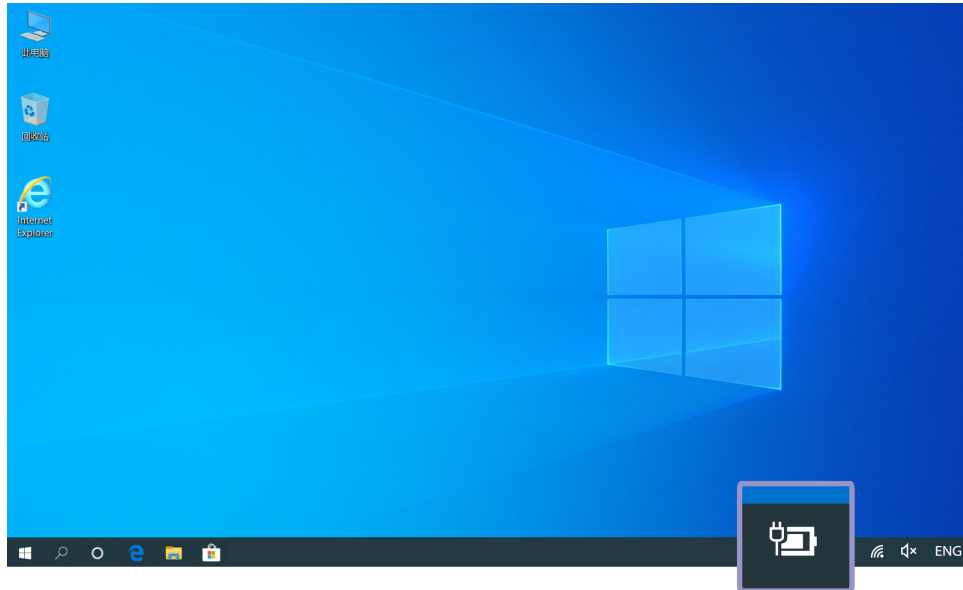
-  Auto battery mode: Switch between quiet mode and battery mode automatically based on the amount of system activity.
-  Auto performance mode: Switch among quiet mode, balanced mode and performance mode automatically based on the amount of system activity.

## Manage power

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

## Check the battery status

Click the battery icon in the Windows notification area to check the battery status, view the current power plan, change the power mode, and access battery settings quickly. For more details about your battery, refer to the Vantage app.

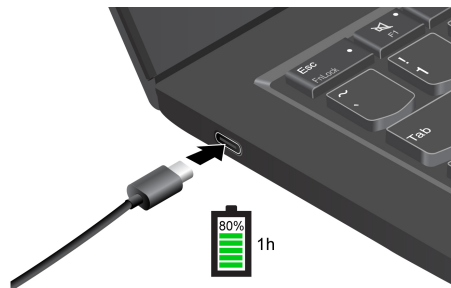


## Charge the computer

### Use ac power

Power source of the ac power adapter:

- 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



**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.

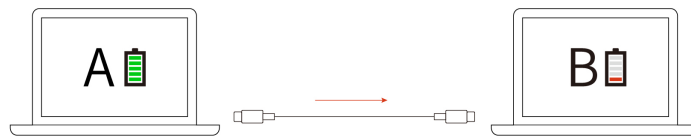
## Use P-to-P 2.0 (Peer to Peer 2.0) charging function

Both USB-C (Thunderbolt 3) 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**:

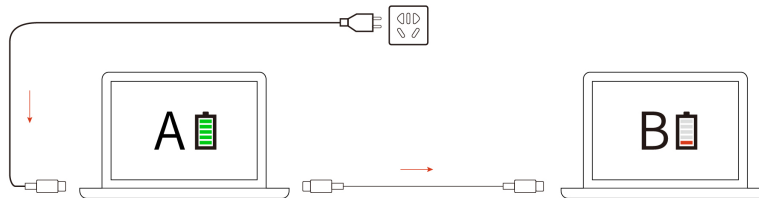
1. Press F1 to enter the UEFI BIOS menu.
2. Click **Config** → **USB**, and then to enable **Always On USB** and **Charge in Battery Mode**.

- **When no ac power is available:**



**Note:** The remaining battery power of computer A should be at least 30% and be 3% higher than that of computer B.

- **When ac power is available:**



**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. Right-click the battery status icon and select **Power Options**.
2. Choose or customize a power plan of your preference.

To reset the power button function:

1. Right-click the battery status icon and select **Power Options** → **Change what the power buttons do**.
2. Change the settings as you prefer.


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## Transfer data

Quickly share your files using the built-in Bluetooth or NFC technology among devices with the same features. You also can insert a microSD card or smart card to transfer data.

## 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. Click the action center icon  in the Windows notification area, and enable the Bluetooth feature.
2. Right-click the **Bluetooth** icon.
3. Select **Go To Settings → Add Bluetooth or other device → Bluetooth**.
4. Select a Bluetooth device, and then follow the on-screen instructions.

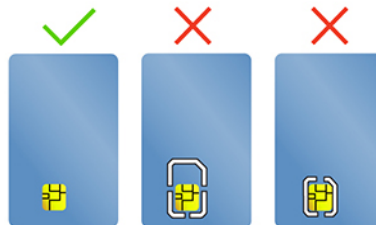
## Use a microSD card or smart card

If your computer has a media-card slot or smart-card slot, read the following information.

### Supported smart card

Supported smart card specifications: 85.60 mm (3.37 inches) x 53.98 mm (2.13 inches)

**Attention:** Smart cards with slits are not supported. Do not insert such a smart card into the smart-card reader of your computer. Otherwise, the reader might get damaged.



### Install the card

1. Insert the card firmly into the card slot until it is secured in place.

#### Notes:

- For the microSD card, ensure that the metal contacts are facing down and pointing toward the card slot.
- For the smart card, ensure that the metal contacts are facing upward and pointing toward the card slot.

### Remove the card

**Attention:** Before removing a card, eject the card from the Windows operating system first. Otherwise, data on the card might get corrupted or lost.

1. Click the triangular icon in the Windows notification area to show hidden icons. Then, right-click the **Safely Remove Hardware and Eject Media** icon.
2. Select the corresponding item to eject the card from the Windows operating system.

3. Press the card and remove it from your computer. Store the card safely for future use.

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## Accessories

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

### 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>.

### Docking station

You can use the following docking stations to extend the capacity of your computer:

- ThinkPad Basic Docking Station
- ThinkPad Pro Docking Station
- ThinkPad Ultra Docking Station

#### Side connectors of docking stations

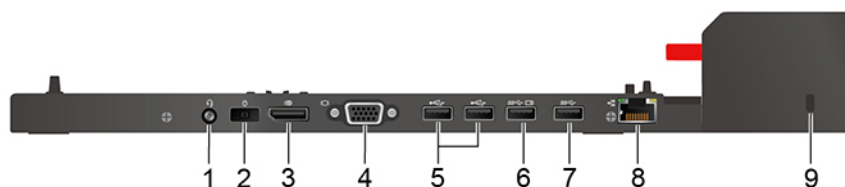


Figure 1. ThinkPad Basic Docking Station

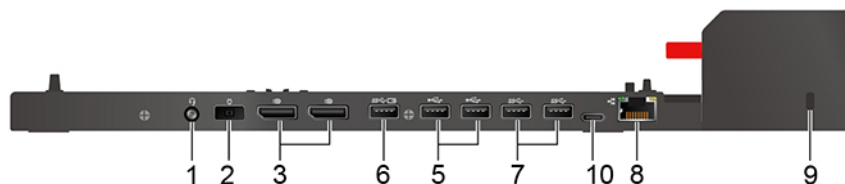


Figure 2. ThinkPad Pro Docking Station

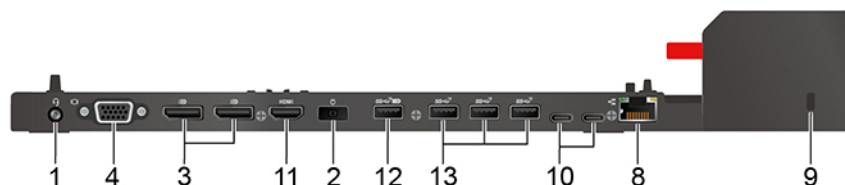


Figure 3. ThinkPad Ultra Docking Station

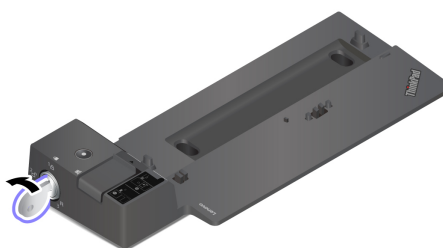
1. Audio connector	2. ac power connector
3. DisplayPort® connector	4. VGA connector

5. USB 2.0 connector	6. Always On USB 3.2 connector Gen 1
7. USB 3.2 connector Gen 1	8. Ethernet connector
9. Security-lock slot	10. USB-C connector
11. HDMI connector	12. Always On USB 3.2 connector Gen 2
13. USB 3.2 connector Gen 2	

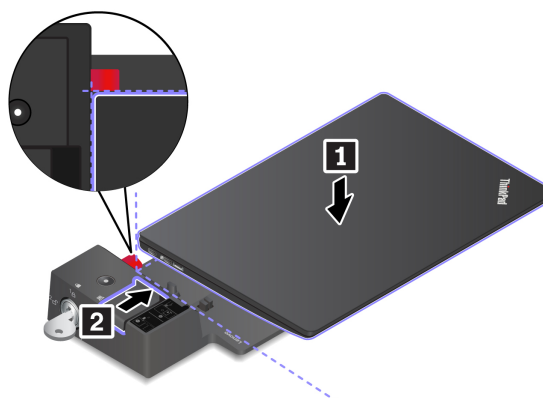
## Attach a docking station

### Notes:

- ThinkPad Basic Docking Station does not ship with a system lock installed. If you do not purchase and install a system lock, skip step 4 and step 7 in the following instruction.
  - If you do not connect the docking station to ac power, the computer attached runs on battery power.
1. Connect the docking station to ac power.
  2. Disconnect the cables and devices from the left side of the computer.
  3. Turn the system lock key to the unlocked position (🔓).



4. Align the top-left corner of the computer with the guide post of the docking station. Attach your computer to the docking station as shown **1** until you hear a click. Slide the latch in the direction as shown **2**.

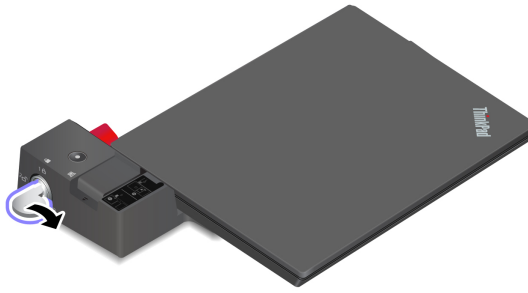


5. Check the docking status indicator. The docking status indicator turns on when the computer is successfully docked.

**Note:** If the indicator is off, your computer is not attached to the docking station successfully. To solve the problem, detach and reattach the computer.

6. Turn the system lock key to the locked position (🔒).



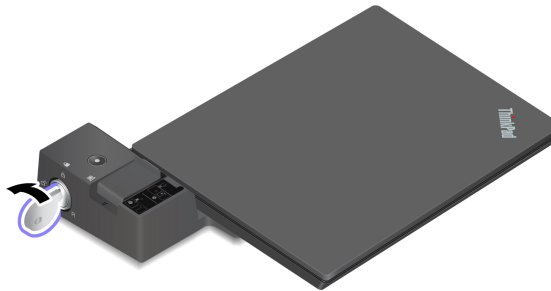


**Attention:** When the computer is attached to a docking station, always hold the whole assembly when you need to move your computer. Otherwise, the docking station might drop down.

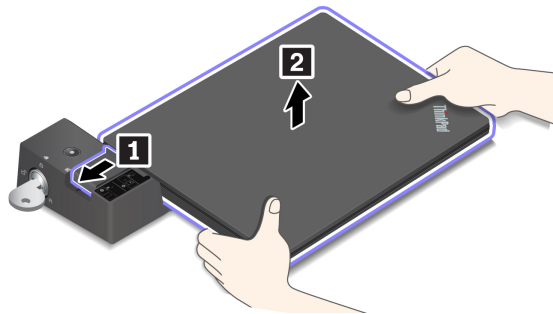
## Detach a docking station

**Note:** ThinkPad Basic Docking Station does not ship with a system lock installed. If you do not purchase and install a system lock, skip step 1 in the following instruction.

1. Turn the system lock key to the unlocked position (🔓).



2. Slide the latch in the direction as shown **1** to release the computer, and then grasp both sides of the computer to remove it **2**.



## Connect multiple external displays

You can connect multiple external displays to a supported docking station. To ensure that the multiple displays work correctly, refer to the following table and connect the external displays to the appropriate connectors.

Docking station	Connectors supporting external displays
ThinkPad Basic Docking Station	DisplayPort VGA
ThinkPad Pro Docking Station	DisplayPort (x2)
ThinkPad Ultra Docking Station	DisplayPort (x2) HDMI VGA



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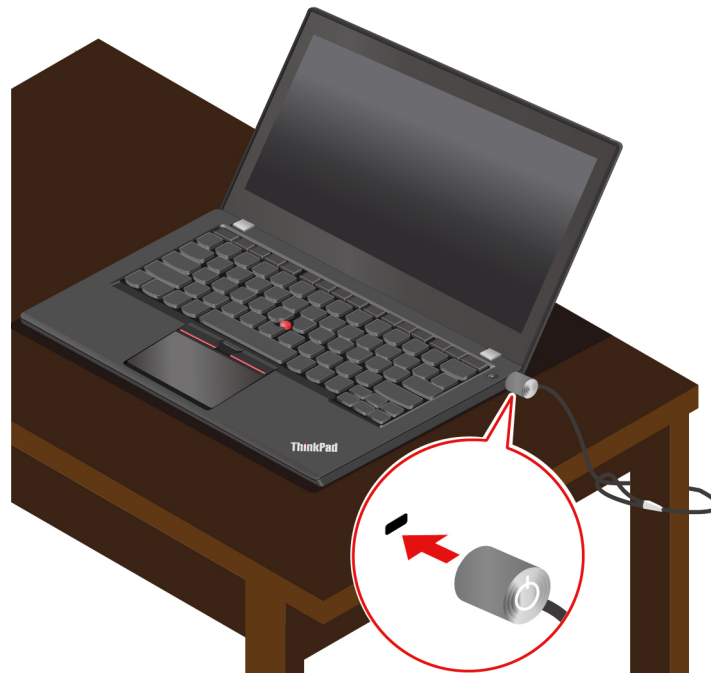
## Chapter 4. Secure your computer and information

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### Lock the computer

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

**Note:** 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 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 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 39.

**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 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 10 operating system.

## 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 43.

### 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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## Use Power Loss Protection function (for selected models)

For models shipped with an NVMe (Non-Volatile Memory express) M.2 solid-state drive, the M.2 solid-state drive features the Lenovo-unique PLP (Power Loss Protection) function to avoid data loss or damage. On very rare occasions, your computer is not responding and you might have to shut down your computer by pressing and holding the power button for about seven seconds. In this case, the PLP function enables key data of your computer 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.

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## Use the fingerprint reader (for selected models)

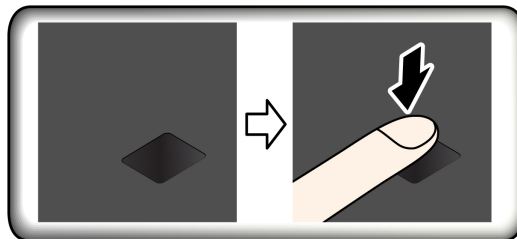
If your computer comes with a fingerprint reader, you can use it to enroll your fingerprints. After enrollment, you can tap your finger on the fingerprint reader to log in to Windows.

### Enroll your fingerprints

Open the Start menu and then click **Settings → Accounts → Sign-in options**. Then, follow the on-screen instructions to finish the enrollment.

During the enrollment, the fingerprints are associated with the Windows password automatically. It is recommended that you put your finger at the middle of the fingerprint reader during enrollment and 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.

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## Use face authentication (for selected models)

If your computer comes with a Windows Hello-compatible infrared camera, you can unlock your computer by scanning your face instead of using a password.

### Create face ID

1. Open the **Start** menu and click **Settings → Accounts → Sign-in options**.
2. Locate the **Password** section and click **Add** to create a password.
3. Locate the **Windows Hello Face** section and click **Set up** under **Face Recognition**. Then, click **Get Started**. The camera preview starts.
4. Follow the on-screen instructions to create a Personal Identification Number (PIN) and complete the setup.
5. Click **Improve Recognition** to improve the image so that **Windows Hello** can recognize you in different light conditions or when your appearance changes.

### Log in with face authentication

1. On the Windows lock screen, select the smiling face icon 😊 from the sign-in options.
2. Follow the on-screen instructions and ensure that you are centered and looking directly at the camera. When the program recognizes your face, it automatically unlocks the screen and signs you in to the Windows operating system.





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## Chapter 5. Configure advanced settings

This chapter provides information about UEFI BIOS, RAID, recovery, operating system installation, and system management.

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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:

- 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.

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## Recovery information

This section introduces the recovery information of the Windows 10 operating system. Ensure that you read and follow the on-screen recovery instructions. The data on your computer might be deleted during the recovery process. To avoid data loss, make a backup copy of all the data that you want to keep.

### Restore system files and settings to an earlier point

1. Go to **Control Panel** and view by Large icons or Small icons.
2. Click **Recovery** → **Open System Restore**. Then, follow the on-screen instructions.

### Restore your files from a backup

**Note:** If you use the File History tool to restore your files from a backup, ensure that you backed up your data earlier with the tool.

1. Go to **Control Panel** and view by Large icons or Small icons.
2. Click **File History** → **Restore personal files**. Then, follow the on-screen instructions.

### Reset your computer

In the resetting process, you can choose to keep your files or remove them when you reinstall the operating system.

**Note:** The items in the graphical user interface (GUI) might change without notice.

1. Open the **Start** menu, and then click **Settings** → **Update & Security** → **Recovery**.
2. In the **Reset this PC** section, click **Get started**.
3. Follow the on-screen instructions to reset your computer.

## Use advanced options

**Note:** The items in the graphical user interface (GUI) might change without notice.

1. Open the **Start** menu, and then click **Settings → Update & security → Recovery**.
2. In the **Advanced startup** section, click **Restart now → Troubleshoot → Advanced options**.
3. Select a preferred option, and then follow the on-screen instructions.

## Windows automatic recovery

**Note:** Ensure that your computer is connected to ac power during the recovery process.

The Windows recovery environment on your computer operates independently from the Windows 10 operating system. It enables you to recover or repair the operating system even if the Windows 10 operating system fails to start.

After two consecutive failed boot attempts, the Windows recovery environment starts automatically. Then you can choose repair and recovery options by following the on-screen instructions.

## Create and use a recovery USB device

It is recommended that you create a recovery USB drive as early as possible as a backup for the Windows recovery programs. With the recovery USB drive, you can troubleshoot and fix the problems even if the preinstalled Windows recovery programs are damaged. If you did not create a recovery USB drive as a precautionary measure, you can contact Lenovo Customer Support Center and purchase one from Lenovo. For a list of the Lenovo Support phone numbers for your country or region, go to:

<https://pcsupport.lenovo.com/supportphonenumberlist>

### Create a recovery USB drive

**Attention:** The creation process deletes anything stored on the USB drive. To avoid data loss, make a backup copy of all the data that you want to keep.

1. Ensure that your computer is connected to ac power.
2. Prepare a USB drive with at least 16 GB of storage capacity. The actual USB capacity required depends on the size of the recovery image.
3. Connect the prepared USB drive to the computer.
4. Type **recovery** in the search box. Then, click **Create a recovery drive**.
5. Click **Yes** in the User Account Control window to allow the Recovery Media Creator program to start.
6. In the Recovery Drive window, follow the on-screen instructions to create a recovery USB drive.

### Use the recovery USB drive

1. Ensure that your computer is connected to ac power.
2. Connect the recovery USB drive to the computer.
3. Turn on or restart the computer. When the logo screen is displayed, press F12. The Boot Menu window opens.
4. Select the recovery USB drive as the boot device. Then, follow the on-screen instructions to complete the process.

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## Install Windows 10 and drivers

This section provides instructions on installing a Windows 10 operating system and device drivers.

## Install a Windows 10 operating system

Microsoft constantly makes updates to the Windows 10 operating system. Before installing a particular Windows 10 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. Restart the computer. When the logo screen is displayed, press F1 to enter the UEFI BIOS menu.
  - 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. Restart the computer. When the logo screen is displayed, press F1 to enter the UEFI BIOS menu.
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.
10. Go to Microsoft Store to download and install the latest version of Lenovo Vantage.

## 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. CRU replacement

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### 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
- Power cord
- ThinkPad Pen Pro (for L13 Yoga Gen 2 / S2 Yoga Gen 6 only)

#### Optional-service CRUs

- Base cover assembly
- Keyboard
- M.2 solid-state drive
- M.2 solid-state drive 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 Fast Startup and the built-in battery

Before replacing any CRU, ensure that you disable Fast Startup first and then disable the built-in battery.

To disable Fast Startup:

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. Click **Change settings that are currently unavailable** at the top.
4. If prompted by User Account Control (UAC), click **Yes**.

5. Clear the **Turn on fast startup** check box, and then click **Save changes**.

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.

### Base cover assembly

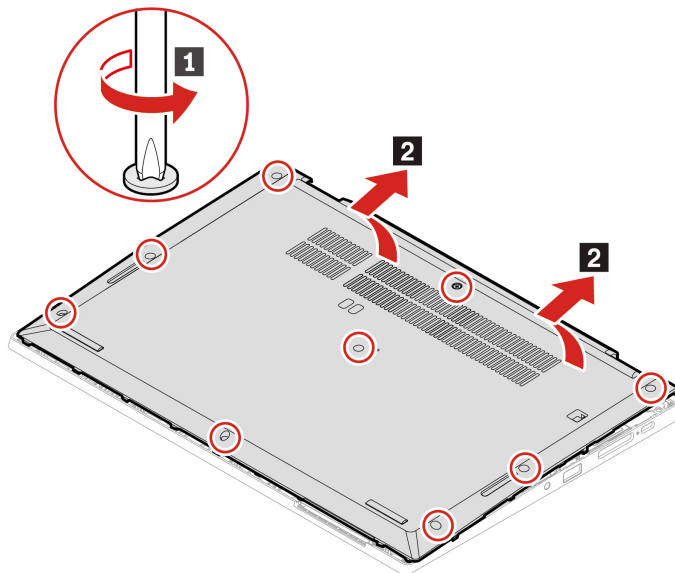
#### Prerequisite

Before you start, read Appendix A “Important safety information” on page 59 and print the following instructions.

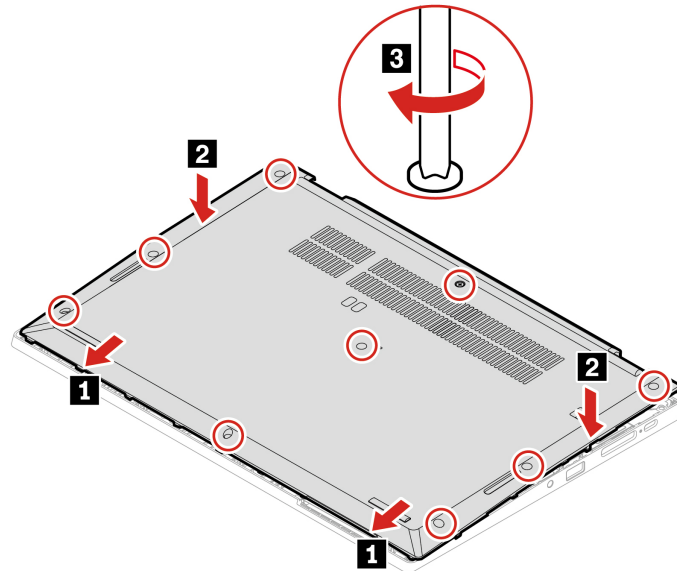
**Note:** When your computer is connected to ac power, do not remove the base cover assembly. Otherwise, there might be a risk of short circuits.

#### Replacement procedure

1. Disable the built-in battery. See “Disable Fast Startup and the built-in battery” on page 43.
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.
4. Loosen the screws that secure the base cover assembly **1**. Then, pry up the latches and remove the base cover assembly **2**.



5. Install the new base cover assembly in place **1**. Ensure that the latches of the base cover assembly are secured under the base cover assembly **2**. Then, tighten the screws to secure the base cover assembly **3**.



6. Turn over the computer. Connect the ac power adapter and all disconnected cables to the computer.

### Troubleshooting

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

## M.2 solid-state drive and bracket

### Prerequisite

Before you start, read Appendix A “Important safety information” on page 59 and print the following instructions.

**Attention:** If you replace a solid-state drive, you might need to install a new operating system. For details on how to install a new operating system, see “Install Windows 10 and drivers” on page 41.

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.