

# ThinkSmart Core Kits Deployment and User Guide for Microsoft Teams Rooms (MTR)

**ThinkSmart**



**Lenovo**

## **Read this first**

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

- Appendix B “Important safety information” on page 71
- Documentation in the box

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## About this documentation

- Illustrations in this documentation might look different from your product.
- Documentation content is subject to change without notice. To get the latest documentation, go to <https://smartsupport.lenovo.com/>.
- Microsoft® makes periodic feature changes to the Windows® operating system through Windows Update. Refer to Microsoft resources for the latest information.



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## **Chapter 1. Solution overview**

Thanks for choosing ThinkSmart Core Kits.

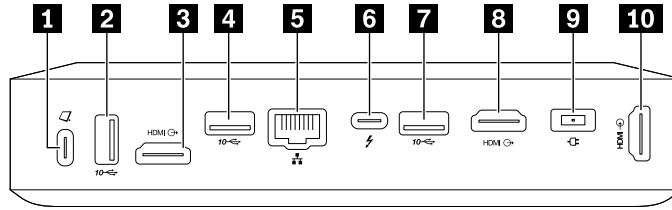
ThinkSmart Core Kits are modular conferencing solutions to transform conferencing into a collaborative, productive, and smart experience. End users will enjoy the familiar Microsoft Teams Rooms (referred to as MTR) interface and IT administrators will enjoy the easily deployed and managed Windows 10 IoT system.

# SKU overview

SKU	Target rooms	Inbox items*
ThinkSmart Core + Controller	Any room that already has audio and video device	
ThinkSmart Core Full Room Kit 1	From small room 16 x 16 feet (4–6 people) to large room 15 x 32 feet (12–16 people)	
ThinkSmart Core Full Room Kit 2	Extra large room (above 16 people)	

\* Contact your place of purchase if any item is missing or damaged. Ensure that you retain your proof of purchase and packing material. They might be required to receive warranty service.

## ThinkSmart Core connector overview



<b>1</b> USB-C® (3.2 Gen 1) connector	Connect ThinkSmart Controller or other USB-C compatible device for data transfer.
<b>2</b> USB 3.2 Gen 1 connector	Connect a USB-compatible device, such as a USB keyboard or USB mouse.
<b>3 8</b> HDMI-out connector	Connect to an external HDMI™ display. This HDMI 1.4 connector supports display resolutions up to 3840 x 2160 pixels, 24 Hz.
<b>4 7</b> USB 3.2 Gen 2 connector	Connect ThinkSmart Cam, ThinkSmart Bar XL, or other USB device.
<b>5</b> Ethernet connector	Connect to a local area network (LAN).
<b>6</b> USB-C (Thunderbolt™ 4) connector	Connect a USB-C device for data transfer.
<b>9</b> Power connector	Connect to a power supply.
<b>10</b> HDMI-in connector*	Connect to your computer only. Do not connect an external HDMI display to this connector.

\* for selected models

**Note:** Ensure that the camera or soundbar device connected to ThinkSmart Core is MTR certified before using with the MTR software.

### 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.

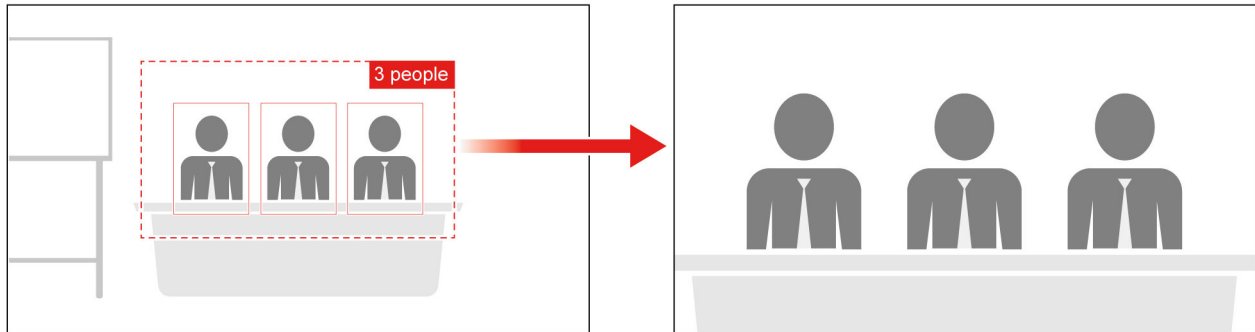
USB device	Data rate (Gbit/s)
3.2 Gen 1 / 3.1 Gen 1	5
3.2 Gen 2 / 3.1 Gen 2	10
Thunderbolt 4	40

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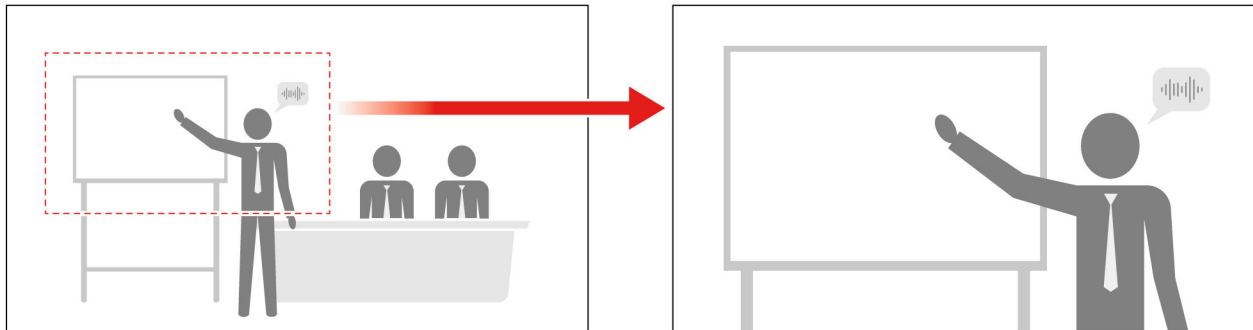
## Smart features

### ThinkSmart Cam — AI features

- **People count and auto zoom/frame:** Auto detect and count the people in the field of view. Then auto frame and zoom in the people to a suitable size. This function makes it easier to monitor the dynamics of the conference.



- **Speaker tracking and whiteboard recognition:** Auto track the speaker and count the whiteboard nearby as a person. Then auto frame and zoom in the speaker and the whiteboard to a suitable size. The camera will use Picture-in-Picture mode to replace the original video image in the sub image. This function makes the conference more focus on the speaker and the content of whiteboard.

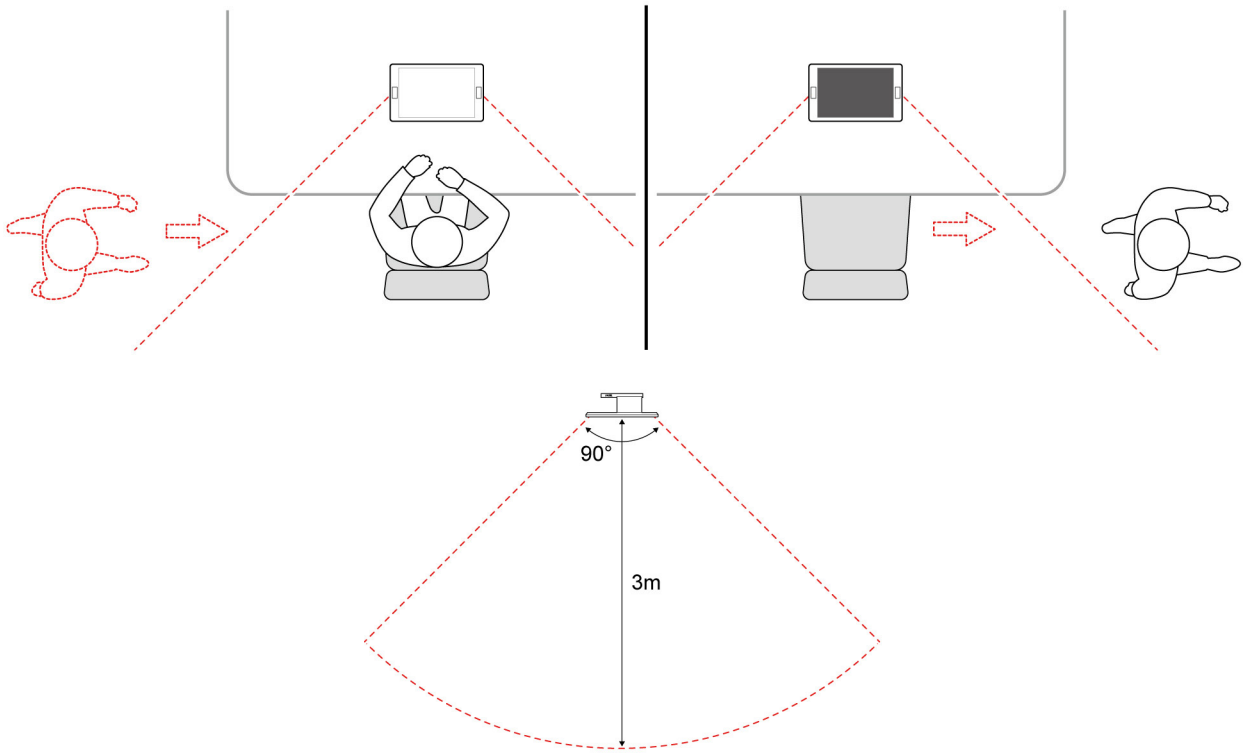


### Notes:

- The camera will run the speaker tracking function when the speaker speaks with normal sound volume (greater than 60dB) for over 2 seconds. The speaker should be less than 5 meters away from the camera.
- The camera will run the whiteboard recognition function when the speaker is nearby and speaks for over 2 seconds.
- The camera will zoom out to show all people in the field of view when the speaker stops speaking for over 3 seconds.
- The camera will run the auto zoom/frame function instead of the speaker tracking function when there are more than two speakers and their distance is too close (less than 50 cm).

## ThinkSmart Controller

**Motion detection:** Auto wake up the screen when a person approaches toward it. The detection angle is  $90^\circ$  and the detection distance is up to 3 meters.







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## Chapter 2. Prerequisites for deployment

### Notes:

- Take ThinkSmart Core Full Room Kit 2 as example to show the maximum configuration. Please prepare anything not available from your kit.
- The following are basic prerequisites for deployment. The total conferencing solution will only work if the proper infrastructures are deployed. Please consult your sales representative for related prerequisites.

---

### Hardware

- At least one external display with cable for HDMI-out connection
- Keyboard and mouse
- RJ45 Ethernet cable
- HDMI cable for HDMI-in connection

You can purchase accessories from Lenovo <https://www.lenovo.com/accessories>.

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### Software

Get started by a Microsoft Teams Rooms license.

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### Network

Firewall	Scenario
TCP 443	Signaling packets
TCP 443 UDP 3478 TCP / UDP 50,000 - 59,999	Audio / Video packets
TCP 443 TCP / UDP 50,000 - 59,999	Desktop sharing
TCP 80 and 443	Http / https

Bandwidth (up/down)	Scenario
30 kbps	Peer-to-peer audio calling
130 kbps	Peer-to-peer audio calling and screen sharing
500 kbps	Peer-to-peer quality video calling 360 p at 30 fps
1.2 Mbps	Peer-to-peer HD quality video calling with resolution of HD 720 p at 30 fps
1.5 Mbps	Peer-to-peer HD quality video calling with resolution of HD 1080 p at 30 fps
500 kbps / 1 Mbps	Group Video calling
1 Mbps / 2 Mbps	HD Group video calling (540 p videos on 1080 p screen)

For more information, go to <https://docs.microsoft.com/en-us/microsoftteams/rooms/>.

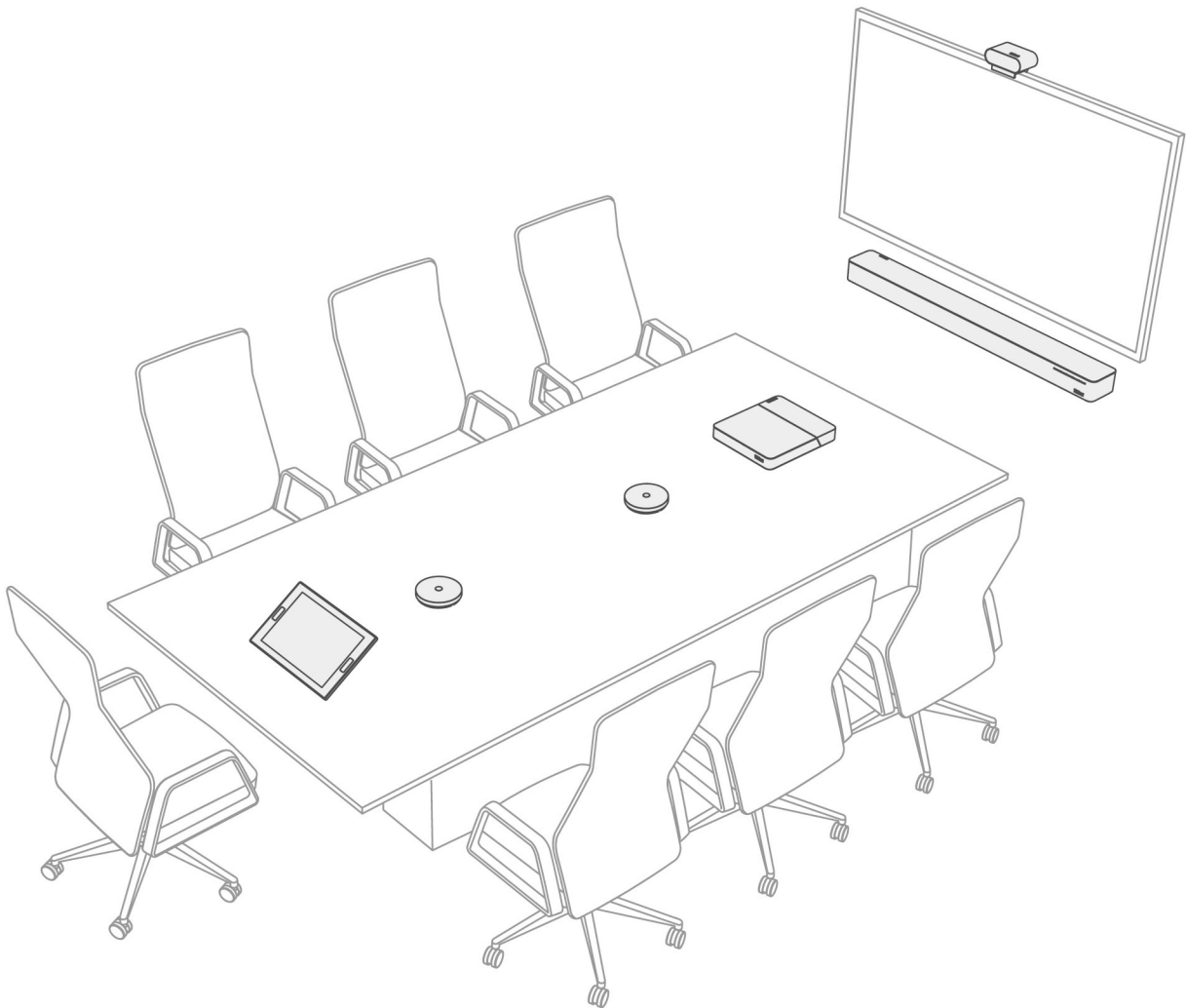


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## Chapter 3. Hardware deployment

ThinkSmart Core Kits devices support multiple mounting methods to meet various deployment needs. IT administrators can deploy them according to the actual situation of the conferencing room. The following illustration is for reference only.

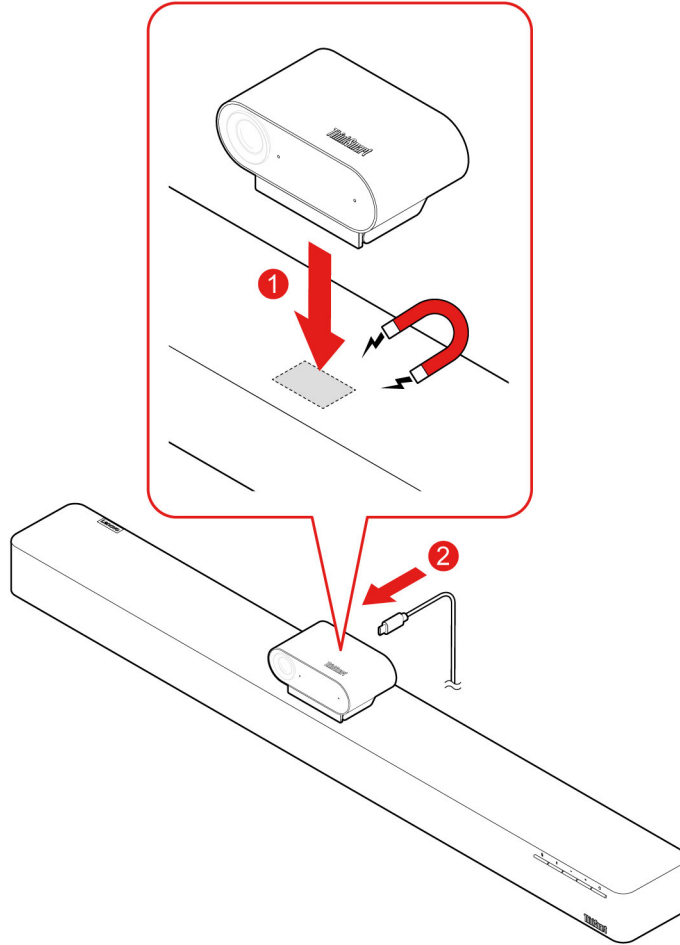
**Note:** Ensure that you deploy with the accompanying devices and components for optimal performance.



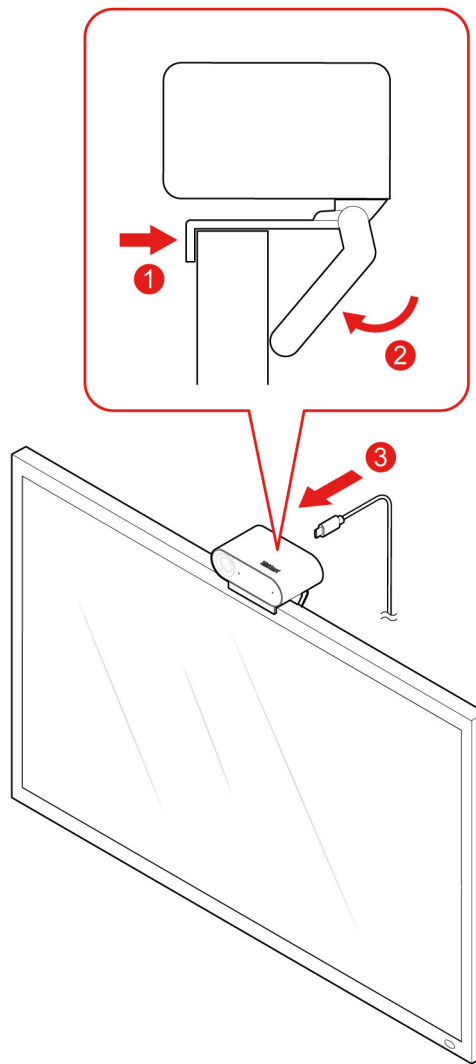
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## ThinkSmart Cam

1. Do one of the following to mount the camera and connect the camera cable:
  - Mount on ThinkSmart Bar XL.

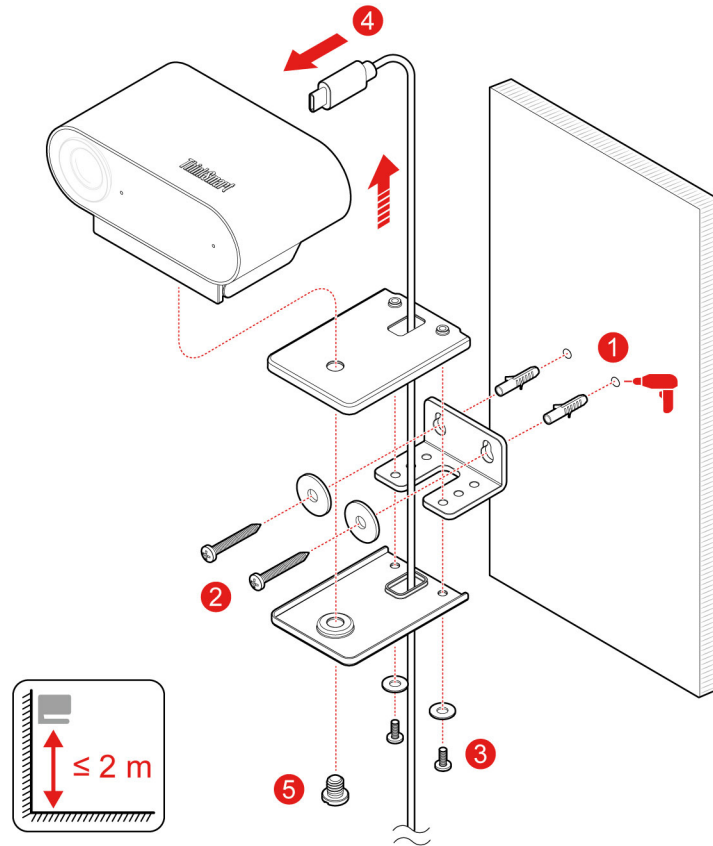


- Mount on TV

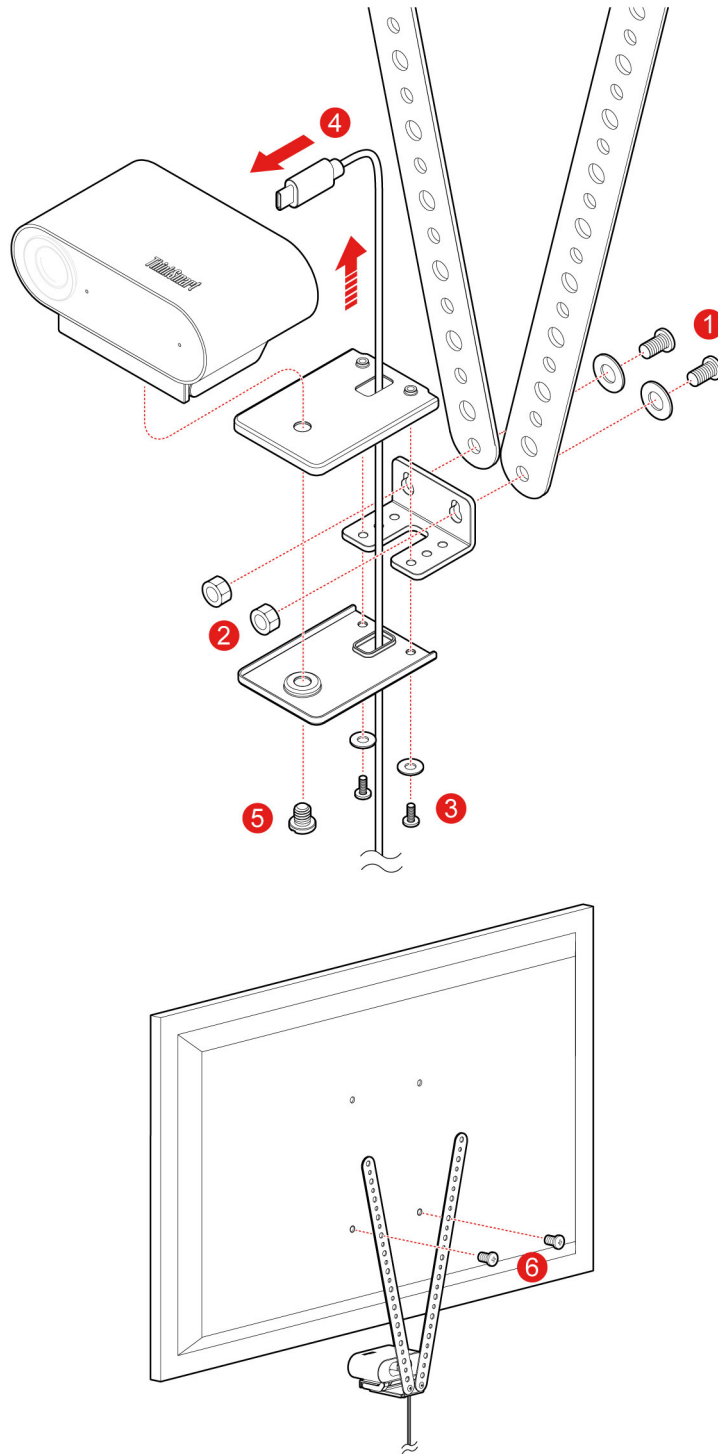


- Mount on wall

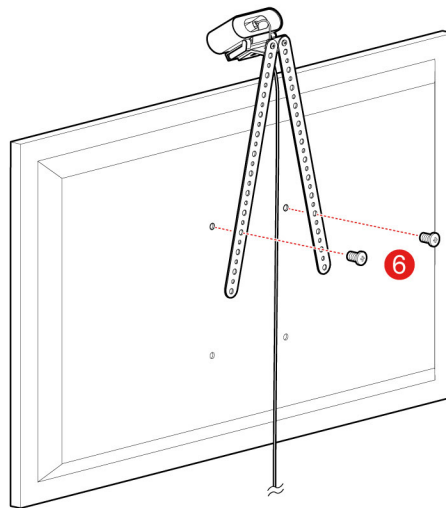
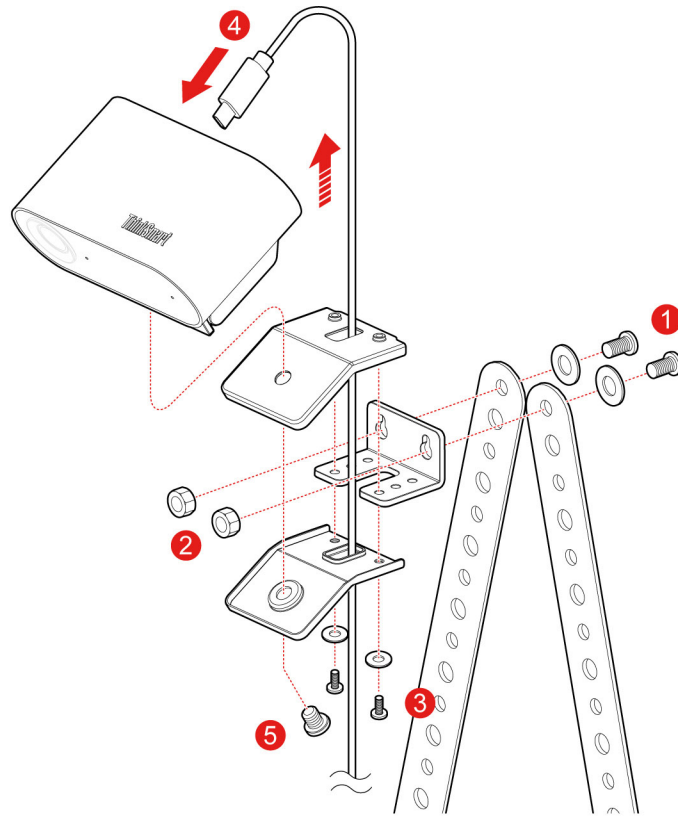
**Attention:** Keep the camera within 2 meters (6.6 feet) from the floor.



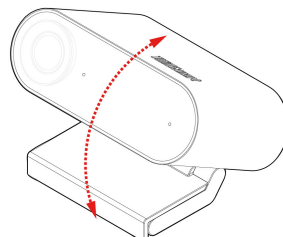
- Mount below TV



- Mount above TV



2. Adjust the camera angle.



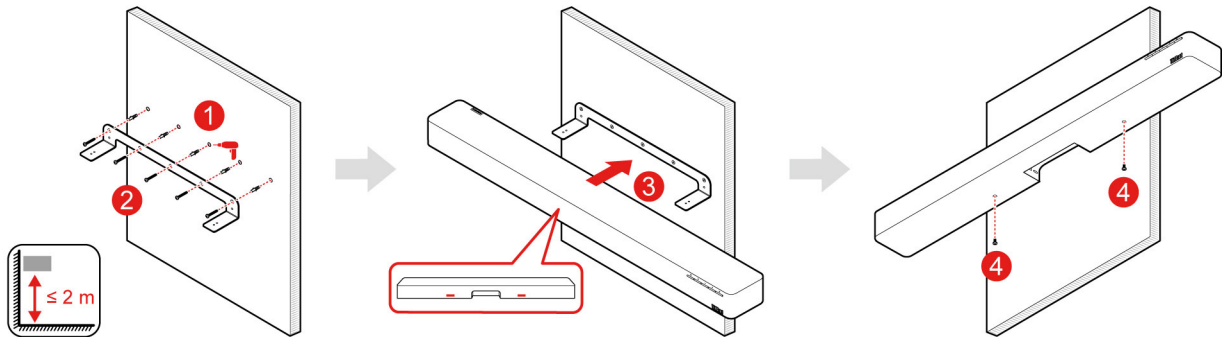


# ThinkSmart Bar XL

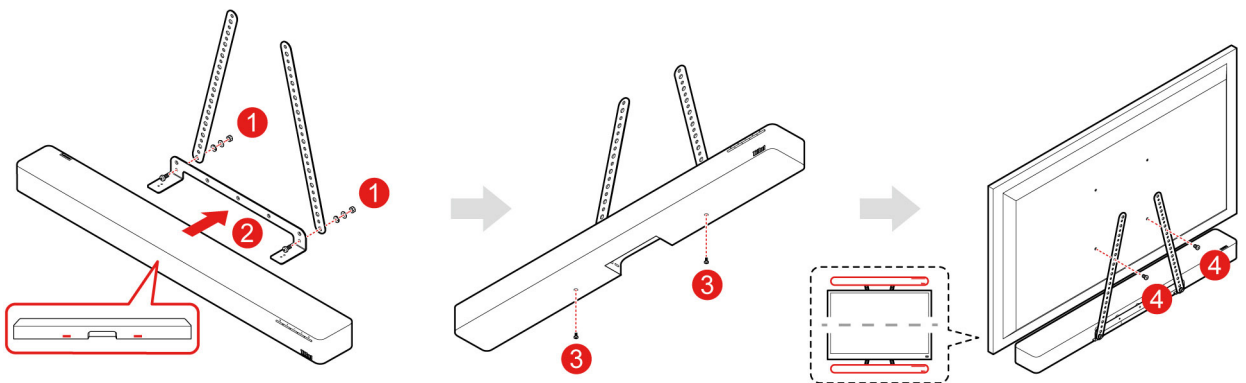
1. Do one of the following to mount the soundbar:

- Mount on wall

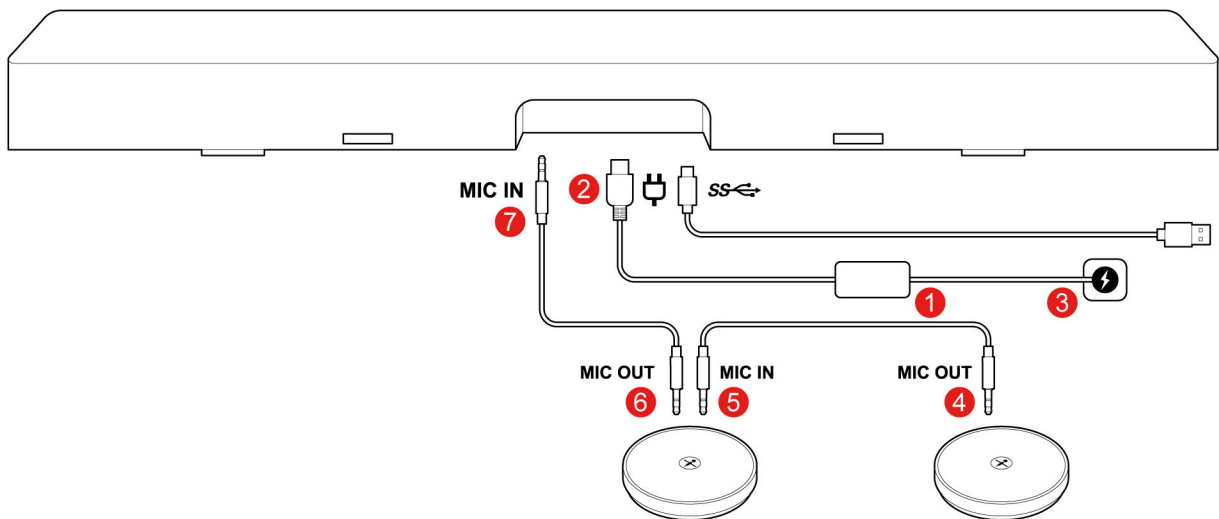
**Attention:** Keep the soundbar within 2 meters (6.6 feet) from the floor.



- Mount above TV or below TV



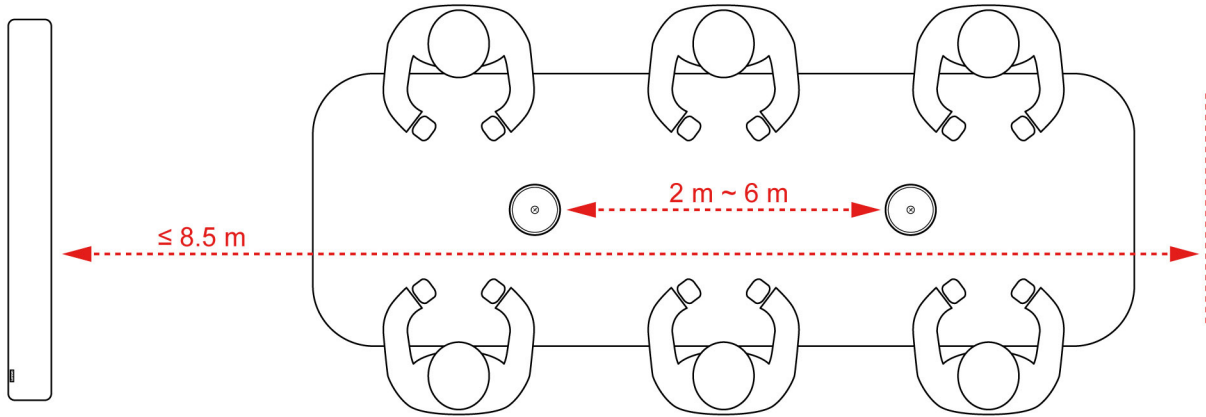
2. Connect the soundbar to a power supply. Connect the satellite microphones and the soundbar cable to the soundbar.



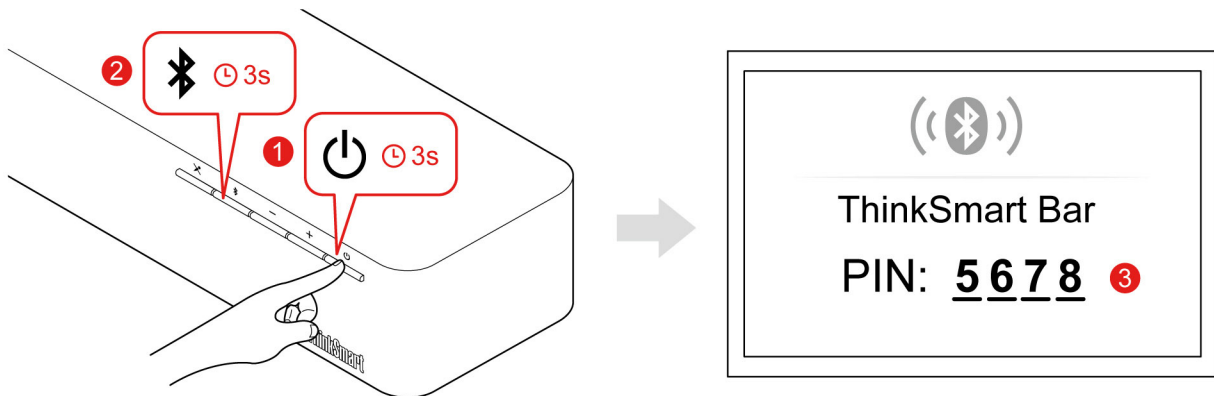
3. Turn on the soundbar by pressing and holding its power button for 3 seconds.

**Notes:**

- The satellite microphones support daisy chain connection. Ensure that you connect with the correct connectors.
- Keep the soundbar over 8.5 meters (27.9 feet) away from the opposite wall. Keep the satellite microphones 2 ~ 6 meters (6.6 ~ 19.6 feet) apart from each other.



- The soundbar supports Bluetooth connection with a non-MTR device, such as a notebook computer / table / mobile phone.

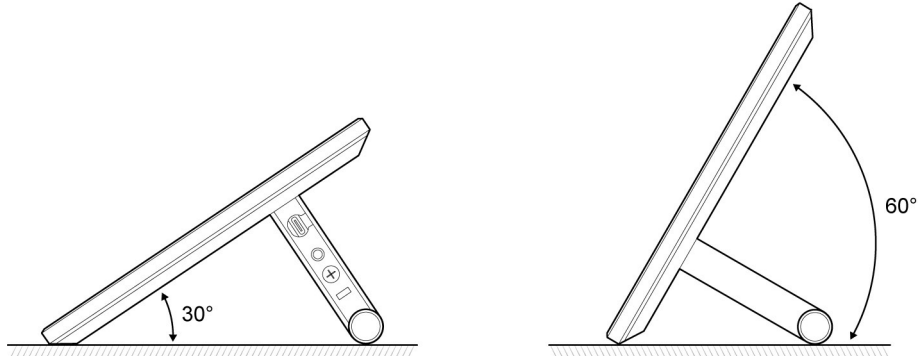


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## ThinkSmart Controller

1. Place Controller on a table in either 30° or 60° position.

**Note:** Its screen will rotate automatically.

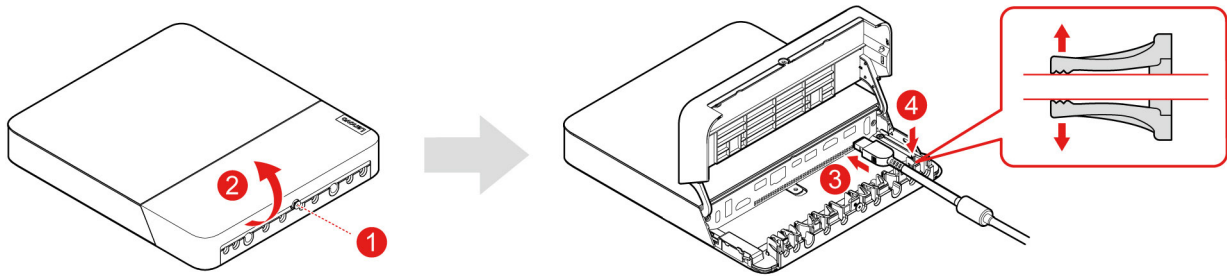


2. Lock Controller to a table or other fixture through a cable lock compliant with Kensington / Lenovo NanoSaver lock standard (using Cleat locking technology). The security-lock slot is located in the Controller stand.

**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. You can purchase locks from Lenovo.

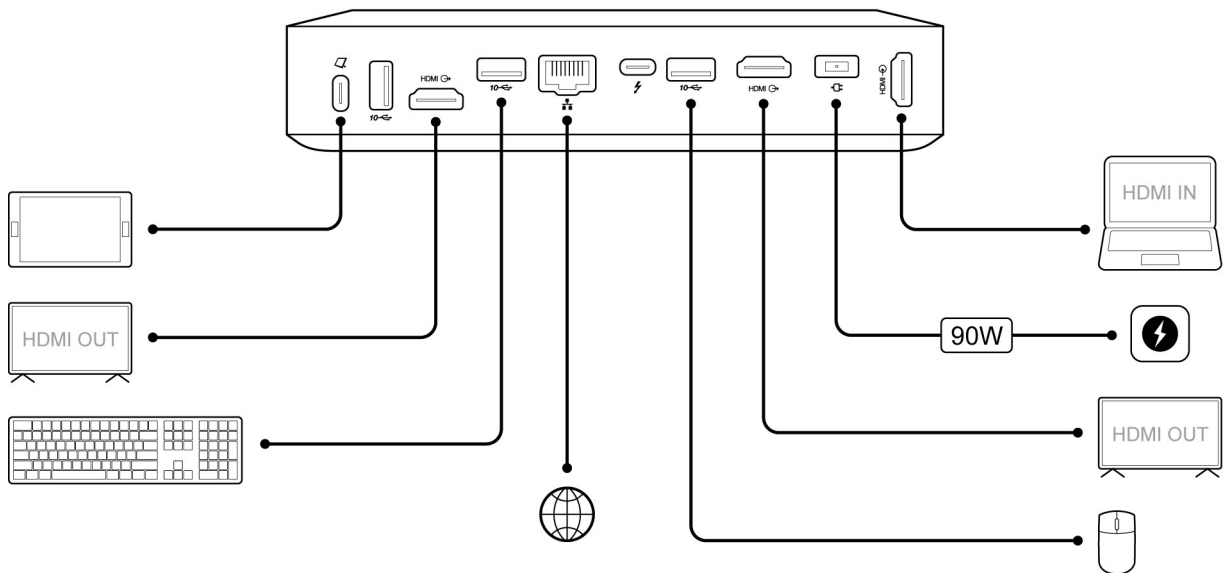
# ThinkSmart Core

1. Open the Core door.

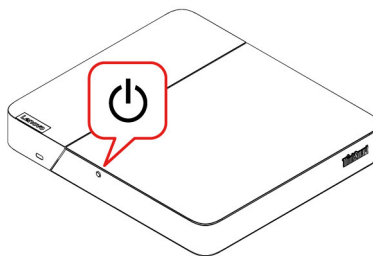


2. Connect a keyboard, a mouse, Controller, external displays, an Ethernet cable, the power adapter and power cord, and your computer to Core.

**Note:** Ensure that you connect your computer to the HDMI-in connector (HDMI  $\ominus$ ) and connect the external displays to the HDMI-out connectors (HDMI  $\ominus$ ).



3. Press the power button to turn on Core.

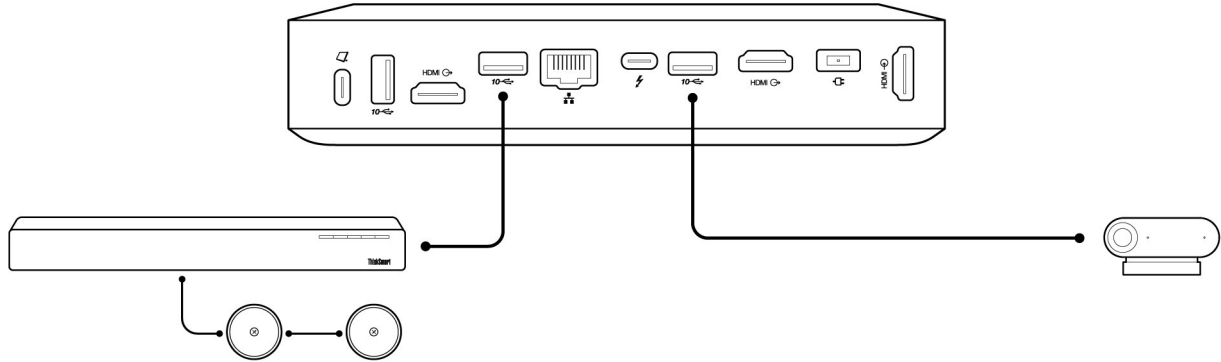


4. Use the keyboard and mouse to complete the following software deployment:

- “Windows OOBE settings” on page 21
- “Claim device to ThinkSmart Manager” on page 23

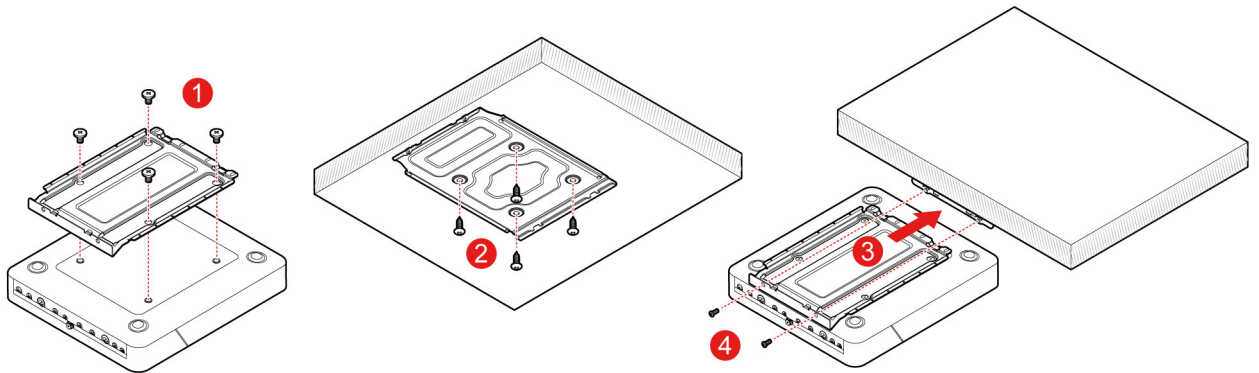
5. After MTR Setup window is displayed, remove the keyboard and mouse and connect the camera cable and soundbar cable to Core.

**Note:** Sometimes, the on-screen keyboard is not popped out after you touch the input box on ThinkSmart Controller. In such case, you can keep the external keyboard connected to ThinkSmart Core for operation.

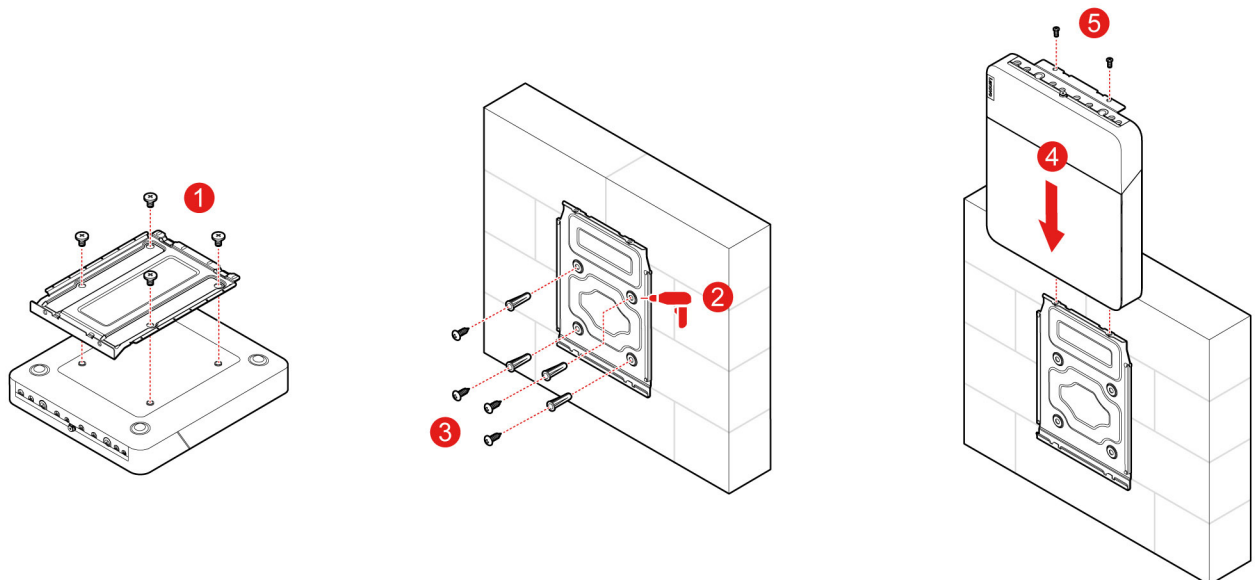


6. Do one of the following to mount Core:

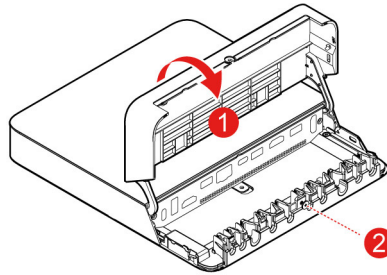
- Mount under table (recommended)



- Mount on wall



7. Close the Core door.



8. Lock Core to a table or other fixture through one of the following cable locks. The security-lock slot is located in the Core door.

- Kensington / Lenovo NanoSaver lock standard (using Cleat locking technology)
- Kensington / Lenovo MicroSaver lock standard (using T-bar locking technology)
- Kensington / Lenovo MiniSaver lock standard (using Cleat locking technology)

**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. You can purchase locks from Lenovo.

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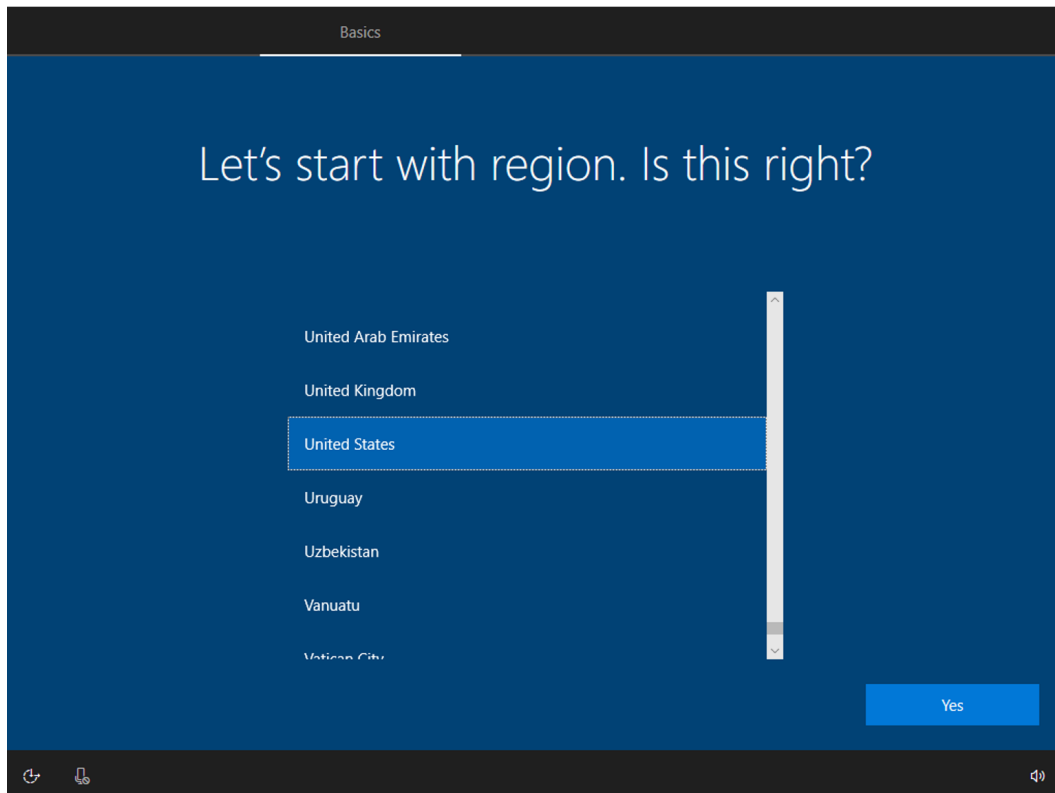
## Chapter 4. Software deployment

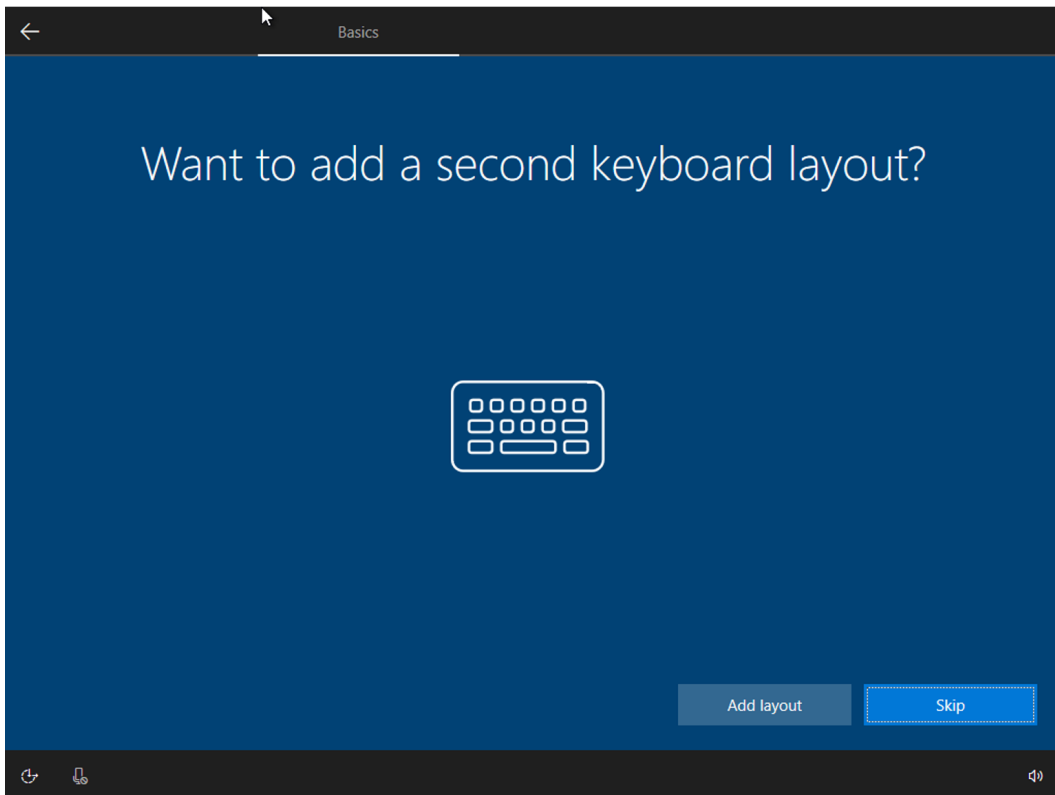
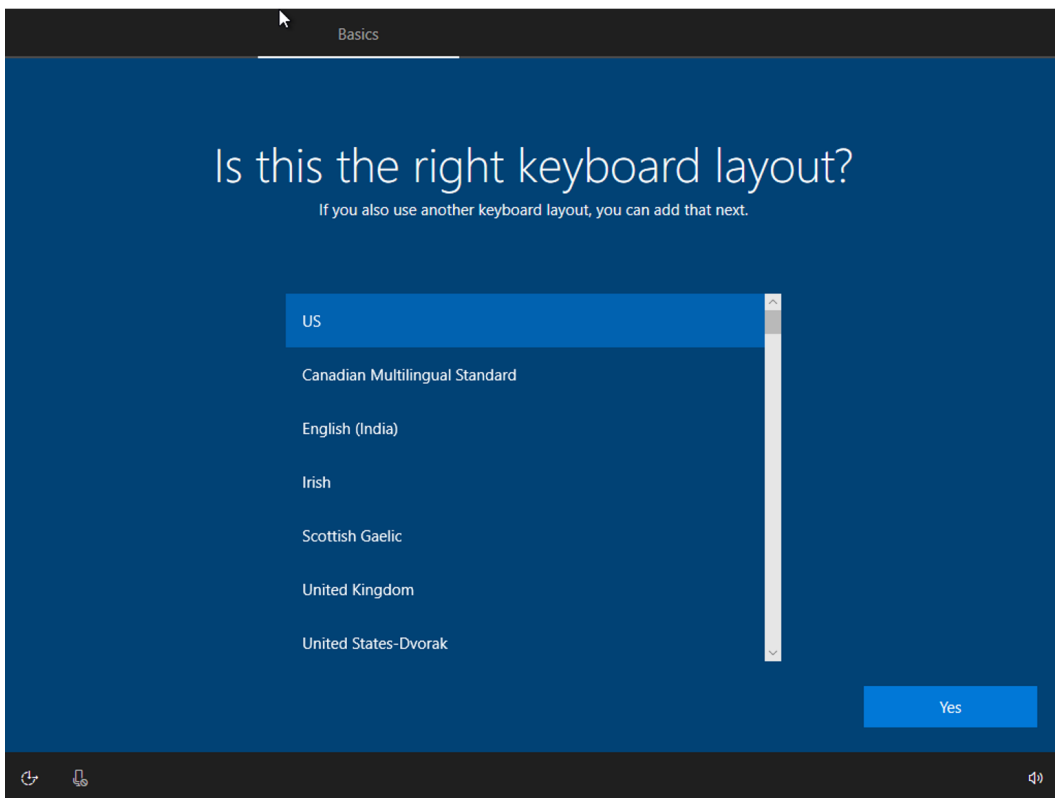
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### Windows OOBE settings

When you turn on ThinkSmart Core for the first time, you will see the Windows OOBE basic settings window. Follow on-screen instructions to set the region and keyboard language.

**Note:** It is working as designed to show the OOBE window on the external display rather than ThinkSmart Controller. Please complete the settings with your keyboard and mouse.







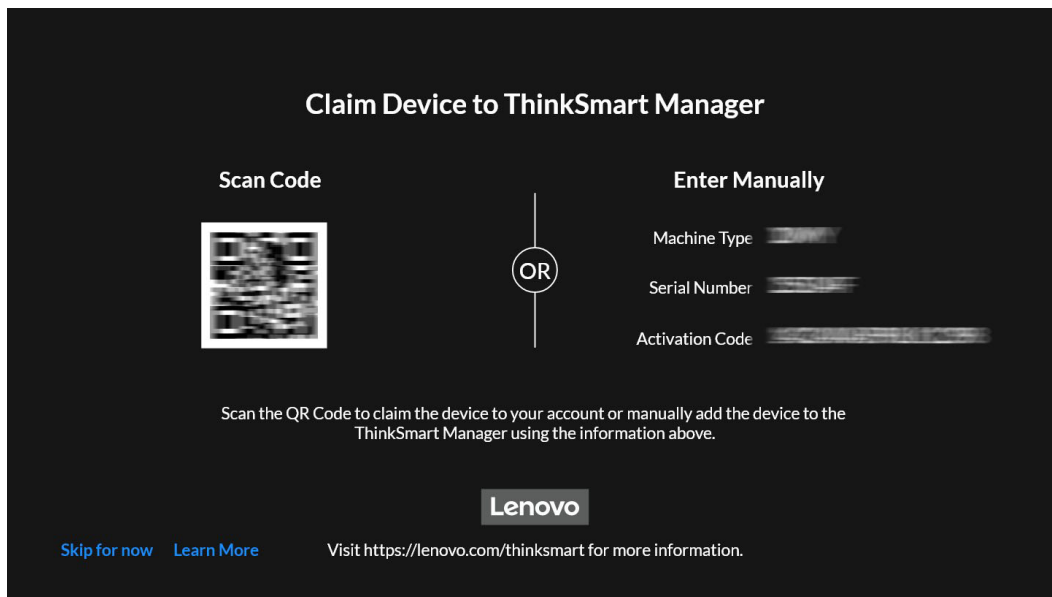
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## Claim device to ThinkSmart Manager

ThinkSmart Manager is a cloud management console designed for Lenovo smart devices, including ThinkSmart Core. IT administrators can claim ThinkSmart Core to ThinkSmart Manager so as to add, configure, and manage ThinkSmart Core and attached peripherals from cloud.

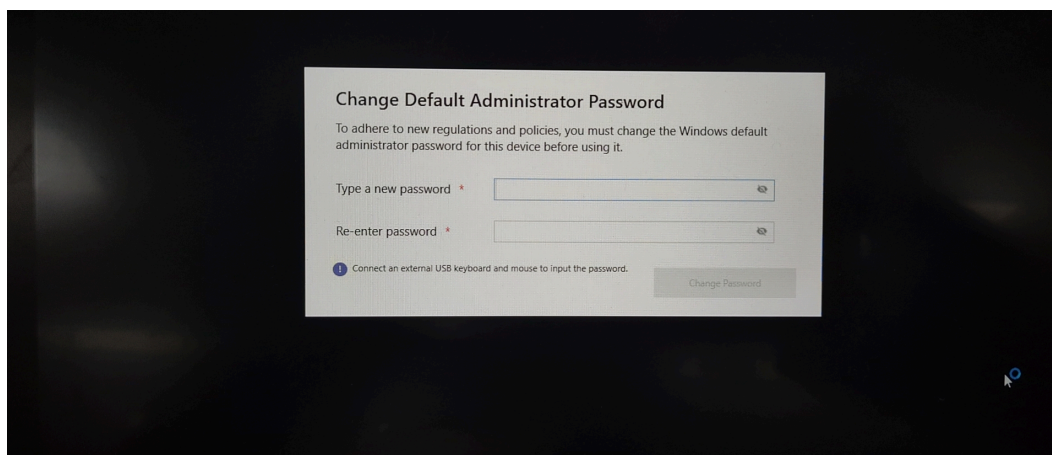
After the Windows OOBE settings are completed, wait several minutes until the Claim Device to ThinkSmart Manager window is displayed. Then you can claim ThinkSmart Core through the QR code or the PIN code. After claiming, a new Windows administrator password will be generated by ThinkSmart Manager automatically. See the following sections for details.

**Note:** ThinkSmart Controller touch screen is ready for use now. However, for optimal performance, it is recommended to use the keyboard and mouse to complete the claiming process.



It is recommended that you claim now. However, if you want to claim later, you can:

1. Select **Skip for now** on the Claim Device to ThinkSmart Manager window. The Change Default Administrator Password prompt will be displayed.
2. Set a new Windows administrator password and select **Change password** to complete the process.

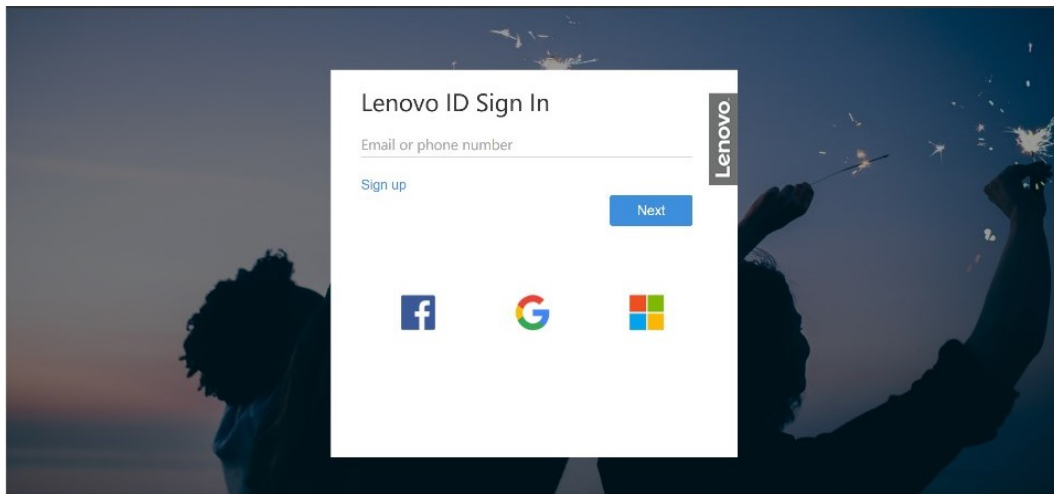


For information about claiming device after Windows OOBE, see *ThinkSmart Manager User Guide* at <https://smartsupport.lenovo.com/us/en/downloads/DS542392> to complete the claiming process.

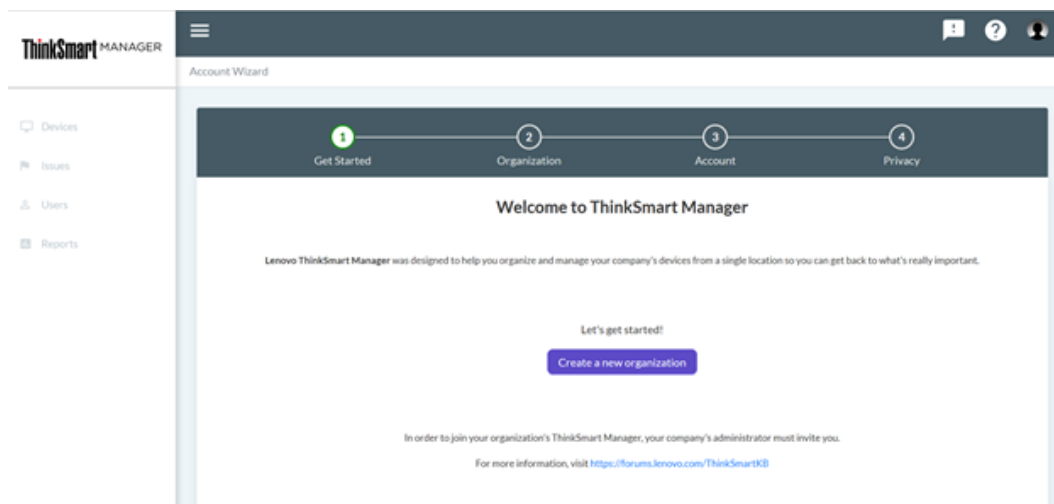
### Before claiming

1. Go to <https://console.thinksmart.lenovo.com/> and log in with your Lenovo ID. If you do not have a Lenovo ID, select **Sign up** and follow the on-screen instructions to create a Lenovo ID. Ensure that you validate the e-mail that comes from Lenovo when you first create a Lenovo ID. Once you have validated using the link in the e-mail, you can try to log in to ThinkSmart Manager with your Lenovo ID.

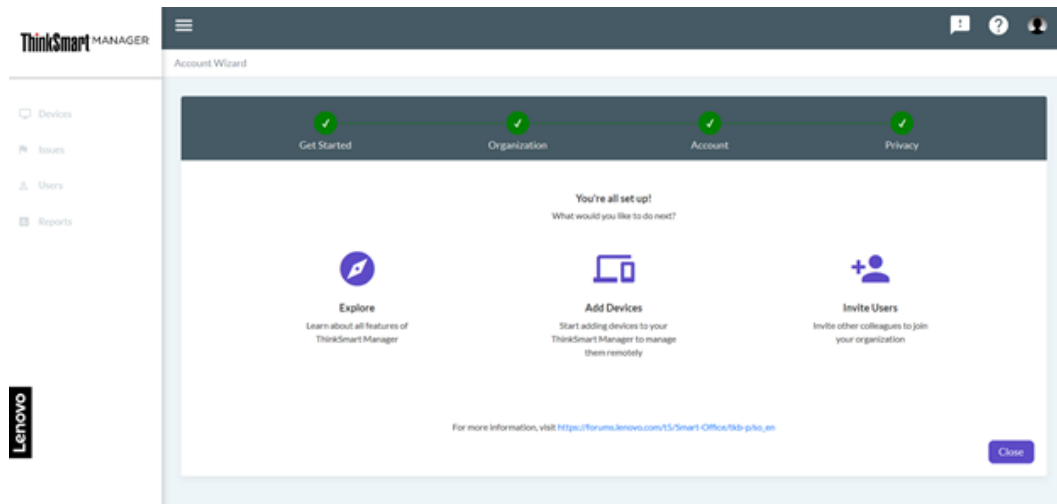
**Important:** Do not use Lenovo ID's Social Sign-on feature (Facebook, Google, or Windows Live ID) for your ThinkSmart Manager. We recommend you use an e-mail address and password to ensure full functionality.



2. The first user from an organization will be required to create a new organization. Select **Create a new organization** and follow the on-screen instructions to fill in the required information.



3. That first user is known as an Owner. The owner can send invites from ThinkSmart Manager to people who need access in the organization.



## Claiming ways

There are 2 ways to claim a device to ThinkSmart Manager:

- Claim by the QR code or the PIN code from the ThinkSmart Manager application
- Claim by the PIN code from the ThinkSmart Manager Web site

The following sections show the claiming way from the ThinkSmart Manager application. For information about the other claiming way, see *ThinkSmart Manager User Guide* at <https://smartsupport.lenovo.com/us/en/downloads/DS542392>.

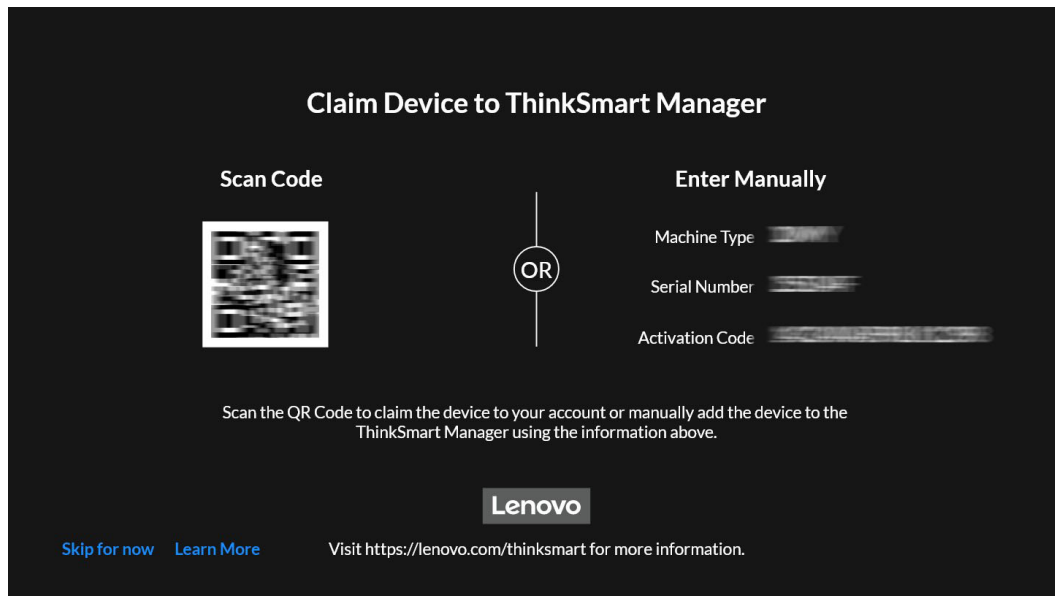
## Claiming from the ThinkSmart Manager application

### Prerequisite

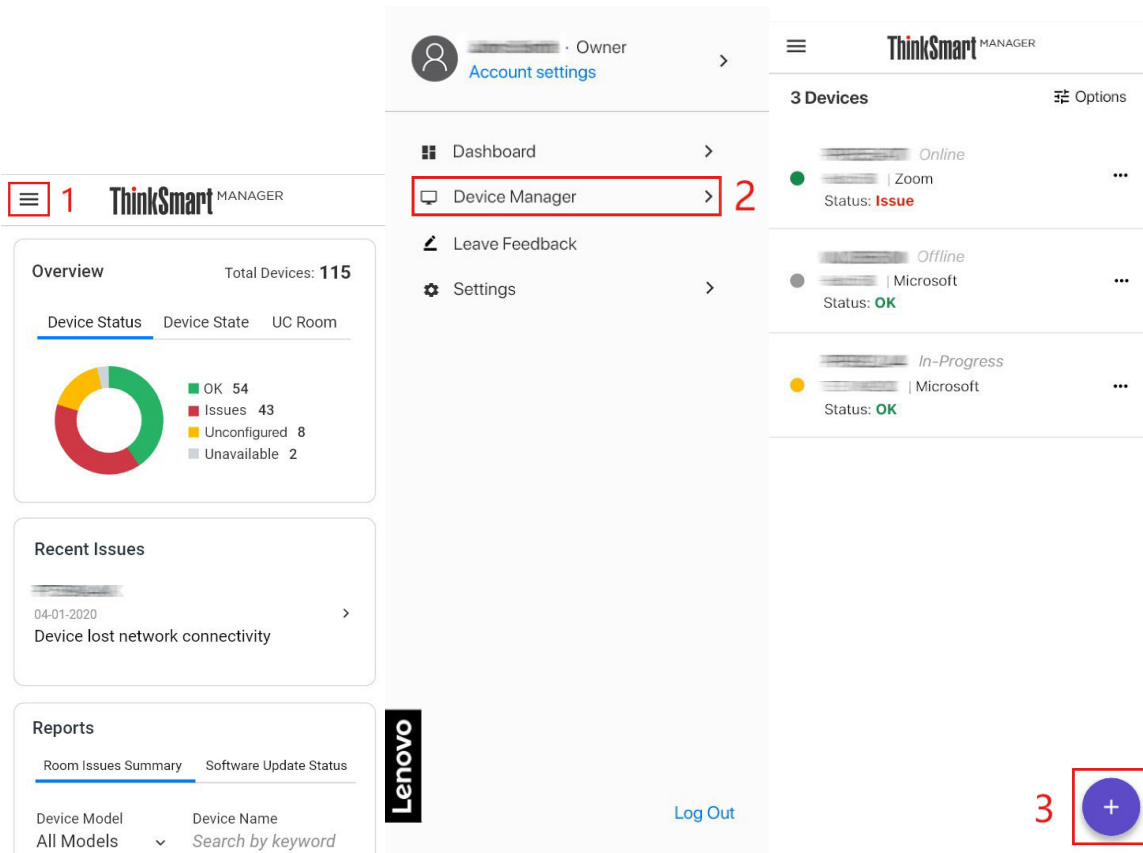
- Prepare a mobile device (such as smart phone) that can scan a QR code.
- Ensure that ThinkSmart Core and the mobile device are connected to the Internet during the claiming process.

### Claiming steps

1. Use your mobile device to scan the QR code. Follow on-screen instructions to install the ThinkSmart Manager application and log in with your Lenovo ID.

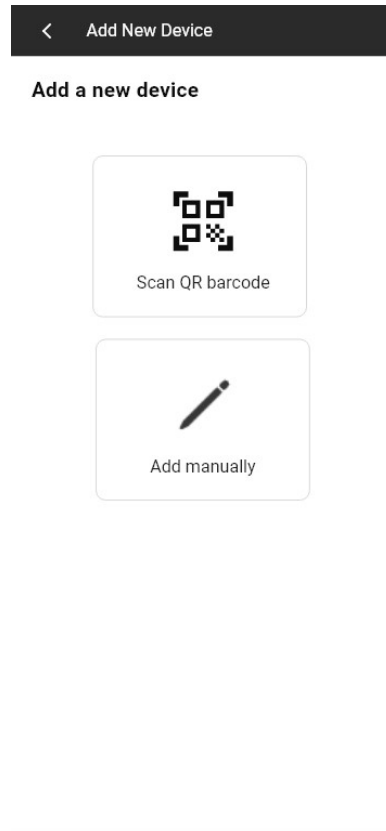


2. Complete the following operations on your mobile device.

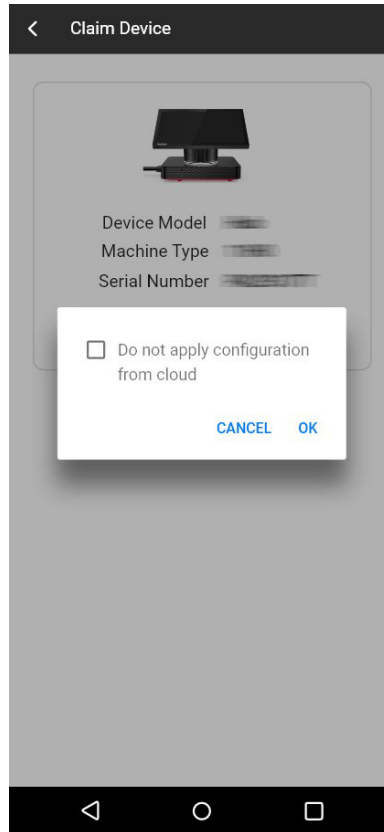


3. Add ThinkSmart Core by one of the following:

- **Scan QR barcode** (recommended): This QR code contains all the information required to add ThinkSmart Core to ThinkSmart Manager. Once scanned, the application will add ThinkSmart Core automatically.
- **Add manually**: Once selected, the application will guide you to select Machine Type and enter Serial Number and the PIN code to add ThinkSmart Core manually.



4. Select if you want to apply the default organization configurations to ThinkSmart Core from cloud.
  - Select it if you have configured ThinkSmart Core locally and don't want to apply the default organization configurations.
  - Do not select it if you want to apply the default organization configurations.



5. The claiming is successful.

DONE

✔ Claim successful!



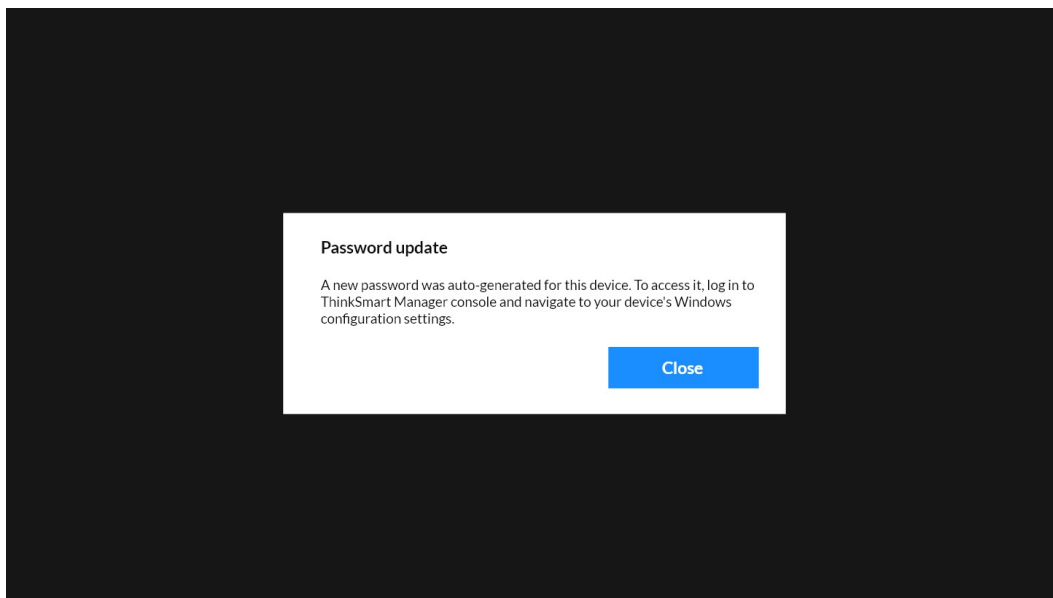
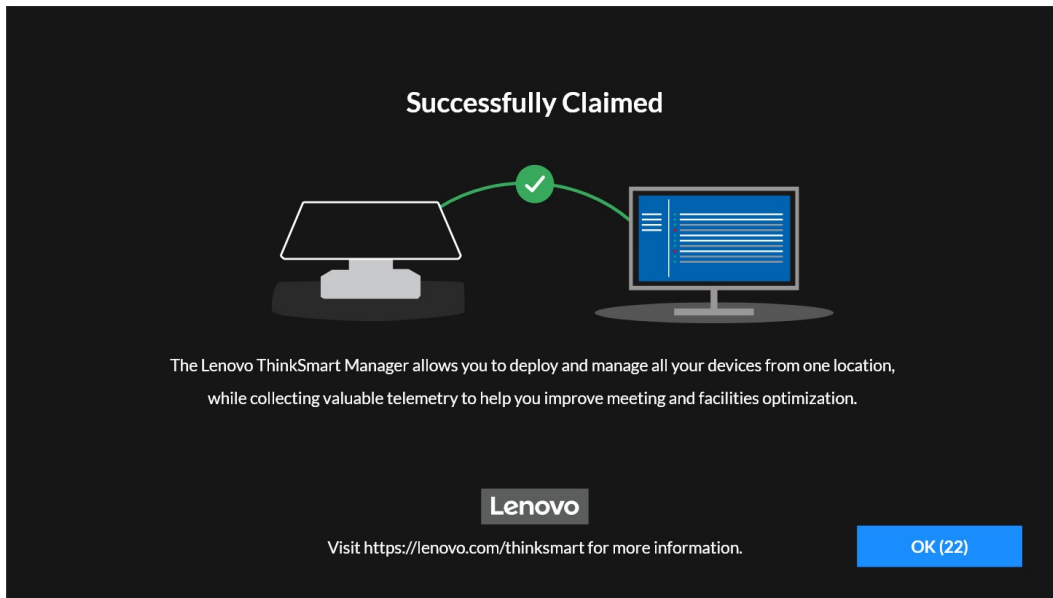
Device Model [REDACTED]  
Machine Type [REDACTED]  
Serial Number [REDACTED]

[Configure Device](#)

+ CLAIM ANOTHER DEVICE



6. Follow the on-screen instructions to complete the claiming process.



### After claiming

You can view the administrator password from ThinkSmart Manager. You will need this password to enter the MTR Settings page or enter the administrator account.

1. Go to <https://console.thinksmart.lenovo.com/> and log in with your Lenovo ID.
2. Select **Devices** on the left navigation panel. The Device List page is displayed.
3. Select the device you want to manage. The device information window is displayed.
4. Select **Configuration** → **Windows** on the right panel. Then, follow the on-screen instructions to view the administrator password.

For information about configuring and managing devices through ThinkSmart Manager, see *ThinkSmart Manager User Guide* at <https://smartsupport.lenovo.com/us/en/downloads/DS542392>.

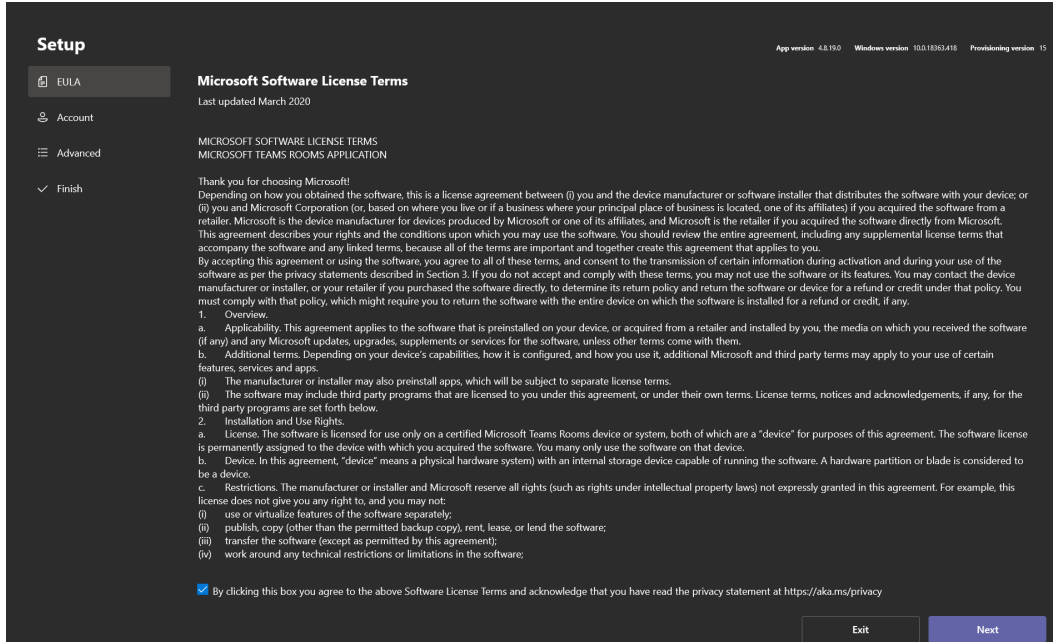




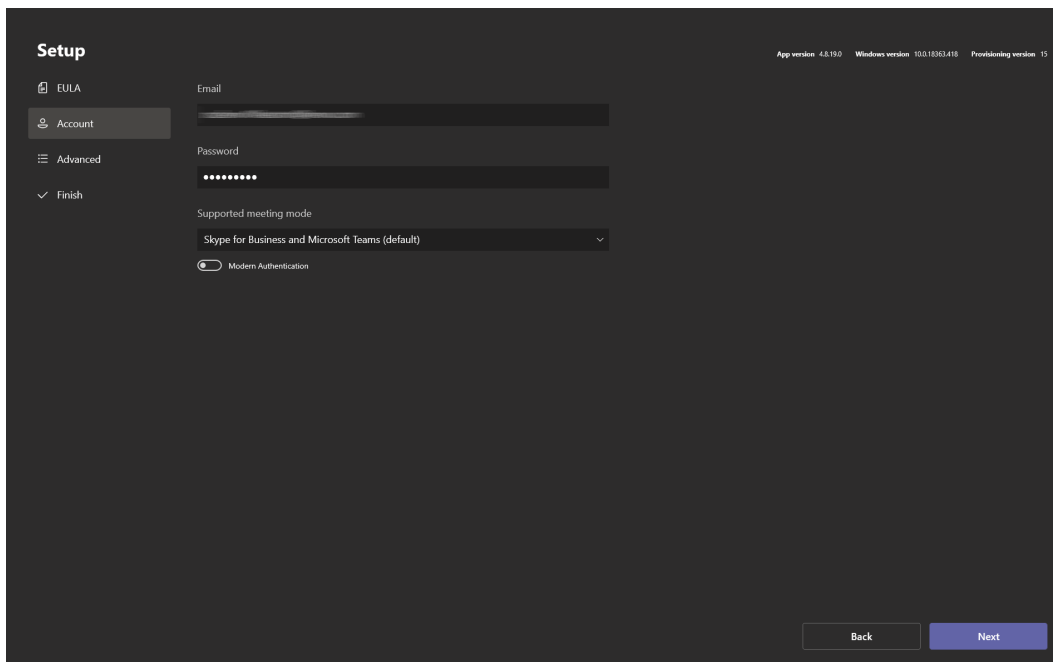
# MTR Setup

After the claiming is completed, wait several minutes until the MTR Setup window is displayed.

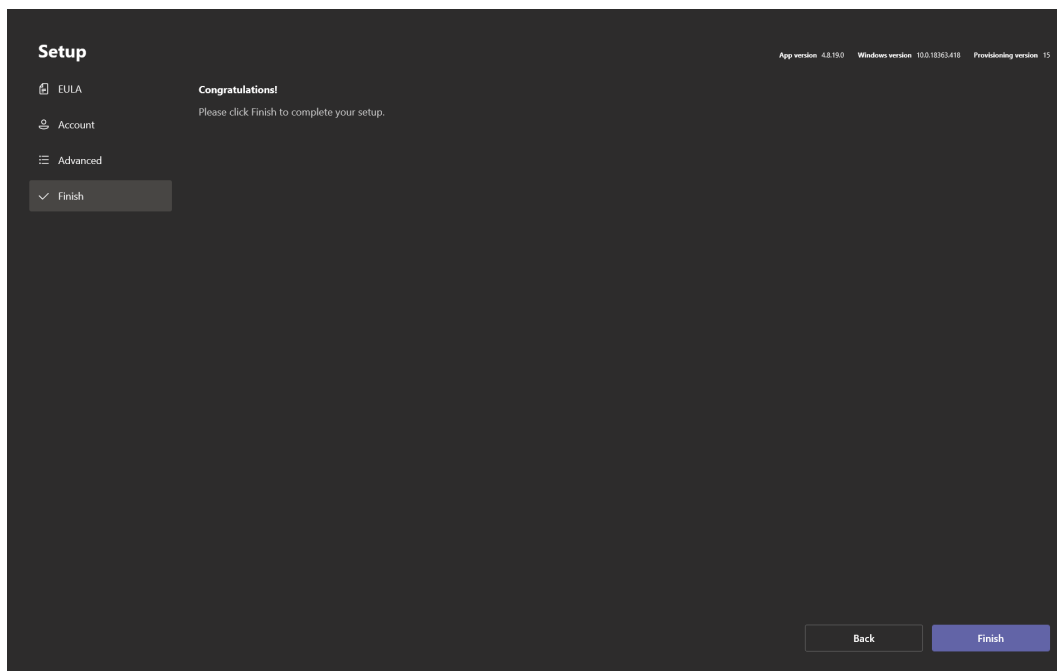
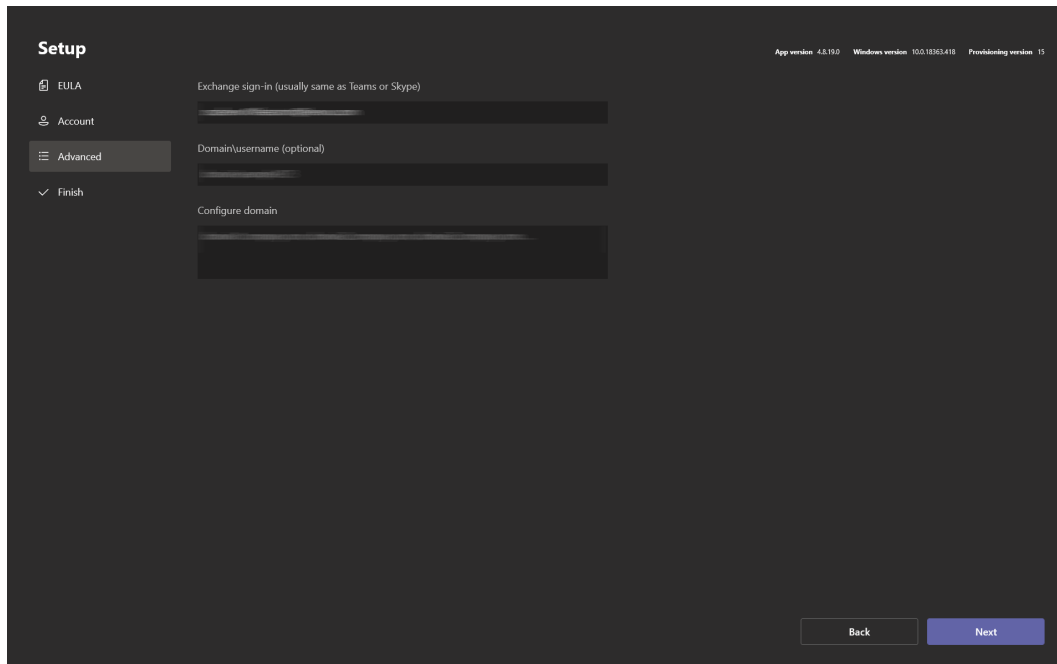
1. Select the box and select **Next**.



2. Enter an MTR account and password and select the desired meeting mode. Select **Next**.



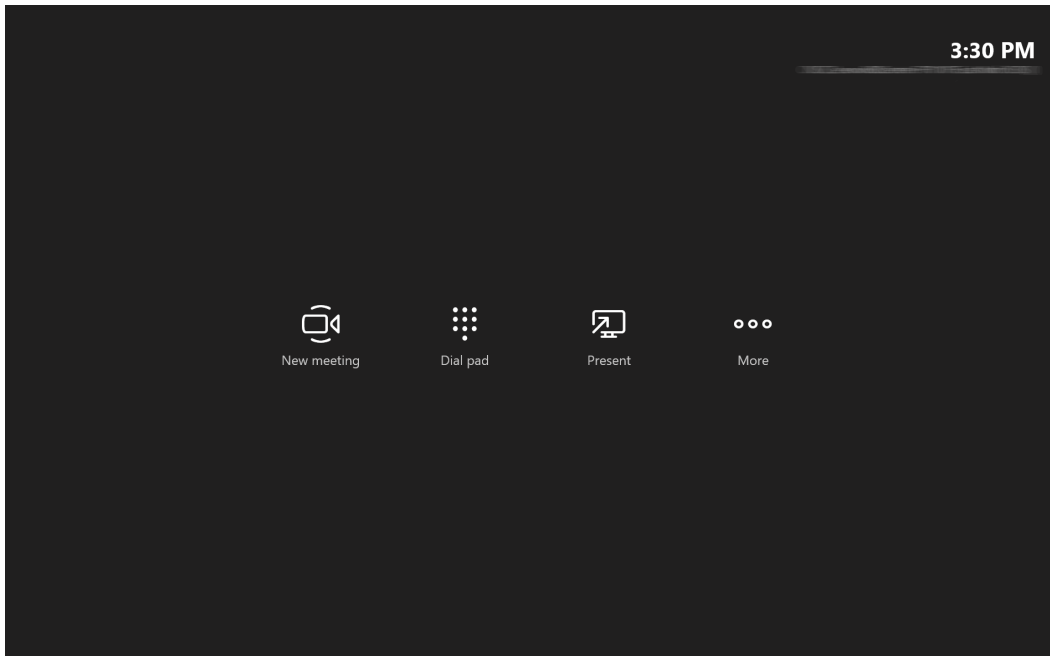
3. Select **Next** and **Finish** to complete the settings.



---

## MTR Settings

After the MTR Setup settings are completed, wait several minutes until the MTR home screen is displayed.



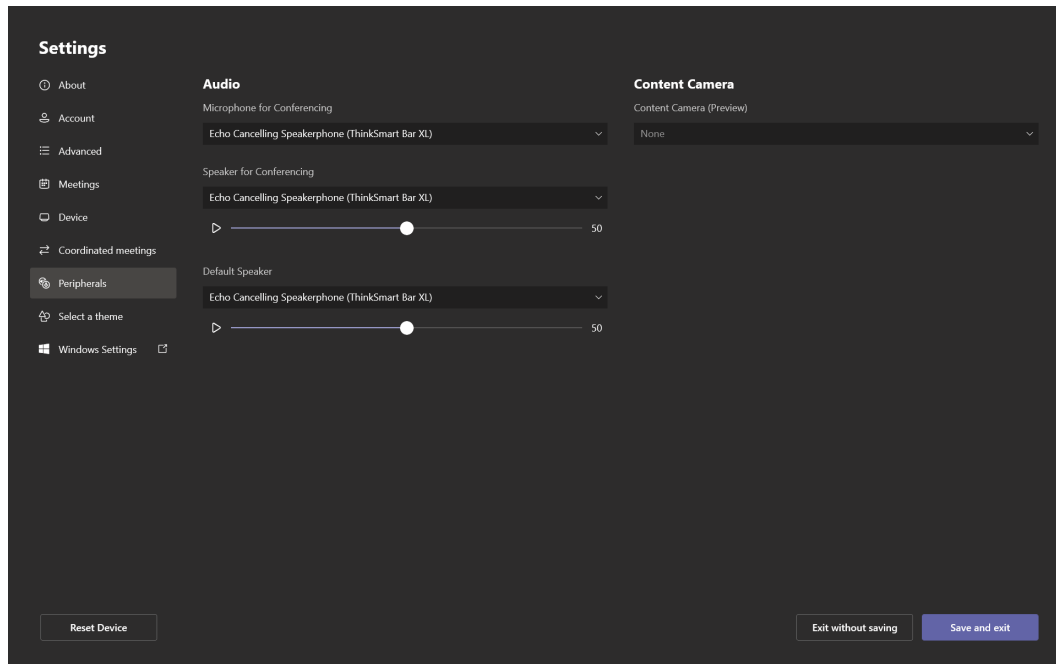
To access MTR Settings:

1. Select **More** → **Settings**.
2. Enter the Windows administrator password as prompted. The MTR Settings page will be displayed.

Then, you can configure the MTR settings and select **Save and exit** to save the settings. For example,

- From the Device tab, turn on **Dual monitor mode** to enable the two external displays connected to ThinkSmart Core.

- From the Peripherals tab, set ThinkSmart Bar as the microphone and speaker for conferencing.



**Note:** The content camera setting is for a certified content camera only. ThinkSmart Cam is not a content camera, so please keep the original setting.

---

## Switch between MTR account and administrator account

To switch from the MTR account to the administrator account,

1. Go to the MTR Settings page.
2. Select **Windows Settings**.
3. Select **Administrator** and enter the administrator password.

To switch from the administrator account to the MTR account,

1. Open the **Start** menu.
2. Select **Administrator → Sign out**.
3. Select **Skype → Sign in**.

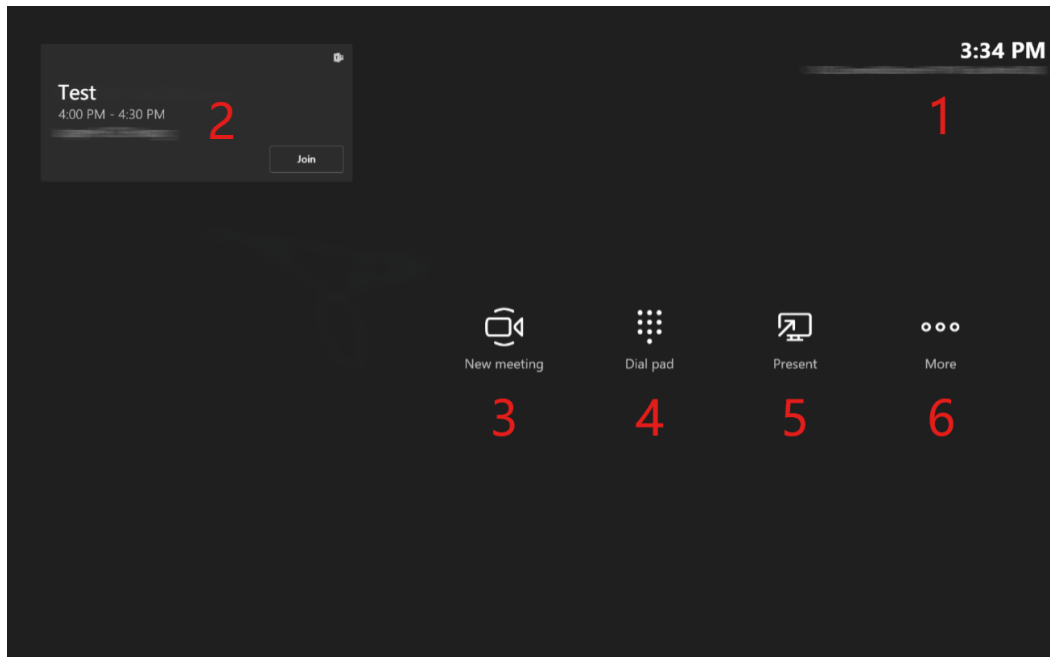
---

## Chapter 5. Typical conferencing scenarios

**Note:** This chapter provides typical conferencing scenarios with illustrations to help end users quickly get started with MTR. Illustrations might look different from your product. For the latest information about MTR, go to <https://support.microsoft.com/en-us/office/microsoft-teams-rooms-help-e667f40e-5aab-40c1-bd68-611fe0002ba2?ui=en-us&rs=en-us&ad=us>.

---

### Learn about MTR home screen

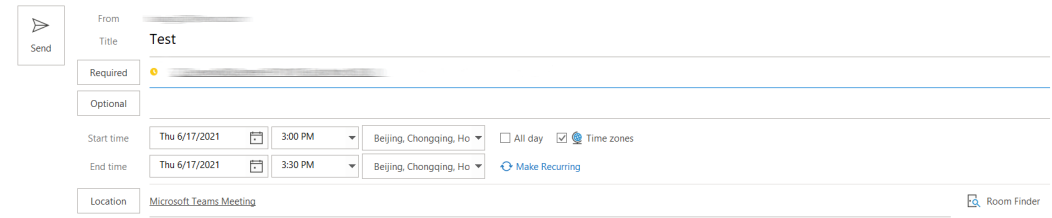


UI	Function
Conference room name	Used to search for the conference room email address (MTR account).
Room calender	Show the scheduled meeting information (title, time, and host). Touch <b>Join</b> to join a scheduled meeting quickly.
New meeting	Select it to start a new meeting.
Dial pad	Select it to make a phone call.
Present	Select it to start or stop content sharing from the connected computer through HDMI-in connection.
More	Select it for more information and settings.

---

## Join a scheduled meeting

1. Send a meeting invitation to attendees and the conference room email address (MTR account). Once the meeting is accepted, it will appear on the room calendar shortly.

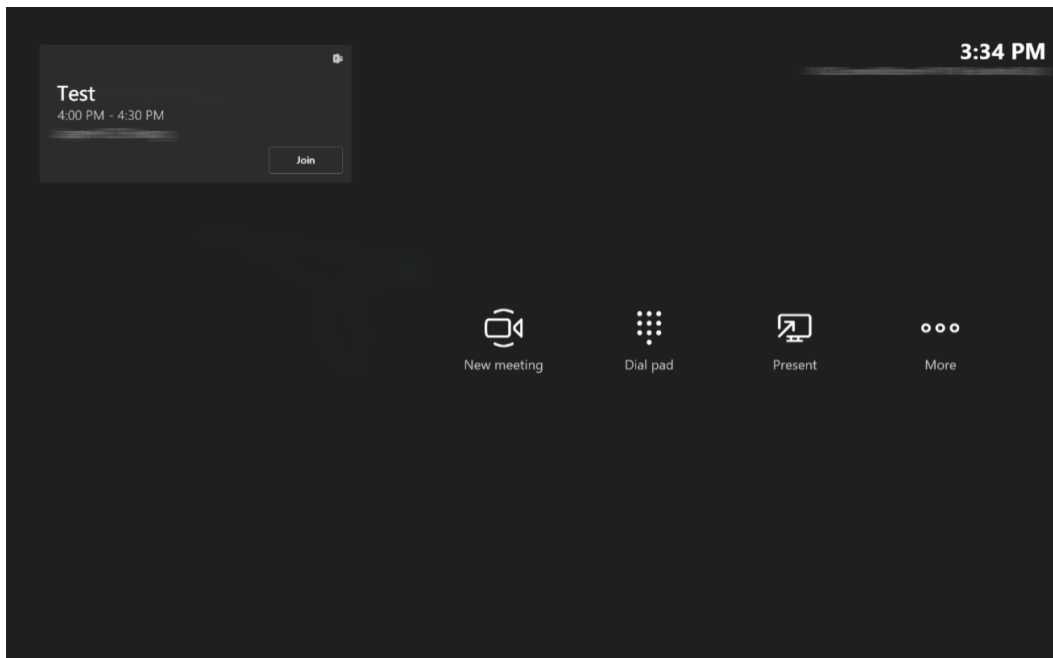


The screenshot shows a meeting invitation form in Microsoft Teams. On the left, there is a 'Send' button with a right-pointing arrow. The form fields are: 'From' (redacted), 'Title' (Test), 'Required' (one redacted email address), and 'Optional' (empty). The 'Start time' is set to 'Thu 6/17/2021' at '3:00 PM' in 'Beijing, Chongqing, Ho' with a calendar icon and a dropdown arrow. There are checkboxes for 'All day' (unchecked) and 'Time zones' (checked). The 'End time' is set to 'Thu 6/17/2021' at '3:30 PM' in 'Beijing, Chongqing, Ho' with a calendar icon, a dropdown arrow, and a 'Make Recurring' link. The 'Location' is 'Microsoft Teams Meeting' with a 'Room Finder' icon on the right.

Microsoft Teams meeting

Join on your computer or mobile app  
[Click here to join the meeting](#)

2. Select **Join** to join the meeting.

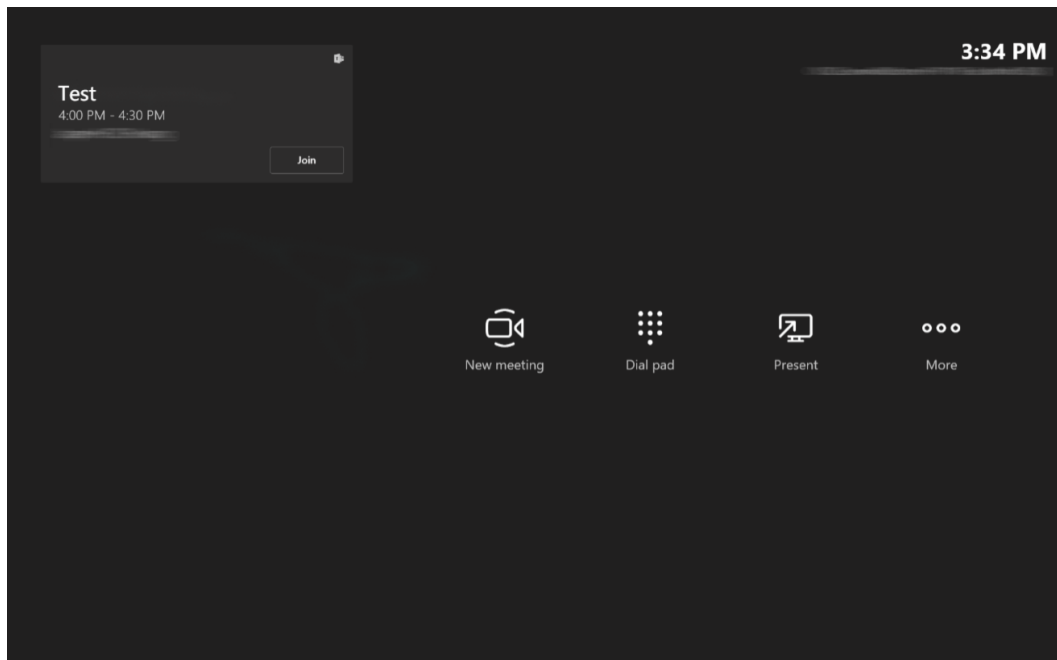




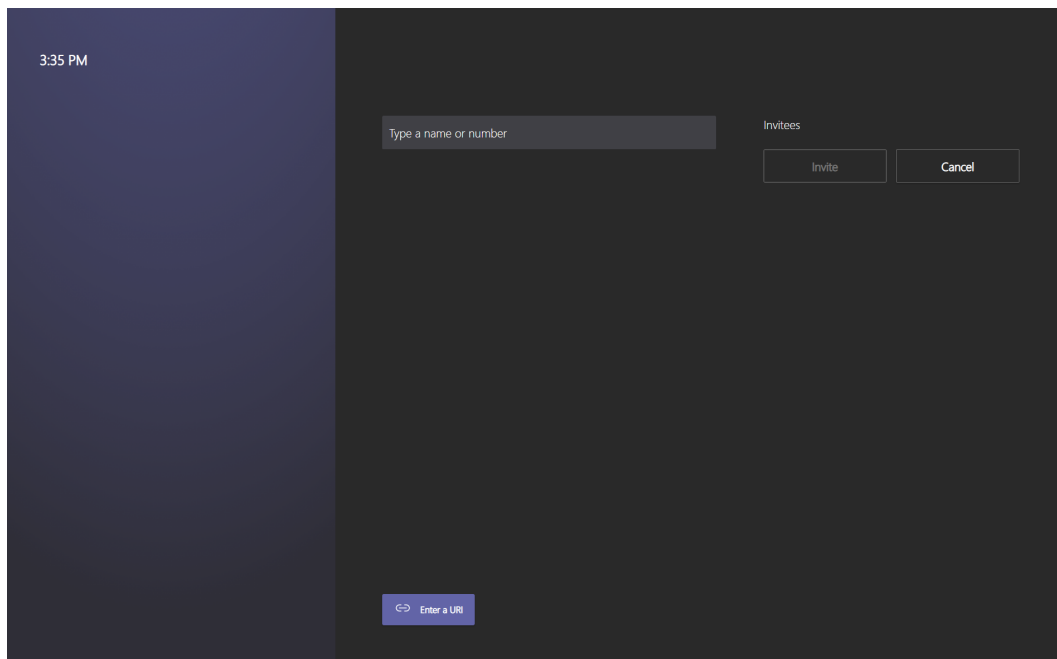
---

## Create a new meeting

1. Select **New meeting**.



2. Type a name to search and select the people you want to invite. Select **Invite** to create a new meeting.



---

## Invite ThinkSmart Core during a meeting

1. Search and select the conference room name from the MTR application on your computer.
2. Accept the call on ThinkSmart Controller to join the meeting.

---

## Share content

### Share your screen with in-room attendees

Connect your computer to the HDMI-in connector on ThinkSmart Core. Your screen will be shared automatically.

### Share your screen with in-room attendees and remote attendees

1. Connect your computer to the HDMI-in connector on ThinkSmart Core. Your screen will be shared with in-room attendees automatically.
2. Join the meeting from the MTR home screen on ThinkSmart Controller. Your screen will be shared with remote attendees too.

### Stop sharing your screen

- To stop sharing with remote attendees, select the stop presenting icon from ThinkSmart Controller.
- To stop sharing with in-room attendees, disconnect your computer from ThinkSmart Core.

---

## Chapter 6. Secure ThinkSmart Core and information

### Notes:

- Connect a keyboard to ThinkSmart Core for easy configurations.
- ThinkSmart Core is referred to as “Computer” in this chapter.

---

### UEFI BIOS passwords

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

#### Password types

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

When a power-on password is set, you are prompted to enter a valid password each time the computer is turned on.

- Supervisor password

Setting a supervisor password deters unauthorized users from changing configuration settings. If you are responsible for maintaining the configuration settings of several computers, you might want to set a supervisor password.

When a supervisor password is set, you are prompted to enter a valid password each time you try to enter the BIOS menu.

If both the power-on password and supervisor password are set, you can enter either password. However, you must use your supervisor password to change any configuration settings.

- Hard disk password

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

**Note:** After you set a hard disk password, your data on the storage drive is protected even if the storage drive is removed from one computer and installed in another.

- System management password (for selected models)

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. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → 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.

#### Set, change, and remove a password

Before you start, print these instructions.

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security**.
3. Depending on the password type, select **Set Supervisor Password**, **Set Power-On Password**, **Set System Management Password**, or **Hard Disk Password** and press Enter.
4. Follow the on-screen instructions to set, change, or remove a password.
5. Press F10 or Fn+F10 to save the changes and exit.

You should record your passwords and store them in a safe place. If you forget the passwords, contact a Lenovo-authorized service provider to have the passwords removed.

**Note:** If the hard disk password is forgotten, Lenovo cannot remove the password or recover data from the storage drive.

---

## Use BIOS security solutions

This section provides BIOS solutions to secure your computer and information.

### Wipe the storage drive data

It is recommended that you wipe the storage drive data before recycling the storage drive or the computer.

To wipe the storage drive data:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security** → **secure wipe** → **Enabled**.
3. Press F10 or Fn+F10 to save the changes and exit.
4. Restart the computer. When the logo screen is displayed, press F12 or Fn+F12.
5. Select **App Menu** → **secure wipe** and press Enter.
6. Select the storage drive you will wipe and click **NEXT**.
7. Select the entire storage drive or partition to wipe as desired.
8. Select the method as desired and click **NEXT**.
9. Click **Yes** to confirm your option when the prompting window is displayed.
10. If you have set a hard disk password for the storage drive, enter the password. Otherwise, set a temporary password following the on-screen instructions. Then, click **NEXT**. The wiping process begins.

**Note:** Duration of the wiping process varies depending on the storage drive capacity.

11. Click **Reboot** when you are prompted to reset the system, and then one of the following will happen:
  - If the system storage drive data is wiped, you will be prompted that no operating system is found.
  - If the non-system storage drive data is wiped, the computer restarts automatically.

### Intel BIOS guard

The Intel® BIOS Guard module cryptographically verifies all BIOS updates. This hardware-based security helps prevent software and malware attacks on the computers BIOS.

### Smart USB Protection

The Smart USB Protection function is a security function that helps prevent data from being copied from the computer to USB storage devices connected to the computer. You can set the Smart USB Protection function to one of the following modes:

- **Disabled** (default setting): You can use the USB storage devices without limitation.

- **Read Only:** You cannot copy data from the computer to the USB storage devices. However, you can access or modify data on the USB storage devices.
- **No Access:** You cannot access the USB storage devices from the computer.

To configure the Smart USB Protection function:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Smart USB Protection** and press Enter.
3. Select the desired setting and press Enter.
4. Press F10 or Fn+F10 to save the changes and exit.

---

## Use software security solutions

This section provides software solutions to secure your computer and information.

### Windows firewalls

A firewall can be hardware, software, or a combination of both depending on the level of security required. Firewalls work on a set of rules to determine which inbound and outbound connections are authorized. If the computer is preinstalled with a firewall program, it helps protect against computer Internet security threats, unauthorized access, intrusions, and Internet attacks. It also protects your privacy. For more information about how to use the firewall program, refer to the help system of your firewall program.

To use Windows firewalls:

1. Type **Control Panel** in the Windows search box and then press Enter. View by large icons or small icons.
2. Click **Windows Defender Firewall**, and then follow the on-screen instructions.

### Computrace Agent software embedded in firmware (for selected models)

The Computrace Agent software is an IT asset management and computer theft recovery solution. The software detects if changes have been made on the computer, such as hardware, software, or the computer call-in location. You might have to purchase a subscription to activate the Computrace Agent software.



---

## Chapter 7. UEFI BIOS

### Notes:

- Connect a keyboard to ThinkSmart Core for easy configurations.
- ThinkSmart Core is referred to as “Computer” in this chapter.

---

### What is UEFI BIOS

**Note:** The operating system settings might override any similar settings in 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 BIOS menu

Restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the BIOS menu.

**Note:** If you have set BIOS passwords, enter the correct passwords when prompted. You also can select **No** or press Esc to skip the password prompt and enter the BIOS menu. However, you cannot change the system configurations that are protected by passwords.

---

### Navigate in the BIOS interface

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

Depending on your keyboard, you can navigate in the BIOS interface by pressing the following keys, or combinations of Fn and the following keys:

Key	Function
F1 or Fn+F1	General Help
Esc or Fn+Esc	Exit the submenu
↑ ↓ or Fn+↑ ↓	Locate an item
← → or Fn+← →	Move keyboard focus
+/- or Fn++/-	Change value
Enter	Enter the submenu
F9 or Fn+F9	Setup Defaults
F10 or Fn+F10	Save and exit

---

### Change the display language of UEFI BIOS

UEFI BIOS supports three or four display languages: English, French, simplified Chinese, and Russian (for selected models).

To change the display language of UEFI BIOS:

1. Select **Main → Language** and press Enter.
2. Set the display language as desired.

---

## Change the display mode of UEFI BIOS (for selected models)

You can use UEFI BIOS in the graphic mode or the text mode according to your needs.

The keys on the keyboard used to perform various tasks are displayed at the bottom of the screen. In addition to the keyboard, you also can use the mouse to make selections.

To change the display mode of UEFI BIOS:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Main → Setup Mode Select** and press Enter.
3. Set the display mode as desired.

---

## Set the system date and time

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Main → System Time & Date** and press Enter.
3. Set the system date and time as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

---

## Change the boot priority order

If the computer does not boot from a device as expected, you can change the boot priority order permanently or select a temporary boot device.

### Change the boot priority order permanently

1. Depending on the type of the storage device, do one of the following:
  - If the storage device is internal, go to step 2.
  - If the storage device is a disc, ensure that the computer is on or turn on the computer. Then, insert the disc into the optical drive.
  - If the storage device is an external device other than a disc, connect the storage device to the computer.
2. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
3. Select **Startup → Boot Priority Order**, and then follow the on-screen instructions to change the boot priority order.
4. You can also select the first priority device group by selecting **Startup → First Boot Device**, and then follow the on-screen instructions to select the first boot device within this group. Your computer will boot from the first boot device before trying the boot priority order you set in the previous step.
5. Press F10 or Fn+F10 to save the changes and exit.

### Select a temporary boot device

**Note:** Not all discs and storage drives are bootable.

1. Depending on the type of the storage device, do one of the following:
  - If the storage device is internal, go to step 2.



- If the storage device is a disc, ensure that the computer is on or turn on the computer. Then, insert the disc into the optical drive.
  - If the storage device is an external device other than a disc, connect the storage device to the computer.
2. Restart the computer. When the logo screen is displayed, press F12 or Fn+F12.
  3. Select the storage device as desired and press Enter.

If you want to change the boot priority order permanently, select **Enter Setup** on Startup Device Menu and press Enter to enter the BIOS menu.

---

## Enable or disable a device

This section provides information about how to enable or disable user access to hardware devices (such as USB connectors or storage drives).

To enable or disable a device, do the following:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Devices**.
3. Select the device you want to enable or disable and press Enter.
4. Select the desired setting and press Enter.
5. Press F10 or Fn+F10 to save the changes and exit.

---

## Enable or disable the configuration change detection feature

If you enable configuration change detection, when the POST detects configuration changes of some hardware devices (such as storage drives or memory modules), an error message will be displayed when you turn on the computer.

To enable or disable the configuration change detection feature:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Configuration Change Detection** and press Enter.
3. Enable or disable the feature as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

To bypass the error message and log in to the operating system, press F2 or Fn+F2. To clear the error message, enter the BIOS menu, save and then exit.

---

## Enable or disable the automatic power-on feature

The Automatic Power On item in UEFI BIOS provides various options for you to make your computer start up automatically.

To enable or disable the automatic power-on feature:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Power → Automatic Power On** and press Enter.
3. Select the feature as desired and press Enter.
4. Enable or disable the feature as desired.
5. Press F10 or Fn+F10 to save the changes and exit.

---

## Enable or disable the ErP LPS compliance mode

Lenovo computers meet the eco-design requirements of the ErP Lot 3 regulation. For more information, go to:

<https://www.lenovo.com/us/en/compliance/eco-declaration>

You can enable the ErP LPS compliance mode to reduce the consumption of electricity when the computer is off or in sleep mode.

To enable or disable the ErP LPS compliance mode:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Power** → **Enhanced Power Saving Mode** and press Enter.
3. Depending on whether you select **Enabled** or **Disabled**, do one of the following:
  - If you select **Enabled**, press Enter. Then, select **Power** → **Automatic Power On** and press Enter. Check whether the Wake on LAN feature is disabled automatically. If no, disable it.
  - If you select **Disabled**, press Enter. Then, go to the next step.
4. Press F10 or Fn+F10 to save the changes and exit.

When the ErP LPS compliance mode is enabled, you can wake up the computer by doing one of the following:

- Press the power button.
- Enable the Wake Up on Alarm feature to make the computer wake up at a set time.

To meet the off mode requirement of ErP compliance, you need to disable the Fast Startup function.

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **Power Options** → **Choose what the power buttons do** → **Change settings that are currently unavailable**.
3. Clear the **Turn on fast startup (recommended)** option from the **Shutdown settings** list.

---

## Change BIOS settings before installing a new operating system

BIOS settings vary by operating system. Change the BIOS settings before installing a new operating system.

Microsoft constantly makes updates to the Windows operating system. Before installing a particular Windows version, check the compatibility list for the Windows version. For details, go to:

<https://support.lenovo.com/us/en/solutions/windows-support>

To change the BIOS settings:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. From the main interface, select **Security** → **Secure Boot** and press Enter.
3. Depending on the operating system to be installed, do one of the following:
  - To install a Windows operating system that supports secure boot, select **Enabled** for **Secure Boot**.
  - To install an operating system that does not support secure boot, such as some Linux operating systems, select **Disabled** for **Secure Boot**.
4. Press F10 or Fn+F10 to save the changes and exit.

---

## Exit the BIOS menu

To exit the BIOS menu, do one of the following:

- If you want to save the new settings, press the F10 key. Then, select **Yes** in the window displayed and press Enter.

**Note:** For some keyboards, you might need to press Fn+F10 to exit the BIOS menu.

- If you do not want to save the new settings, select **Exit → Discard Changes and Exit** and press Enter. Then, select **Yes** in the window displayed and press Enter.

---

## Update UEFI BIOS

When you install a new program, device driver, or hardware component, you might need to update UEFI BIOS. You can update the BIOS from your operating system or a flash update disc (supported only on selected models).

Download and install the latest UEFI BIOS update package from the Lenovo Support Web site:

1. Go to <https://smartsupport.lenovo.com/>.
2. Download the flash BIOS update driver for the operating system version or the ISO image version (used to create a flash update disc). Then, download the installation instructions for the flash BIOS update driver you have downloaded.
3. Print the installation instructions and follow the instructions to update the BIOS.

---

## Recover from a BIOS update failure

1. Remove all media from the drives and turn off all connected devices.
2. Insert the BIOS update disc into the optical drive, and then turn off the computer.
3. Disconnect all power cords from electrical outlets. Then, remove any parts that impede access to the Clear CMOS/Recovery jumper.
4. Move the jumper from the standard position to the maintenance position.
5. Reconnect the power cords for the computer and the monitor to electrical outlets.
6. Turn on the computer and the monitor. When the computer beeps, the recovery process begins.
7. After the recovery process is completed, the computer will be turned off automatically.

**Note:** Depending on the computer model, the recovery process will take two to three minutes.

8. Disconnect all power cords from electrical outlets.
9. Move the jumper back to the standard position.
10. Reinstall all the parts that have been removed. Then, reconnect the power cords for the computer and the monitor to electrical outlets.
11. Turn on the computer and the monitor. When the logo screen is displayed, press F1 or Fn+F1.
12. To prevent data loss, ensure that BIOS settings are restored to an earlier point. For BIOS configurations, see Chapter 7 “UEFI BIOS” on page 45.

---

## Clear CMOS

1. Remove all media from the drives and turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets. Then, remove any parts that impede access to the Clear CMOS/Recovery jumper.

3. Move the jumper from the standard position to the maintenance position.
4. Reconnect the power cords for the computer and the monitor to electrical outlets.
5. Turn on the computer and the monitor. When the computer beeps, wait for approximately 10 seconds.
6. Turn off the computer by holding the power button for approximately four seconds.
7. Disconnect all power cords from electrical outlets.
8. Move the jumper back to the standard position.
9. Reinstall all the parts that have been removed. Then, reconnect the power cords for the computer and the monitor to electrical outlets.
10. Turn on the computer and the monitor. When the logo screen is displayed, press F1 or Fn+F1.
11. To prevent data loss, ensure that BIOS settings are restored to an earlier point. For BIOS configurations, see Chapter 7 “UEFI BIOS” on page 45.

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## Chapter 8. FAQ

Question	Answer
Does ThinkSmart Core come with the UC software preloaded?	Yes. ThinkSmart Core comes with factory imaged Windows 10 IoT and installed with the UC software.
Does ThinkSmart Core support any other UC platforms?	Yes, but it only supports one UC platform at a time.
Is there Lenovo specific software installed on ThinkSmart Core?	Yes. ThinkSmart Manager software is pre-installed from Lenovo factory. ThinkSmart Manager is Lenovo's solution for management at scale for ThinkSmart devices.
Where can I find the user guide, readme, and software download for ThinkSmart Manager?	<a href="https://smartsupport.lenovo.com/us/en/downloads/DS542392">https://smartsupport.lenovo.com/us/en/downloads/DS542392</a>
Do I need to install an antivirus on ThinkSmart Core?	By default, Windows 10 IoT is secured through Windows Defender. Organizations should choose security software based on their requirements.
How are the drivers, software, BIOS updates delivered?	All software updates and driver updates are delivered through Windows Update. BIOS updates are manually downloaded from the Lenovo E-support portal.
Can I manage ThinkSmart Core through Microsoft Operations Management Suite (OMS)?	Please refer to <a href="https://docs.microsoft.com/zh-cn/microsoftteams/rooms/rooms-deploy">https://docs.microsoft.com/zh-cn/microsoftteams/rooms/rooms-deploy</a> .
Does ThinkSmart Core support PXE boot?	Yes.
Does ThinkSmart Core support network boot?	Yes. ThinkSmart Core supports network boot through the Ethernet connector. Restart ThinkSmart Core. During the boot, press F12 multiple times to load the Startup Device Menu. Based on your infrastructure, select the IPv4 or IPv6 option to initiate the network boot.
Does ThinkSmart Core support USB boot?	Yes. Insert a USB key into one of the USB connectors, and then restart ThinkSmart Core. During the boot, press F12 multiple times to load the Startup Device Menu. Based on your infrastructure, select the USB key to initiate the USB boot.
Can ThinkSmart Core work with HDMI extenders through Ethernet?	Yes. ThinkSmart Core is a standard HDMI-compliant device and has been tested to work with products like AMX DXLink HDMI transmitters and receivers.
Does ThinkSmart Core support Wi-Fi® connection?	A wired Ethernet connection is required for initial setup, and it is a MTR best practice to keep a hard-wired connection. Wi-Fi is supported by the hardware when logged in as Administrator, but it cannot be used for meeting calls.
Is ThinkSmart Core compatible with Apple OSX?	Yes. ThinkSmart Core is a device that runs Unified Communications software on a Windows 10 IoT Enterprise OS. Most UC software providers offer clients for Windows, Android, Apple OSX and iOS. The HDMI-in connector on ThinkSmart Core supports all the OS mentioned above.
Can I store my presentations or other materials in ThinkSmart Core for sharing?	No. All content sharing happens in real-time through client devices that are connected to ThinkSmart Core. It does not support storing any user data for sharing during meetings.
Does ThinkSmart Core support Consumer Electronics Control (CEC)?	Yes.

Question	Answer
What are the TCP/IP ports that must be opened in the infrastructure?	<p>For the basic default ports requirements, see “Network” on page 7.</p> <p>There may be other requirements based on your environment. Please see</p> <ul style="list-style-type: none"> <li>• <a href="https://docs.microsoft.com/en-us/MicrosoftTeams/rooms/rooms-prep">https://docs.microsoft.com/en-us/MicrosoftTeams/rooms/rooms-prep</a></li> <li>• <a href="https://docs.microsoft.com/en-us/microsoft-365/enterprise/urls-and-ip-address-ranges?redirectSourcePath=%252fen-us%252farticle%252fOffice-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2=o365-worldwide#BKMK_Identity">https://docs.microsoft.com/en-us/microsoft-365/enterprise/urls-and-ip-address-ranges?redirectSourcePath=%252fen-us%252farticle%252fOffice-365-URLs-and-IP-address-ranges-8548a211-3fe7-47cb-abb1-355ea5aa88a2=o365-worldwide#BKMK_Identity</a></li> </ul>
How does one configure the network proxy for ThinkSmart Core?	See the proxy configurations at <a href="https://docs.microsoft.com/en-us/microsoft-teams/proxy-servers-for-skype-for-business-online">https://docs.microsoft.com/en-us/microsoft-teams/proxy-servers-for-skype-for-business-online</a> .
What is the list of supported peripherals like cameras, extended microphones or speakers?	<p>ThinkSmart Core supports MTR certified audio or video peripherals.</p> <p>For more information, see <a href="https://products.office.com/en-us/microsoft-teams/across-devices/devices">https://products.office.com/en-us/microsoft-teams/across-devices/devices</a>.</p>
Does ThinkSmart Core support wireless display?	No.
Can I use ThinkSmart Core as a PC?	No. ThinkSmart Core is an appliance and is designed to be a meeting space-based tabletop conference room AV device.
Does ThinkSmart Core support deployment via SCCM?	Yes, For more information, see <a href="https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems-scale">https://docs.microsoft.com/en-us/microsoftteams/room-systems/room-systems-scale</a> .
What are the supported external cable diameters/types?	<p>We recommend HDMI/USB cables with an external nylon mesh sheathing because they have better grip and will stay securely in place.</p> <ul style="list-style-type: none"> <li>• HDMI cable: 5 mm to 7.5 mm</li> <li>• USB cable: 3.5 mm to 6 mm</li> <li>• Power cable: 3.5 mm to 4.5 mm</li> </ul>
What can I do if ThinkSmart Cam is lost during the meeting?	Disconnect it from ThinkSmart Core and reconnect it to ThinkSmart Core.

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## Chapter 9. Troubleshooting, diagnostics, and recovery

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### Basic procedure for resolving problems

Use the basic procedure as a starting point for resolving problems.

#### Prerequisite

Before you start, read “Read this first” on page i and print the following instructions.

1. Check that:
    - a. The cables for all connected devices are connected correctly and securely.
    - b. All components have been reassembled correctly.
    - c. All connected devices that require ac power are connected to properly grounded and working electrical outlets.
    - d. All connected devices are enabled in UEFI BIOS.
  2. See Chapter 9 “Troubleshooting, diagnostics, and recovery” on page 53 to resolve the problem you are experiencing, run the diagnostic program, and recover your operating system.
  3. If the problem persists, contact Lenovo. See Chapter 10 “Help and support” on page 63.
- 

### Troubleshooting

Use the troubleshooting information to find solutions to problems that have definite symptoms.

#### Startup and shutdown problems

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Problem	Solution
The ThinkSmart Core does not start up after the power button is pressed.	<ul style="list-style-type: none"><li>• Ensure that ThinkSmart Core is correctly connected to power through the accompanying power adapter and power cord.</li><li>• Ensure that the ThinkSmart Core voltage matches the voltage available at the electrical outlet for your country or region.</li></ul>
The ThinkSmart Core cannot be shut down from the operating system.	Press and hold the power button on the ThinkSmart Core for at least four seconds to turn it off.

---

## MTR problems

Problem	Solution
MTR cannot be logged in.	<ul style="list-style-type: none"><li>• Ensure that the account and password are correct and valid.</li><li>• Ensure that the ThinkSmart Core is connected to a wired network and is connected to your Office 365 account or your Skype for Business server (depends on your company's deployment).</li><li>• If the ThinkSmart Core is connected to the Office 365 account, ensure that the account is not running in China.</li></ul>
The camera cannot be turned on in a meeting.	<ul style="list-style-type: none"><li>• Ensure that the account has been granted the authority to use the camera.</li><li>• Ensure that the camera can work in administrator account with "Camera" application.</li><li>• Ensure that the camera is not configured as content camera.</li></ul>
The calendar is not displayed.	<ul style="list-style-type: none"><li>• Ensure that the account has been granted the authority to receive meeting invitations automatically.</li><li>• Check the calendar with Outlook or Office 365 Web site.</li></ul>

## Display problems

Problem	Solution
Sometimes, the touch point is not very accurate on ThinkSmart Controller.	Please connect a keyboard and mouse to ThinkSmart Core for operations.
Sometimes, the on-screen keyboard is not popped out after touching the input box on ThinkSmart Controller.	Please connect a keyboard and mouse to ThinkSmart Core for operations.
Sometimes, the on-screen keyboard is not displayed accurately, such as: <ul style="list-style-type: none"><li>• Keyboard not fully displayed</li><li>• Keyboard letters not fully displayed</li></ul>	Please connect a keyboard and mouse to ThinkSmart Core for operations.
Sometimes, the display mode is duplicate mode after ThinkSmart Core enters the MTR account.	The display mode is extend mode by default under the MTR account. If it is duplicate mode, restart ThinkSmart Core.
Sometimes, ThinkSmart Controller has no display after connected to ThinkSmart Core during the process of claiming device to ThinkSmart Manager.	Disconnect ThinkSmart Controller and reconnect it to ThinkSmart Core.  If the problem persists, you can do one of the following: <ul style="list-style-type: none"><li>• Use your keyboard and mouse to perform operations.</li><li>• Restart ThinkSmart Core.</li></ul>
Sometimes, ThinkSmart Controller is not the main screen and has no screen-rotation function after ThinkSmart Core is reset.	The auto setting of ThinkSmart Controller as the main screen and the auto screen rotation function are controlled by the ThinkSmart Controller configuration application. To restore them, download and install the application from <a href="https://smartsupport.lenovo.com/">https://smartsupport.lenovo.com/</a> .



Problem	Solution
ThinkSmart Controller screen goes blank while ThinkSmart Core is on.	<ul style="list-style-type: none"> <li>• Ensure that ThinkSmart Controller is connected to ThinkSmart Core correctly and securely.</li> <li>• Tap the ThinkSmart Controller screen to wake up the ThinkSmart Core.</li> <li>• The brightness and contrast is set correctly.</li> <li>• ThinkSmart Core voltage matches the voltage available at the electrical outlet for your country or region.</li> </ul>
The ThinkSmart Controller screen image appears to be flickering.	<ul style="list-style-type: none"> <li>• The ThinkSmart Controller screen might be affected by interference from nearby equipment. Magnetic fields around other devices, such as transformers, appliances, fluorescent lights, and other displays, might be causing the problem. Move fluorescent desk lighting or any equipment that produces magnetic fields farther away from the screen. If the problem persists, turn off ThinkSmart Core. Keep other devices at least 305 mm (12 inches) away from ThinkSmart Core. Then, turn on ThinkSmart Core.</li> <li>• Reset the refresh rate. <ol style="list-style-type: none"> <li>1. Right-click a blank area on the desktop.</li> <li>2. Click <b>Display settings</b>. On the <b>Display</b> tab, click <b>Advanced display settings</b> → <b>Display adapter properties for Display 1</b>.</li> <li>3. Click the <b>Monitor</b> tab, and then reset the refresh rate to be the highest and non-interlaced.</li> </ol> </li> </ul>
The ThinkSmart Controller screen image is discolored.	<ul style="list-style-type: none"> <li>• The ThinkSmart Controller screen might be affected by interference from nearby equipment. Move fluorescent desk lighting or any equipment that produces magnetic fields farther away from the screen.</li> <li>• Turn off ThinkSmart Core. Keep other devices at least 305 mm (12 inches) away from ThinkSmart Core. Then, turn on ThinkSmart Core.</li> </ul>
An external display screen is blank after connected to ThinkSmart Core.	<ul style="list-style-type: none"> <li>• Ensure that the display is connected to ThinkSmart Core correctly and securely.</li> <li>• Select HDMI signals in the signal source setting of the display.</li> <li>• Restart the display.</li> <li>• Change the HDMI cable.</li> </ul>
The image on an external display is not clear.	<p>Reset the screen resolution.</p> <ul style="list-style-type: none"> <li>• Right-click a blank area on the desktop.</li> <li>• Click <b>Display settings</b>.</li> <li>• Set the screen resolution to be 1920 x 1080 pixels.</li> </ul>

## Audio problems

Problem	Solution
ThinkSmart Bar is lost during the MTR meeting.	<ul style="list-style-type: none"><li>• Ensure that it is correctly connected to power through the accompanying power adapter and power cord.</li><li>• Ensure that it is turned on.</li><li>• Disconnect it from ThinkSmart Core and reconnect it to ThinkSmart Core.</li><li>• Ensure that it is set as the audio device for conferencing from MTR Settings.</li></ul>
The sound does not come from the headset or headphones connected to ThinkSmart Controller.	Select the headset or headphones as the default audio output device in advanced sound settings.

## Network problems

Problem	Solution
ThinkSmart Core cannot connect to an Ethernet LAN.	<ul style="list-style-type: none"><li>• Connect the cable from the Ethernet connector to the RJ45 connector of ThinkSmart Core.</li><li>• Enable the Ethernet LAN feature in UEFI BIOS.</li><li>• Enable the Ethernet LAN adapter.<ol style="list-style-type: none"><li>1. Go to <b>Control Panel</b> and view by large icons or small icons.</li><li>2. Click <b>Network and Sharing Center</b> → <b>Change adapter settings</b>.</li><li>3. Right-click the Ethernet LAN adapter icon and click <b>Enable</b>.</li></ol></li><li>• Update or reinstall the Ethernet LAN driver.</li><li>• Install all networking software that is necessary for your network environment. Check with your LAN administrator for the necessary networking software.</li><li>• Set the same duplex for the switch port and the adapter. If you configured the adapter for full duplex, ensure that the switch port is also configured for full duplex. Setting a wrong duplex mode might degrade performance, cause data loss, or result in lost connections.</li></ul>
When a Gigabit Ethernet model ThinkSmart Core is used at a speed of 1000 Mbps, the Ethernet LAN connection fails or errors occur.	Connect the network cable to the Ethernet connector using Category 5 wiring and a 100 BASE-T hub/switch (not 100 BASE-X).
My ThinkSmart Core is a Gigabit Ethernet model, but it cannot be connected to the network at 1000 Mbps, but at only 100 Mbps.	<ul style="list-style-type: none"><li>• Try another cable.</li><li>• Set the link partner to auto-negotiate.</li><li>• Set the switch to be 802.3ab-compliant (gigabit over copper).</li></ul>

Problem	Solution
The Wi-Fi feature does not work.	<p>It is not recommended that you connect to a Wi-Fi network. If you connect to the Wi-Fi network that needs account authentication, the connection will be lost when you log in the conference room system.</p> <p>Connect your ThinkSmart Core to a local network through the Ethernet connector on your ThinkSmart Core with an Ethernet cable.</p>
The Bluetooth feature does not work.	<p><b>Note:</b> It is not recommended that you connect a Bluetooth-enabled device to ThinkSmart Core.</p> <ul style="list-style-type: none"> <li>• Enable the Bluetooth feature in UEFI BIOS.</li> <li>• Enable all Bluetooth devices. <ol style="list-style-type: none"> <li>1. Right-click the <b>Start</b> button to open the <b>Start</b> context menu.</li> <li>2. Click <b>Device Manager</b>. Type the administrator password or provide confirmation if prompted.</li> <li>3. Expand <b>Bluetooth</b> to display all Bluetooth devices. Right-click each Bluetooth device, and then click <b>Enable device</b>.</li> <li>4. Expand <b>Network adapters</b> to display all network devices. Right-click each Bluetooth device, and then click <b>Enable device</b>.</li> </ol> </li> <li>• Turn on the Bluetooth radio. <ol style="list-style-type: none"> <li>1. Open the <b>Start</b> menu.</li> <li>2. Click <b>Settings</b> → <b>Devices</b> → <b>Bluetooth &amp; other devices</b>.</li> <li>3. Turn on the <b>Bluetooth</b> switch to enable the Bluetooth feature.</li> </ol> </li> <li>• Update or reinstall the Bluetooth driver.</li> </ul>

## Performance problems

Problem	Solution
The free storage drive space is insufficient.	<ul style="list-style-type: none"> <li>• Clean out your Inbox, Sent Items, and Deleted Items folders from your e-mail application.</li> <li>• Clean up your C drive. <ol style="list-style-type: none"> <li>1. Open the <b>Start</b> menu.</li> <li>2. Click <b>Windows System</b> → <b>File Explorer</b> → <b>This PC</b>.</li> <li>3. Right-click your C drive and then click <b>Properties</b>.</li> <li>4. Check the amount of free space, and then click <b>Disk Cleanup</b>.</li> <li>5. A list of unnecessary file categories is displayed. Select the category you want to delete, and then click <b>OK</b>.</li> </ol> </li> </ul>

## Drive problems

Problem	Solution
There is a warning icon besides <b>XMOS Control</b> under <b>Other devices</b> of Device Manager in the administrator account.	ThinkSmart Bar is an external device. Connect ThinkSmart Core to Internet to get the ThinkSmart Bar driver updated, then the warning icon will disappear.
"No Operating System Found" message or the system not starting up from the correct storage drive.	<ul style="list-style-type: none"><li>• Ensure that all storage drives are connected correctly and securely.</li><li>• Ensure that the storage drive ThinkSmart Core starts up from is listed as the first startup device in the UEFI BIOS. Refer to "Change the boot priority order" on page 46.</li></ul> <p><b>Note:</b> In rare cases, the storage drive with the operating system might get corrupted or damaged. In such cases, you might need to replace the storage drive.</p>

## USB device problems

Problem	Solution
A USB device cannot be accessed.	<ul style="list-style-type: none"><li>• Connect the USB cable from the USB connector to the USB device. If the USB device has its own power cord, connect the power cord to a grounded electrical outlet.</li><li>• Turn on the USB device and keep the device online.</li><li>• Install any device drivers or programs supplied with the USB device. Refer to the documentation that comes with the USB device for more information.</li><li>• Disconnect and reconnect the USB connector to reset the USB device.</li><li>• Ensure that the Smart USB Protection function is disabled in UEFI BIOS.</li></ul>

## Diagnostics

Use diagnostic solutions to test hardware components and report operating-system-controlled settings that interfere with the correct operation of your computer.

To use the Lenovo diagnostic:

1. Turn on or restart the computer.
2. Before Windows starts, repeatedly press and release the F10 key until the Lenovo diagnostic opens.

**Note:** If a BIOS password has been set, the UEFI BIOS will not open until you enter the correct password. For more information, see "UEFI BIOS passwords" on page 41.

3. Follow the instructions on the screen to use the diagnostic program.

## Recovery

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 from Windows

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

1. Ensure that an external display is connected to the computer.
2. Open the **Start** menu, and then click **Settings** → **Update & Security** → **Recovery**.
3. In the **Reset this PC** section, click **Get started**.
4. Select **Remove everything**. Follow the on-screen instructions to reset your computer.

### Notes:

- Reset option **Keep my files** is not supported.
- Please do not turn off or restart your computer during the reset.
- It is normal that ThinkSmart Controller will go blank for a while during the reset process.

## Reset from BIOS

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

1. Ensure that an external display is connected to the computer.
2. Ensure that a keyboard is connected to the computer.
3. Restart your computer. At the beginning of the boot process, keep pressing F11 on the keyboard until Windows recovery environment opens.
4. Select **Troubleshoot** → **Reset this PC** → **Remove everything**. Follow the on-screen instructions to reset your computer.

### Notes:

- Reset option **Keep my files** is not supported.
- Please do not turn off or restart your computer during the reset.
- It is normal that ThinkSmart Controller will go blank for a while during the reset process.

## Use advanced options

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://smartsupport.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 capacity of at least 16 GB. 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

If your computer cannot be started, go to Chapter 10 “Help and support” on page 63 first to try to solve the problem by yourself. If the problem persists, use the recovery USB drive to recover your computer.

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.

## Update the device driver

**Attention:** Reinstalling device drivers will change the current configuration of the computer.

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:

- From the Lenovo Support Web site:  
Go to <https://smartsupport.lenovo.com/> and select the entry for your computer. Then, follow the on-screen instructions to download and install necessary drivers and software.
- From Windows Update:

**Note:** The device drivers provided by Windows Update might not be tested by Lenovo. It is recommended that you get device drivers from Lenovo.

1. Open the **Start** menu.
2. Click **Settings** → **Update & Security** → **Windows Update**.
3. Follow the on-screen instructions.





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## Chapter 10. Help and support

This chapter provides help and support information for your product.

**Note:** ThinkSmart Core is referred to as “Computer” in this chapter.

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### Register with Lenovo

To register with Lenovo, ensure that device is connected to the Internet. Then, go to <http://www.lenovo.com/register> and follow the instructions on the screen to enter the required information into Lenovo database.

The information enables Lenovo to contact you when there is a recall or other severe problem and provide quicker service when you call Lenovo for help. In addition, some locations offer extended privileges and services to registered users.

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### CRU replacement

Customer Replaceable Units (CRUs) are parts that can be upgraded or replaced by the customer. Lenovo 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 the 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

- Core 90 W power adapter and power cord
- Controller unit
- Soundbar unit\*
- Soundbar 65 W power adapter and power cord\*
- Soundbar cable (5 m)\*
- Soundbar brackets and screws\*
- Satellite microphones\*
- Satellite microphones cables\*
- Camera unit\*
- Camera brackets and screws\*

- Camera cable (5 m)\*

\* for selected models

See Chapter 3 “Hardware deployment” on page 9 to replace these CRUs.

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## Self-help resources

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

Resources	How to access?
Product documentation: <ul style="list-style-type: none"> <li>• Documentation in the box</li> <li>• This <i>Guide</i></li> <li>• <i>Regulatory Notice</i></li> </ul>	Go to <a href="https://smartsupport.lenovo.com/">https://smartsupport.lenovo.com/</a> . Then, follow the on-screen instructions to filter out the documentation you want.
Lenovo Support Web site with the latest support information of the following: <ul style="list-style-type: none"> <li>• Drivers and software</li> <li>• Diagnostic solutions</li> <li>• Product and service warranty</li> <li>• Product and parts details</li> <li>• Knowledge base and frequently asked questions</li> </ul>	<a href="https://smartsupport.lenovo.com/">https://smartsupport.lenovo.com/</a>
Windows help information	<ul style="list-style-type: none"> <li>• Open the <b>Start</b> menu and click <b>Get Help</b> or <b>Tips</b>.</li> <li>• Use Windows Search or the Cortana® personal assistant.</li> <li>• Microsoft support Web site: <a href="https://support.microsoft.com">https://support.microsoft.com</a></li> </ul>
Accessibility information	<a href="https://www.lenovo.com/accessibility">https://www.lenovo.com/accessibility</a>

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## Additional services

Thank you, Lenovo customer, for your purchase of a ThinkSmart Core kit.

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.

We expect you will have years of productive meeting experiences with our collaboration solution. To assist you in getting this collaboration solution installed in your environment, we have included two of our most popular ThinkSmart services: Deploy and Maintain.

### Customer Action

You must register this service with Lenovo so a service technician can contact you to schedule initial deployment service:

<https://support.lenovo.com/us/en/professionalserviceregistration>

To register, please provide the contact information for the person we should engage with, along with purchase information (place and date of purchase along with sales order or invoice number).

## Included Services

- **Deploy:** A ThinkSmart service to help setup, configure and integrate collaboration solution devices into your environment. All deployments include full documentation reports after complete.
- **Maintain:** A one-year (renewable) maintenance contract where technicians will assist with updates and device changes and provide easy to follow Do's and Don'ts. Device operability health check ins will ensure collaboration solution is healthy and running smoothly. Redeployment of solution, if required, into a different meeting space is included.

**Note:** These services are delivered virtually, with multi-lingual technicians available WW, ready to handle live support via video meeting, phone, email, or IM.

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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 (on the bottom of the product)

## 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://smartsupport.lenovo.com/supportphonenumberlist>

**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, see the Lenovo Limited Warranty documentation at:

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

The LLW also is preinstalled on ThinkSmart Core. To access the LLW, go to the following directory:

C:\Windows\System32\oobe\info\default



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## Appendix A. Specifications

Take ThinkSmart Core Full Room Kit 2 as example to show maximum configuration.

For more specifications, go to <https://smartfind.lenovo.com>.

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### ThinkSmart Cam

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<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 105 mm (4.1 inches)</li><li>• Height: 36 mm (1.4 inches), 51.7 mm (2 inches) with clamp</li><li>• Depth: 60.5 mm (2.4 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 220 g (0.5 lb)

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### ThinkSmart Bar XL

#### Soundbar

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<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 798 mm (31.4 inches)</li><li>• Height: 56.5 mm (2.2 inches)</li><li>• Depth: 91.3 mm (3.6 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 3.6 kg (7.9 lb)
<b>Power supply</b>	65-watt automatic voltage-sensing power supply

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#### Satellite microphones

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<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 100 mm (3.9 inches)</li><li>• Height: 20 mm (0.8 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 220 g (0.5 lb)

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### ThinkSmart Controller and ThinkSmart Core

#### ThinkSmart Controller

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<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 265.5 mm (10.5 inches)</li><li>• Height: 168.1 mm (6.6 inches)</li><li>• Depth: 13 mm (0.5 inches) , 83.3 mm (3.3 inches) with the stand</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 753.8 g (1.7 lb)

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## ThinkSmart Core

<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 226 mm (8.9 inches)</li><li>• Height: 37.5 mm (1.5 inches), 51.7 mm (2 inches) with the clamp unfolded</li><li>• Depth: 200 mm (7.9 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 1.1 kg (2.4 lb)
<b>Hardware configuration</b>	<ol style="list-style-type: none"><li>1. Right-click <b>Start</b> to open the Start context menu.</li><li>2. Click <b>Device Manager</b>.</li></ol>
<b>Power supply</b>	90-watt automatic voltage-sensing power supply
<b>Electrical input</b>	<ul style="list-style-type: none"><li>• Input voltage: From 100 V ac to 240 V ac</li><li>• Input frequency: 50/60 Hz</li></ul>
<b>Microprocessor</b>	To view the microprocessor information, right-click <b>Start</b> and then click <b>System</b> .
<b>Storage device</b>	M.2 solid-state drive
<b>Network features</b>	<ul style="list-style-type: none"><li>• Ethernet LAN</li><li>• Wireless LAN</li></ul>
<b>Operating system</b>	Windows 10 IoT Enterprise SAC 64 bit
<b>Preloaded Lenovo apps</b>	ThinkSmart Manager
<b>Preloaded 3rd party apps</b>	Microsoft Teams Rooms

## Operating environment

### Maximum altitude (without pressurization)

- Operating: From -15.2 m (-50 ft) to 3048 m (10 000 ft)
- Storage: From -15.2 m (-50 ft) to 10 668 m (35 000 ft)

### Temperature

- Operating: From 10°C (50°F) to 35°C (95°F)
- Storage in original shipping packaging: From -20°C (-4°F) to 60°C (140°F)
- Storage without packaging: From -10°C (14°F) to 60°C (140°F)

**Note:** If your product is stored or transported in temperatures less than 10°C (50°F), allow the product to rise slowly to an optimal operating temperature before use. This process might take up to two hours. Using the product in a lower operating temperature might result in irreparable damage to your product.

### Relative humidity

- Operating: 20%-80% (non-condensing)
- Storage: 20%–90% (non-condensing)



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## Appendix B. Important safety information

This chapter provides important safety information for your product.

**Note:** ThinkSmart Core is referred to as “Computer” in this chapter.

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### Safety notices

This information can help you safely use your computer. Follow and retain all information included with your computer. The information in this document does not alter the terms of your purchase agreement or the Limited Warranty. For more information, go to [https://www.lenovo.com/warranty/llw\\_02](https://www.lenovo.com/warranty/llw_02).

Customer safety is important. Our products are developed to be safe and effective. However, personal computers are electronic devices. Power cords, power adapters, and other features can create potential safety risks that can result in physical injury or property damage, especially if misused. To reduce these risks, follow the instructions included with your product, observe all warnings on the product and in the operating instructions, and review the information included in this document carefully. By carefully following the information contained in this document and provided with your product, you can help protect yourself from hazards and create a safer computer work environment. If the computer is used in a manner not specified by the manufacturer, the protection provided by the computer may be impaired.

**Note:** This information includes references to power adapters and batteries. In addition, some products (such as speakers and monitors) ship with external power adapters. If you have such a product, this information applies to your product. In addition, computer products contain a coin-sized internal battery that provides power to the system clock even when the computer is unplugged, so the battery safety information applies to all computer products.

---

### Conditions that require immediate action

**Products can become damaged due to misuse or neglect. Some product damage is serious enough that the product should not be used again until it has been inspected and, if necessary, repaired by an authorized servicer.**

**As with any electronic device, pay close attention to the product when it is turned on.**

**On very rare occasions, you might notice an odor or see a puff of smoke or sparks vent from your product. You might also hear sounds like popping, cracking, or hissing. These might merely mean that an internal electronic component has failed in a safe and controlled manner. Or, they might indicate a potential safety issue. Do not take risks or attempt to diagnose the situation yourself. Contact the Customer Support Center for further guidance. For a list of Service and Support phone numbers, see the following Web site:**

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

**Frequently inspect your computer and its components for damage, wear, or signs of danger. If you have any question about the condition of a component, do not use the product. Contact the Customer Support Center or the product manufacturer for instructions on how to inspect the product and have it repaired, if necessary.**

**In the unlikely event that you notice any of the following conditions, or if you have any safety concerns with your product, stop using the product and unplug it from the power source and telecommunication lines until you can speak to the Customer Support Center for further guidance.**

- Power cords, plugs, power adapters, extension cords, surge protectors, or power supplies that are cracked, broken, or damaged.
- Signs of overheating, smoke, sparks, or fire.
- Damage to a battery (such as cracks, dents, or creases), discharge from a battery, or a buildup of foreign substances on the battery.
- A cracking, hissing, or popping sound, or strong odor that comes from the product.
- Signs that liquid has been spilled or an object has fallen onto the computer product, the power cord, or power adapter.
- The computer product, power cord, or power adapter has been exposed to water.
- The product has been dropped or damaged in any way.
- The product does not operate normally when you follow the operating instructions.

**Note:** If you notice these conditions with a product (such as an extension cord) that is not manufactured for or by Lenovo, stop using that product until you can contact the product manufacturer for further instructions, or until you get a suitable replacement.

---

## Service and upgrades

Do not attempt to service a product yourself unless instructed to do so by the Customer Support Center or your documentation. Only use a Service Provider who is approved to repair your particular product.

**Note:** Some computer parts can be upgraded or replaced by the customer. Upgrades typically are referred to as options. Replacement parts approved for customer installation are referred to as Customer Replaceable Units, or CRUs. Lenovo provides documentation with instructions when it is appropriate for customers to install options or replace CRUs. You must closely follow all instructions when installing or replacing parts. The Off state of a power indicator does not necessarily mean that voltage levels inside a product are zero. Before you remove the covers from a product equipped with a power cord, always ensure that the power is turned off and that the product is unplugged from any power source. If you have any questions or concerns, contact the Customer Support Center.

Although there are no moving parts in your computer after the power cord has been disconnected, the following warnings are required for your safety.



Keep fingers and other parts of your body away from hazardous, moving parts. If you suffer an injury, seek medical care immediately.



Do not touch hot surface of hot components inside the computer. During operation, some components become hot enough to burn the skin. Before you open the computer cover, turn off the computer, disconnect power, and wait approximately 10 minutes for the components to cool.



After replacing a CRU, reinstall all protective covers, including the computer cover, before connecting power and operating the computer. This action is important to help prevent unexpected electrical shock and help ensure the containment of an unexpected fire that could happen under extremely rare conditions.



When replacing CRUs, be cautious of sharp edges or corners that might cause injury. If you suffer an injury, seek medical care immediately.

---

## Power cords and power adapters



### DANGER

**Use only the power cords and power adapters supplied by the product manufacturer.**

**The power cords shall be safety approved. For Germany, it shall be H03VV-F, 3G, 0.75 mm<sup>2</sup>, or better. For other countries, the suitable types shall be used accordingly.**

**Never wrap a power cord around a power adapter or other object. Doing so can stress the cord in ways that can cause the cord to fray, crack, or crimp. This can present a safety hazard.**

**Always route power cords so that they will not be walked on, tripped over, or pinched by objects.**

**Protect power cords and power adapters from liquids. For instance, do not leave your power cord or power adapter near sinks, tubs, toilets, or on floors that are cleaned with liquid cleansers. Liquids can cause a short circuit, particularly if the power cord or power adapter has been stressed by misuse. Liquids also can cause gradual corrosion of power cord terminals and/or the connector terminals on a power adapter, which can eventually result in overheating.**

**Ensure that all power cord connectors are securely and completely plugged into receptacles.**

**Do not use any power adapter that shows corrosion at the ac input pins or shows signs of overheating (such as deformed plastic) at the ac input pins or anywhere on the power adapter.**

**Do not use any power cords where the electrical contacts on either end show signs of corrosion or overheating or where the power cord appears to have been damaged in any way.**

**To prevent possible overheating, do not cover the power adapter with clothing or other objects when the power adapter is plugged into an electrical outlet.**

---

## Power cord notice

**Note:** The power cord and adapter provided with this product are intended to be used with this product only. Do not use them with any other products.

For your safety, Lenovo provides a power cord with a grounded attachment plug to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

Power cords provided by Lenovo in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 10 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 10 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

Power cords provided by Lenovo for a specific country or region are usually available only in that country or region.

For units intended to be operated in Germany: The power cords must be safety approved. For Germany, it must be H05VV-F, 3G, 0.75 mm<sup>2</sup>, or better. For other countries, the suitable types must be used accordingly.

For units intended to be operated in Denmark: Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

For units intended to be operated in Norway, Sweden, Finland: Use a cord set with a two-prong attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

If you intend to use your product in a country or region that is different from your ordering location, please purchase an additional Lenovo power cord for the country or region where the product will be used. Refer to the power cord guide provided in our Web site, <https://smartsupport.lenovo.com/>, for details. Some countries and regions support multiple voltages, so make sure you order the appropriate power cord for the intended voltage.

---

## Extension cords and related devices

Ensure that extension cords, surge protectors, uninterruptible power supplies, and power strips that you use are rated to handle the electrical requirements of the product. Never overload these devices. If power strips are used, the load should not exceed the power strip input rating. Consult an electrician for more information if you have questions about power loads, power requirements, and input ratings.

---

## Plugs and outlets



If a receptacle (power outlet) that you intend to use with your computer equipment appears to be damaged or corroded, do not use the outlet until it is replaced by a qualified electrician.

Do not bend or modify the plug. If the plug is damaged, contact the manufacturer to obtain a replacement.

Do not share an electrical outlet with other home or commercial appliances that draw large amounts of electricity; otherwise, unstable voltage might damage your computer, data, or attached devices.

Some products are equipped with a three-pronged plug. This plug fits only into a grounded electrical outlet. This is a safety feature. Do not defeat this safety feature by trying to insert it into a non-grounded outlet. If you cannot insert the plug into the outlet, contact an electrician for an approved outlet adapter or to replace the outlet with one that enables this safety feature. Never overload an electrical outlet. The overall system load should not exceed 80 percent of the branch circuit rating. Consult an electrician for more information if you have questions about power loads and branch circuit ratings.

Be sure that the power outlet you are using is properly wired, easily accessible, and located close to the equipment. Do not fully extend power cords in a way that will stress the cords.

Be sure that the power outlet provides the correct voltage and current for the product you are installing.

Carefully connect and disconnect the equipment from the electrical outlet.

---

## Power supply statement

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

---

## External devices

### CAUTION:

Do not connect or disconnect any external device cables other than Universal Serial Bus (USB) and 1394 cables while the computer power is on; otherwise, you might damage your computer. To avoid possible damage to attached devices, wait at least five seconds after the computer is shut down to disconnect external devices.

---

## Lithium coin-cell battery notice (for selected models)



**DANGER**

**Danger of explosion if battery is incorrectly replaced.**

**If the coin-cell battery is not a CRU, do not attempt to replace the coin-cell battery. Replacement of the battery must be done by a Lenovo-authorized repair facility or technician.**

**The Lenovo-authorized repair facilities or technicians recycle Lenovo batteries according to local laws and regulations.**



When replacing the lithium coin-cell battery, use only the same type or equivalent type that is recommended by the manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of. Swallowing the lithium coin-cell battery will cause choking or severe internal burns in just two hours and might even result in death.

Keep batteries away from children. If the lithium coin-cell battery is swallowed or placed inside any part of the body, seek medical care immediately.

### **Do not:**

- Throw or immerse into water
- Heat to more than 100 °C (212°F)
- Repair or disassemble
- Leave in an extremely low air pressure environment
- Leave in an extremely high-temperature environment
- Crush, puncture, cut, or incinerate

Dispose of the battery as required by local ordinances or regulations.

The following statement applies to users in the state of California, U.S.A.

California Perchlorate Information:

Products containing manganese dioxide lithium coin-cell batteries may contain perchlorate.

Perchlorate Material - special handling may apply, see <https://www.dtsc.ca.gov/hazardouswaste/perchlorate/>.

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## Heat and product ventilation



Computers, power adapters, and many accessories can generate heat when turned on and when batteries are charging. Always follow these basic precautions:

- Do not leave your computer, power adapter, or accessories in contact with your lap or any part of your body for an extended period when the products are functioning or when the battery is charging. Your

computer, power adapter, and many accessories produce some heat during normal operation. Extended contact with the body could cause discomfort or, potentially, a skin burn.

- Do not charge the battery or operate your computer, power adapter, or accessories near flammable materials or in explosive environments.
- Ventilation slots, fans, and heat sinks are provided with the product for safety, comfort, and reliable operation. These features might inadvertently become blocked by placing the product on a bed, sofa, carpet, or other flexible surface. Never block, cover, or disable these features.

Inspect your desktop computer for dust accumulation at least once every three months. Before inspecting your computer, turn off the power and unplug the computer's power cord from the electrical outlet; then remove any dust from vents and perforations in the bezel. If you notice external dust accumulation, then examine and remove dust from the inside of the computer including heat sink inlet fins, power supply vents, and fans. Always turn off and unplug the computer before opening the cover. If possible, avoid operating your computer within two feet of high-traffic areas. If you must operate your computer in or near a high-traffic area, inspect and, if necessary, clean your computer more frequently.

For your safety and to maintain optimum computer performance, always follow these basic precautions with your desktop computer:

- Keep the cover closed whenever the computer is plugged in.
- Regularly inspect the outside of the computer for dust accumulation.
- Remove dust from vents and any perforations in the bezel. More frequent cleanings might be required for computers in dusty or high-traffic areas.
- Do not restrict or block any ventilation openings.
- Do not store or operate your computer inside furniture, as this might increase the risk of overheating.
- Airflow temperatures into the computer should not exceed 35°C (95°F).
- Do not install air filtration devices. They may interfere with proper cooling.

---

## Electrical current safety information



**Electric current from power, telephone, and communication cables is hazardous.**

**To avoid a shock hazard:**

- **Do not use your computer during a lightning storm.**
- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect properly wired outlets to any equipment that will be attached to this product.**
- **Whenever possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, battery, and all the cables before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Do not use your computer until all internal parts enclosures are fastened into place. Never use the computer when internal parts and circuits are exposed.**

 **DANGER**

Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

**To connect:**

1. Turn everything OFF.
2. First, attach all cables to devices.
3. Attach signal cables to connectors.
4. Attach power cords to outlets.
5. Turn devices ON.

**To disconnect:**

1. Turn everything OFF.
2. First, remove power cords from outlets.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

The power cord must be disconnected from the wall outlet or receptacle before installing all other electrical cables connected to the computer.

The power cord may be reconnected to the wall outlet or receptacle only after all other electrical cables have been connected to the computer.

 **DANGER**

During electrical storms, do not perform any replacement and do not connect the telephone cable to or disconnect it from the telephone outlet on the wall.

---

## Liquid crystal display (LCD) notice

 **DANGER**

**To avoid shock hazards:**

- Do not remove the covers.
- Do not operate this product unless the stand is attached.
- Do not connect or disconnect this product during an electrical storm.
- The power cord plug must be connected to a properly wired and grounded power outlet.
- Any equipment to which this product will be attached must also be connected to properly wired and grounded power outlets.
- To isolate the monitor from the electrical supply, you must remove the plug from the power outlet. The power outlet should be easily accessible.

Handling:

- If your monitor weighs more than 18 kg (39.68 lb), we recommend that it be moved or lifted by two people.

Product disposal (TFT monitors):

- The fluorescent lamp in the liquid crystal display contains mercury; dispose according to local, state, or federal laws.



Battery warnings:

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.

---

## Use earphones, headphones, or a headset

- If your computer has both a headphone connector and an audio line-out connector, always use the headphone connector for earphones, headphones, or a headset. However, the headphone connector does not support the microphone of the headset.
- If your computer has both a headset connector and an audio line-out connector, always use the headset connector for earphones, headphones, or a headset.



Excessive sound pressure from earphones and headphones can cause hearing loss. Adjustment of the equalizer to maximum increases the earphone and headphone output voltage and the sound pressure level. Therefore, to protect your hearing, adjust the equalizer to an appropriate level.

Excessive use of headphones or earphones for a long period of time at high volume can be dangerous if the output of the headphone or earphone connectors do not comply with specifications of EN 50332-2. The headphone output connector of your computer complies with EN 50332-2 Sub clause 7. This specification limits the computer's maximum wide band true RMS output voltage to 150 mV. To help protect against hearing loss, ensure that the headphones or earphones you use also comply with EN 50332-2 (Clause 7 Limits) or a wide band characteristic voltage of 75 mV. Using headphones that do not comply with EN 50332-2 can be dangerous due to excessive sound pressure levels.

If your Lenovo computer came with headphones or earphones in the packaging, as a set, the combination of the headphones or earphones and the computer already complies with the specifications of EN 50332-1. If different headphones or earphones are used, ensure that they comply with EN 50332-1 (Clause 6.5 Limitation Values). Using headphones that do not comply with EN 50332-1 can be dangerous due to excessive sound pressure levels.

---

## Choking hazard notice



CHOKING HAZARD – Product contains small parts.

Keep away from children under three years.

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## Plastic bag notice



**Plastic bags can be dangerous. Keep plastic bags away from babies and children to avoid danger of suffocation.**

---

## Glass parts notice

### CAUTION:

Some parts of your product may be made of glass. This glass could break if the product is dropped on a hard surface or receives a substantial impact. If glass breaks, do not touch or attempt to remove it. Stop using your product until the glass is replaced by trained service personnel.

---

## Computer placement notices

Inappropriate computer placement might cause harm to children.

- Place the computer on a sturdy piece of low-rise furniture or furniture that has been anchored.
- Do not place the computer at the edge of the furniture.
- Keep the computer cables out of the reach of children.
- Some items, such as toys, might attract children. Keep such items away from the computer.

Supervise children in rooms where the above safety instructions cannot be fully implemented.

---

## Hazardous energy statement



**Disconnect all power cords from electrical outlets before removing the computer cover or any part that has the above label attached.**

DO NOT disassemble components that have the above label attached. There are no serviceable parts inside these components.

Your product is designed for safe use. However, hazardous voltage, current, and energy levels are present inside any component that has this label attached. Disassembling of these components might cause fire or might even result in death. If you suspect a problem with one of these parts, contact a service technician.

### CAUTION:



**Bright Light, possible skin or eye damage. Disconnect power before servicing.**

### CAUTION:



**Infrared Light, possible skin or eye damage. Disconnect power before servicing.**

---

## Tip-over hazard prevention notice

The computer may cause harm to children if it is not located in an appropriate place. Follow the tips below to protect children from harm caused by the computer tipping over:

- Place the computers or monitors on sturdy furniture with a low base or furniture that has been anchored. Push the computers or monitors as far from the edge of the furniture as possible.
- Keep remote controls, toys, and other items that might attract children away from the computers or monitors
- Keep the computer or monitor cables out of the reach of children.
- Supervise children in rooms where these safety tips have not been followed.

**CAUTION:**

**Some parts of your product may be made of glass. This glass could break if the product is dropped on a hard surface or receives a substantial impact. If glass breaks, do not touch it or attempt to remove it. Stop using your product until the glass is replaced by trained service personnel.**

---

## Static electricity prevention

Static electricity, although harmless to you, can seriously damage computer components and options. Improper handling of static-sensitive parts can damage the part. When you unpack an option or CRU, do not open the static-protective package containing the part until the instructions direct you to install it.

When you handle options or CRUs, or perform any work inside the computer, take the following precautions to avoid static-electricity damage:

- Limit your movement. Movement can cause static electricity to build up around you.
  - Always handle components carefully. Handle adapters, memory modules, and other circuit boards by the edges. Never touch exposed circuitry.
  - Prevent others from touching components.
  - When you install a static-sensitive option or CRU, touch the static-protective packaging containing the part to a metal expansion-slot cover or other unpainted metal surface on the computer for at least two seconds. This reduces static electricity in the package and your body.
  - When possible, remove the static-sensitive part from the static-protective packaging and install the part without setting it down. When this is not possible, place the static-protective packaging on a smooth, level surface and place the part on it.
  - Do not place the part on the computer cover or other metal surface.
- 

## Cleaning and maintenance

With appropriate care and maintenance, your computer will serve you reliably. The following topics offer information to help you keep your computer working with best performance.

### Basic maintenance tips

Here are some basic points about keeping your computer functioning properly:

- Keep the computer in a clean, dry environment. Ensure that the computer rests on a flat, steady surface.
- Do not cover any of air vents. These air vents provide airflow to keep the computer from overheating.
- Keep electrical appliances such as an electric fan, radio, high-powered speakers, air conditioner, and microwave oven away from your computer because the strong magnetic fields generated by these appliances can damage the monitor and data on the storage drive.
- Keep food and drinks away from all parts of the computer. Food particles and spills might make the keyboard and mouse stick and unusable.
- Do not get the power switches or other controls wet. Moisture can damage these parts and cause an electrical hazard.

- Always disconnect a power cord by grasping the plug instead of the cord.
- Keep the computer software, device drivers, and operating system up-to-date.
- Empty your recycle bin on a regular basis.
- Clean out your Inbox, Sent Items, and Deleted Items folders in your e-mail application on a regular basis.
- Clean up files and free up storage drive space and memory space occasionally to prevent performance problems.
- Keep a log book. Entries might include major software or hardware changes, device-driver updates, intermittent problems and what you did to resolve them, and other issues you might have experienced. The cause of a problem might be change in hardware, change in software, or any other actions that might have taken place. A log book can help you or a Lenovo technician determine the cause of a problem.
- Back up your data on the storage drive regularly. You can restore the storage drive from a backup.
- Create a recovery medium as early as possible. You can use the recovery medium to recover your operating system even if Windows fails to start up.
- Get the most up-to-date operating system update patches, software programs, and device drivers.

### **Maintenance tips about moving the computer**

Before moving the computer, take the following precautions:

1. Back up your data on the storage drive.
2. Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
3. If you saved the original shipping cartons and packing materials, use them to pack the units. If you are using different cartons, cushion the units to avoid damage.

When you move the computer to another country or region, you must take local electrical standards into consideration. If the local electrical outlet style is different from the type you are currently using, contact the Lenovo Customer Support Center to purchase either an electrical plug adapter or a new power cord.

### **Clean your computer**

#### **CAUTION:**

**Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.**

It is a good practice to clean your computer periodically to protect the surfaces and ensure trouble-free operation.

**Clean the computer surface:** Wipe it with a lint-free cloth dampened in mild soap and water. Avoid applying liquids directly to the surface.

**Clean the keyboard:** Wipe the keys one by one with a lint-free cloth dampened in mild soap and water. If you wipe several keys at a time, the cloth might hook onto an adjacent key and possibly damage it. Avoid spraying cleaner directly onto the keyboard. To remove any crumbs or dust from beneath the keys, you can use a camera blower with a brush or use cool air from a hair dryer.

**Clean the computer screen:** Scratches, oil, dust, chemicals, and ultraviolet light can affect the performance of your computer screen. Use a dry, soft lint-free cloth to wipe the screen gently. If you see a scratchlike mark on your screen, it might be a stain. Wipe or dust the stain gently with a soft, dry cloth. If the stain remains, moisten a soft, lint-free cloth with water or eyeglass cleaner, but do not apply liquids directly to your computer screen. Ensure that the computer screen is dry before closing it.

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## Appendix C. Compliance information

This chapter provides radio frequency compliance statements, electromagnetic emission notices and environmental information about Lenovo products.

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### Certification-related information

**Product name:** ThinkSmart Core series

**Machine types:** 11LQ, 11LR, 11LS, 11LT, 11S2, 11S3, 11S4, 11S5, 11RV, 11RW, 11RX, 11RY, 11S0, 11S1, and 11S6

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

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### Radio frequency compliance statements

Computer models equipped with wireless communications comply with the radio frequency and safety standards of any country or region in which it has been approved for wireless use.

Besides this document, ensure that you read the *Regulatory Notice* for your country or region before using the wireless devices contained in your computer. The *Regulatory Notice* contains specific regulatory information about these wireless devices. To access the latest *Regulatory Notice*, go to <https://support.lenovo.com>.

### European Union (EU) / United Kingdom (UK) – Radio Equipment Compliance



EU Contact: Lenovo (Slovakia), Landererova 12, 811 09 Bratislava, Slovakia



UK contact: Lenovo, Redwood, Crockford Lane, Basingstoke, RG24 8WQ, UK.

This product is in conformity with all the requirements and essential norms that apply to EU Council Radio Equipment Directive 2014/53/EU on the approximation of the laws of the Member States, as well as the UK Radio Equipment Regulations SI 2017 No. 1206, relating to radio equipment.

The full text of the system EU declaration of conformity is available at:  
<https://www.lenovo.com/us/en/compliance/eu-doc>

The full text of the system UK declaration of conformity is available at:  
<https://www.lenovo.com/us/en/compliance/uk-doc>

Lenovo cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the installation of option cards from other manufacturers. This product has been tested and found to comply with the limits for Class B equipment according to European and UK compliance standards. The limits for Class B equipment were derived for

typical residential environments to provide reasonable protection against interference with certified communication devices.

## Brazil

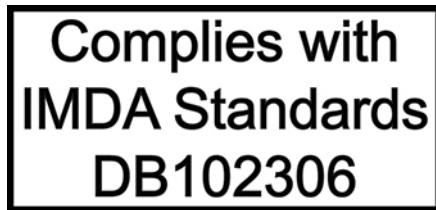
Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

This equipment is not protected against harmful interference and may not cause interference with duly authorized systems.

## Mexico

**Advertencia:** En Mexico la operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

## Singapore



## Korea

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

해당 무선설비가 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없음

### SAR 정보

본 장치는 전파 노출에 대한 가이드라인을 충족합니다.

본 장치는 무선 송수신기입니다. 본 장치는 국제 가이드라인으로 권장되는 전파 노출에 대한 제한을 초과하지 않도록 설계되었습니다. 장치 액세서리 및 최신 부품을 사용할 경우 SAR 값이 달라질 수 있습니다. SAR 값은 국가 보고 및 테스트 요구 사항과 네트워크 대역에 따라 다를 수 있습니다. 본 장치는 사람의 신체에서 20mm 이상의 거리에서 사용할 수 있습니다.

---

## Electromagnetic emission notices

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

#### Notes:

- The statements below regarding FCC are only valid for products that are shipping to the United States.
- Refer to the product label information to identify the specific model name and number of your product.

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



## **Industry Canada compliance statement**

CAN ICES-003(B)/NMB-003(B)

## **European Union (EU) / United Kingdom (UK) – Electromagnetic Compatibility Compliance**

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU on the approximation of the laws of the Member States, as well as UK SI 2016 No. 1091 with amendments, relating to the electromagnetic compatibility limits for Class B equipment. These Class B requirements are intended to offer adequate protection to broadcast services within residential environments.

## **German Class B compliance statement**

*Hinweis zur Einhaltung der Klasse B zur elektromagnetischen Verträglichkeit*

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie zur elektromagnetischen Verträglichkeit Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der Klasse B der Norm gemäß Richtlinie.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der Lenovo empfohlene Kabel angeschlossen werden. Lenovo übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der Lenovo verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der Lenovo gesteckt/eingebaut werden.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln, EMVG vom 20. Juli 2007 (früher Gesetz über die elektromagnetische Verträglichkeit von Geräten), bzw. der EU Richtlinie 2014/30/EU, der EU Richtlinie 2014/53/EU Artikel 3.1b), für Geräte der Klasse B.

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraf 5 des EMVG ist die Lenovo (Deutschland) GmbH, Meitnerstr. 9, D-70563 Stuttgart.

## Japan VCCI Class B compliance statement

この装置は、クラスB機器です。この装置は、住宅環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。  
取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

## Japan compliance statement for products which connect to the power mains with rated current less than or equal to 20 A per phase

日本の定格電流が 20A/相 以下の機器に対する高調波電流規制  
高調波電流規格 JIS C 61000-3-2 適合品

## Japan notice for ac power cord

The ac power cord shipped with your product can be used only for this specific product. Do not use the ac power cord for other devices.

本製品およびオプションに電源コード・セットが付属する場合は、それぞれ専用のものになっていますので他の電気機器には使用しないでください。

## Korea Communications Commission (KCC) statement

A 급 기기 사용자 안내문(업무용 방송통신기자재)<sup>ㄹ</sup>  
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은  
기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가  
있습니다<sup>ㄹ</sup>

This is electromagnetic wave compatibility equipment for business (Type A). Sellers and users need to pay attention to it. This is for any areas other than home.

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## Environmental information

This section provides environmental, recycling, and RoHS information of countries and regions about Lenovo products.

## Recycling and environmental information

Lenovo encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information about recycling Lenovo products, go to:

<https://www.lenovo.com/recycling>



The latest environmental information about our products is available at:

<https://www.lenovo.com/ecodeclaration>

## Important battery recycling and WEEE information

Take back and recycling information for WEEE and batteries/accumulators in the European Union and the United Kingdom



The crossed-out wheeled bin marking applies only to countries with WEEE and batteries waste regulations including the European Union (EU), and United Kingdom (UK).

Appliances and batteries/accumulators are labeled in accordance with local regulations concerning waste electrical and electronic equipment (WEEE) and waste batteries and waste accumulators. These regulations determine the framework for the return and recycling of used appliances and used batteries/accumulators as applicable within each geography. This label is applied to various products to indicate that the product is not to be thrown away, but rather put in the established collection systems for reclaiming these end of life products.

The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury, and Cd for cadmium).

Users of electrical and electronic equipment (EEE) and users of batteries/accumulators with the crossed-out wheeled bin marking must not dispose of end of life products as unsorted municipal waste, but use the collection framework available to them for the return, recycle, and recovery of WEEE and waste batteries/accumulators and to minimize any potential effects of EEE and batteries on the environment and human health due to the presence of hazardous substances.

Lenovo electrical and electronic equipment (EEE) may contain parts and components, which at end-of-life might qualify as hazardous waste.

EEE and waste electrical and electronic equipment (WEEE) can be delivered free of charge to the place of sale or any distributor that sells electrical and electronic equipment of the same nature and function as the used EEE or WEEE.

Before placing electrical and electronic equipment (EEE) in the waste collection stream or in waste collection facilities, the end user of equipment containing batteries and/or accumulators must remove those batteries and accumulators for separate collection.

Dispose of lithium batteries and battery packs from Lenovo products:

A coin-cell type lithium battery might be installed inside your Lenovo product. You can find details about the battery in the product documentation. If the battery needs to be replaced, contact your place of purchase or contact Lenovo for service. If you need to dispose of a lithium battery, insulate it with vinyl tape, contact your place of purchase or a waste-disposal operator, and follow their instructions.

Your Lenovo device might contain a lithium-ion battery pack or a nickel metal hydride battery pack. You can find details on the battery pack in the product documentation. If you need to dispose of a battery pack, insulate it with vinyl tape, contact Lenovo sales, service, or your place of purchase, or a waste-disposal operator, and follow their instructions. You also can refer to the instructions provided in the user guide for your product.

For proper collection and treatment, go to:

<https://www.lenovo.com/environment>

For additional WEEE information, go to:

<https://www.lenovo.com/recycling>

### **WEEE information for Hungary**

Lenovo, as a producer, bears the cost incurred in connection with the fulfillment of Lenovo's obligations under Hungary Law No. 197/2014 (VIII.1.) subsections (1)-(5) of section 12.

## **EU ErP (EcoDesign) Directive (2009/125/EC) - external power adapters (Regulation (EU) 2019/1782), Ecodesign for Energy-Related Products Regulations 2010 - UK SI 2010 No. 2617 (Ext PSU), SI 2020 No. 485 (Ntwk Standby), SI 2014 No. 1290 as amended**

Lenovo products are compliant with the EU EcoDesign (ErP) Directive and UK EcoDesign for Energy-related Products Regulations. Refer to the following for details. For EU, refer to the system declaration <https://www.lenovo.com/us/en/compliance/eu-doc>, and for UK refer to the system declaration <https://www.lenovo.com/us/en/compliance/uk-doc>.

## **Japan recycling statements**

### **Collect and recycle a disused Lenovo computer or monitor**

If you are a company employee and need to dispose of a Lenovo computer or monitor that is the property of the company, you must do so in accordance with the Law for Promotion of Effective Utilization of Resources. Computers and monitors are categorized as industrial waste and should be properly disposed of by an industrial waste disposal contractor certified by a local government. In accordance with the Law for Promotion of Effective Utilization of Resources, Lenovo Japan provides, through its PC Collecting and Recycling Services, for the collecting, reuse, and recycling of disused computers and monitors. For details, visit the Lenovo Web site at:

[https://www.lenovo.com/us/en/social\\_responsibility/sustainability/ptb\\_japan](https://www.lenovo.com/us/en/social_responsibility/sustainability/ptb_japan)

Pursuant to the Law for Promotion of Effective Utilization of Resources, the collecting and recycling of home-used computers and monitors by the manufacturer was begun on October 1, 2003. This service is provided free of charge for home-used computers sold after October 1, 2003. For details, go to:

[https://www.lenovo.com/us/en/social\\_responsibility/sustainability/ptb\\_japan](https://www.lenovo.com/us/en/social_responsibility/sustainability/ptb_japan)

### **Dispose of Lenovo computer components**

Some Lenovo computer products sold in Japan may have components that contain heavy metals or other environmental sensitive substances. To properly dispose of disused components, such as a printed circuit board or drive, use the methods described above for collecting and recycling a disused computer or monitor.

### **Dispose of disused lithium batteries from Lenovo computers**

A button-shaped lithium battery is installed inside your Lenovo computer to provide power to the computer clock while the computer is off or disconnected from the main power source. If you need to replace it with a new one, contact your place of purchase or contact Lenovo for service. If you need to dispose of a disused lithium battery, insulate it with vinyl tape, contact your place of purchase or an industrial-waste-disposal operator, and follow their instructions.

Disposal of a lithium battery must comply with local ordinances and regulations.

## Recycling information for Brazil

*Declarações de Reciclagem no Brasil*

*Descarte de um Produto Lenovo Fora de Uso*

Equipamentos elétricos e eletrônicos não devem ser descartados em lixo comum, mas enviados à pontos de coleta, autorizados pelo fabricante do produto para que sejam encaminhados e processados por empresas especializadas no manuseio de resíduos industriais, devidamente certificadas pelos órgãos ambientais, de acordo com a legislação local.

A Lenovo possui um canal específico para auxiliá-lo no descarte desses produtos. Caso você possua um produto Lenovo em situação de descarte, ligue para o nosso SAC ou encaminhe um e-mail para: [reciclar@lenovo.com](mailto:reciclar@lenovo.com), informando o modelo, número de série e cidade, a fim de enviarmos as instruções para o correto descarte do seu produto Lenovo.

## Recycling information for mainland China

《废弃电器电子产品回收处理管理条例》提示性说明

联想鼓励拥有联想品牌产品的用户当不再需要此类产品时，遵守国家废弃电器电子产品回收处理相关法律法规，将其交给当地具有国家认可的回收处理资质的厂商进行回收处理。更多回收服务信息，请点击进入<http://support.lenovo.com.cn/activity/551.htm>

## Restriction of Hazardous Substances (RoHS) Directive of countries and regions

The latest environmental information about Lenovo products is available at:  
<https://www.lenovo.com/us/en/compliance/eco-declaration>

### European Union (EU) / United Kingdom (UK) RoHS

This Lenovo product, with included parts (cables, cords, and so on) meets the requirements of EU Directive 2011/65/EU (as amended by Directive 2015/863/EU) and UK SI 2012 No. 3032 on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("RoHS recast" or "RoHS 2").

For more information about Lenovo worldwide compliance on RoHS, go to:

<https://www.lenovo.com/rohs-communication>

### Turkish WEEE / RoHS

#### Turkish WEEE/RoHS

#### Türkiye AEEE yönetmeliğine Uygunluk Beyanı

Bu Lenovo ürünü, T.C. Çevre ve Şehircilik Bakanlığı'nın "Atık Elektrikli ve Elektronik Eşyaların Kontrolü Yönetmeliğine (AEEE)" uygundur.

AEEE yönetmeliğine Uygundur.

## Ukraine RoHS

Цим підтверджуємо, що продукція Леново відповідає вимогам нормативних актів України, які обмежують вміст небезпечних речовин

## India RoHS

RoHS compliant as per E-Waste (Management) Rules.

## Mainland China RoHS

### 产品中有害物质的名称及含量

部件名称	有害物质					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
印刷电路板组件*	X	O	O	O	O	O
硬盘	X	O	O	O	O	O
光驱	X	O	O	O	O	O
内存	X	O	O	O	O	O
电脑I/O 附件	X	O	O	O	O	O
电源	X	O	O	O	O	O
键盘	X	O	O	O	O	O
鼠标	X	O	O	O	O	O
机箱/ 附件	X	O	O	O	O	O
液晶面板	X	O	O	O	O	O
电池	X	O	O	O	O	O

本表格依据 SJ/T 11364 的规定编制。  
O：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。  
X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。  
注：表中标记“X”的部件，皆因全球技术发展水平限制而无法实现有害物质的替代。  
印刷电路板组件\*：包括印刷电路板及其零部件、电容和连接器。  
根据型号的不同，可能不会含有以上的所有部件，请以实际购买机型为准。



在中华人民共和国境内销售的电子信息产品必须标识此标志，标志内的数字代表在正常使用状态下的产品的环保使用期限。

### 中国大陆 RoHS 合格评定制度标识

依照《电器电子产品有害物质限制使用合格评定制度实施安排》，《绿色产品标识使用管理办法》以及市场监管总局关于明确电器电子产品有害物质限制使用合格评定制度“供方符合性标志”的公告中对于合格评定标识的相关要求，联想公司针对纳入《电器电子产品有害物质限制使用达标管理目录》内的产品，使用自我声明的合格评定方式，并使用如下合格评定标识：



## Taiwan RoHS

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr <sup>+6</sup> )	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
印刷電路板 及電子組件	-	○	○	○	○	○
外殼	-	○	○	○	○	○
鏡頭	-	○	○	○	○	○
網線	-	○	○	○	○	○
托架	-	○	○	○	○	○

備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。  
備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。  
備考 3. “-” 係指該項限用物質為排除項目。

## Battery recycling information for Taiwan



廢電池請回收

## Other compliance information

This section provides other compliance information of countries and regions about Lenovo products.

## Export classification notice

This product is subject to the United States Export Administration Regulations (EAR) and has an Export Classification Control Number (ECCN) of 5A992.c. It can be re-exported except to any of the embargoed countries in the EAR E1 country list.

## Lenovo product service information for Taiwan

委製商/進口商名稱: 荷蘭商聯想股份有限公司台灣分公司  
進口商地址: 臺北市中山區樂群三路128號16樓  
進口商電話: 0800-000-702 (代表號)

## Taiwan precautionary vision statement

警語：使用過度恐傷害視力

注意事項：

- 使用30分鐘請休息10分鐘。
- 未滿2歲幼兒不看螢幕，2歲以上每天看螢幕不要超過1小時。

## Supplemental information for the Eurasian Union (for selected models)

<b>Назначение</b>	персональный компьютер для личного и служебного использования, для передачи данных, с поддержкой различных профилей подключения (Wi-Fi, Bluetooth и пр.).
<b>Изготовитель</b>	Леново ПЦ ХК Лимитед, 23/Ф Линколн Хаус, Тайку Плэйс 979 Кингз Роуд, Куарри Бэй, Гонконг (Lenovo PC HK Limited, 23/F Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong)
<b>Страна производства</b>	Китай
<b>Наименование и местонахождение уполномоченного изготовителем лица</b>	ООО «Леново (Восточная Европа/Азия)» 143401, Московская область, г. Красногорск, бульвар Строителей, дом 4, корпус 1, помещение VII, тел. +7 495 645 83 38, факс +7 495 645 78 77.
<b>Импортер</b>	Наименование, адрес импортера и информация для связи с ним указаны на этикетке* на упаковке продукции.  <i>*Согласно ГОСТ 2.601-2013 «Единая система конструкторской документации. Эксплуатационные документы», пункт 5.1, подпункт 5.1.2, этикетка является видом эксплуатационных документов.</i>
<b>Дата изготовления (месяц и год)</b>	Указана на этикетке* на упаковке продукции, в графе Date (дата указана в формате год-месяц-дата). Для получения более подробной информации посетите веб-сайт: <a href="https://support.lenovo.com">https://support.lenovo.com</a>
<b>Единый знак обращения на рынке стран Таможенного союза</b>	

## Brazil audio notice

Ouvir sons com mais de 85 decibéis por longos períodos pode provocar danos ao sistema auditivo.

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## Appendix D. Accessibility information

Lenovo is committed to providing users who have hearing, vision, and mobility limitations with greater access to information and technology. You can get the most up-to-date accessibility information from <https://www.lenovo.com/accessibility>.

If you need additional support with the accessibility features, go to <https://pcsupport.lenovo.com/supportphonenumberlist> to find the support phone numbers for your country or region.





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## Appendix E. Notices and trademarks

### Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

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*Lenovo (United States), Inc.  
8001 Development Drive  
Morrisville, NC 27560  
U.S.A.  
Attention: Lenovo Director of Licensing*

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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<https://smartsupport.lenovo.com/>

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