

IdeaCentre AIO User Guide

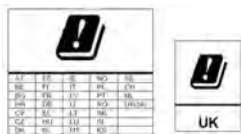
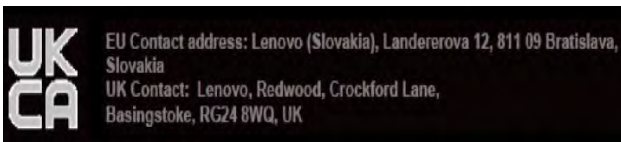


Lenovo

Read this first

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

- *Safety and Warranty Guide*
- *Generic Safety and Compliance Notices*
- *Setup Guide*



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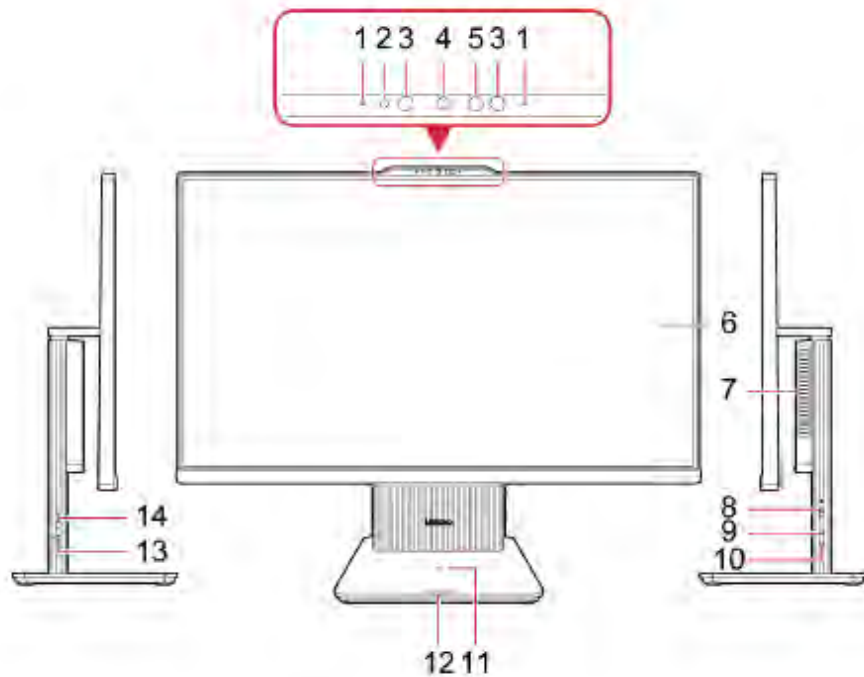
About this documentation

- Depending on the model, some optional accessories, features, and software programs might not be available on your computer.
- Depending on the version of the operating systems and programs, some user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. Lenovo makes constant improvements to the documentation of your computer, including this *User Guide*. To get the latest documentation, go to: <https://pcsupport.lenovo.com>
- Microsoft® makes periodic feature changes to the Windows® operating system through Windows Update. As a result, some information in this documentation might become outdated. Refer to Microsoft resources for the latest information.
- This guide applies to the Lenovo product models listed below. Illustrations in this guide may look slightly different from your product model.

Model name	Machine types (MT)
IdeaCentre AIO 24IRH9	F0HN
IdeaCentre AIO 27IRH9	F0HM
ThinkCentre neo 50a 24 Gen 5	12SC, 12SD

Chapter 1. Meet your computer

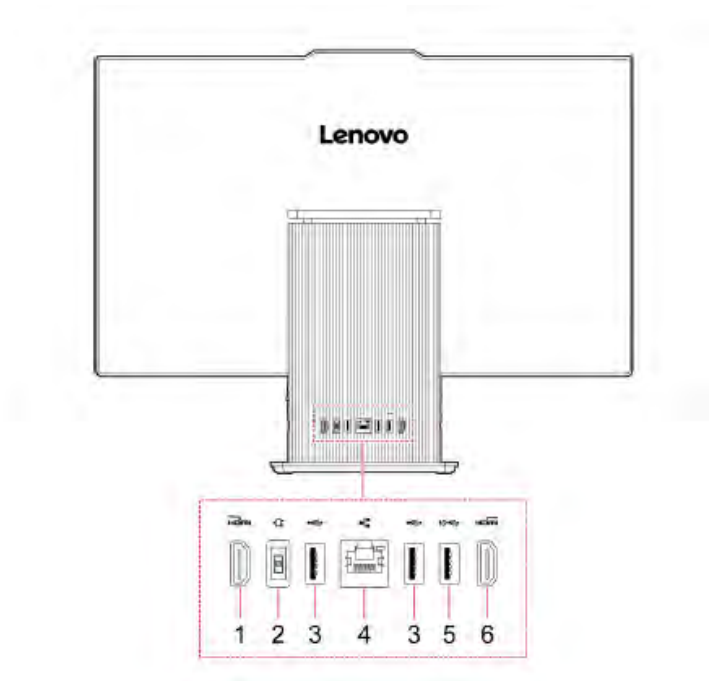
Overview



1. Microphones	2. Integrated camera activity light
3. Infrared LED	4. Camera
5. Infrared Camera	6. Touch Screen
7. Air Exhaust Port	8. Camera Switch Bottom
9. Power Switch Light	10. Power Bottom
11. QI Charging platform	12. QI Charging Light
13. Audio Jack Port	14. USB-C® (3.2 Gen 2) Port

Rear

IdeaCentre AIO 24IRH9, IdeaCentre AIO 27IRH9, ThinkCentre neo 50a 24 Gen 5



1. HDMI out connector	2. Power connector
3. USB 2.0 connector	4. Ethernet connector
5. USB 3.2 Gen 2 connectors	6. HDMI 2.1 TMDS out connector

Related topics

- “Connect an external display” on page 9.
- “USB specifications” on page 4.





Features and specifications






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

Hardware configuration	<ol style="list-style-type: none">1. Right-click the Start button to open the Start context menu.2. Click Device Manager. Type the administrator password or provide confirmation if prompted.
Power supply	<ul style="list-style-type: none">• IdeaCentre AIO 24IRH9/IdeaCentre AIO 27IRH9/ThinkCentre neo 50a 24 Gen 5: 90 watt automatic voltage-sensing power supply• IdeaCentre AIO 24IRH9/IdeaCentre AIO 27IRH9/ThinkCentre neo 50a 24 Gen 5: 135 watt automatic voltage-sensing power supply
Adaptability for power supply	<ul style="list-style-type: none">• Mainland China: 220 V\pm22 V, 50 Hz\pm1 Hz• Adaptive voltage positioning: 90 V to 264 V, 50/60 Hz• With voltage selection switch: 90 V to 264 V, 50 Hz\pm1 Hz
Microprocessor	To view the microprocessor information of your computer, right-click the Start button and then click System .
Memory	Double data rate 5 (DDR5) Small outline dual in-line memory module (SODIMM)
	<ul style="list-style-type: none">• M.2 solid-state drive
Storage device	<p>To view the storage drive capacity of your computer, right-click the Start button to open the Start context menu and then click Disk Management.</p> <p>Note: The storage drive capacity indicated by the system is less than the nominal capacity.</p>
	<ul style="list-style-type: none">• M.2 solid-state drive slot
Expansion	

USB specifications

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

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

 <ul style="list-style-type: none"> •  USB-C (3.2 Gen 1) connector •  USB-C (3.2 Gen 2) connector •  Thunderbolt 3 connector (USB-C) •  Thunderbolt 4 connector (USB-C) 	<ul style="list-style-type: none"> • Charge USB-C compatible devices with the output voltage and current of 5 V and 3 A. • Connect to an external display: <ul style="list-style-type: none"> – USB-C to VGA: 1900 x 1200 pixels, 60 Hz – USB-C to DP: 3840 x 2160 pixels, 60 Hz • Connect to USB-C accessories to help expand your computer functionality. To purchase USB-C accessories, go to https://www.lenovo.com/accessories.
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Statement on USB transfer rate

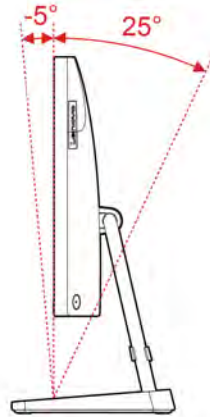
Depending on many factors such as the processing capability of the host and peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and will be slower than the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

USB device	Data rate (Gbit/s)
3.2 Gen 1 / 3.1 Gen 1	5
3.2 Gen 2 / 3.1 Gen 2	10
3.2 Gen 2 × 2	20
Thunderbolt 3 (USB-C)	40
Thunderbolt 4 (USB-C)	40

Chapter 2. Get started with your computer

Adjust the computer stand (for selected models)

For full-function monitor stand



Use the touch screen (for selected models)

Note: Some gestures might not be applicable when you use certain apps.



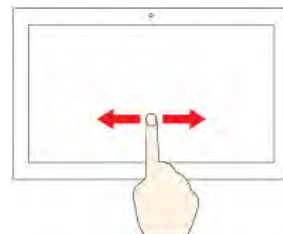
Tap once to single click



Tap twice quickly to double-click



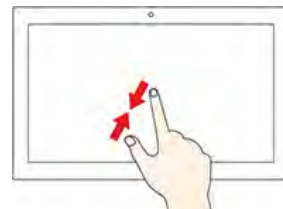
Tap and hold to right-click



Slide to scroll through items



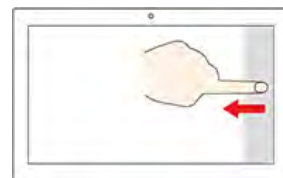
Zoom in



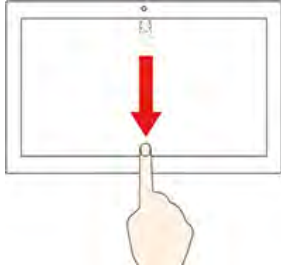
Zoom out



Swipe from the left to view all open windows



Swipe from the right to open the action center



Swipe downwards shortly to show title bar
Swipe downwards to close the current app



Drag

Maintenance tips



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

Connect an external display

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

Connect a wireless display

Ensure that both your computer and the wireless display support Miracast®.

Press  +  and then select a wireless display to connect.

Change display settings

Right-click a blank area on the desktop and select **Display settings**. Then, you can change display settings as you prefer.

Chapter 3. Explore your computer

Lenovo Vantage



The preinstalled Lenovo Vantage is a customized one-stop solution to help you maintain your computer with automated updates and fixes, configure hardware settings, and get personalized support.

Access Lenovo Vantage

Open the **Start** menu and click **Lenovo Vantage**. You also can type **Lenovo Vantage** in the search box.

To download the latest version of Lenovo Vantage, go to Microsoft Store and search by the app name.

Key features

Lenovo Vantage enables you to:

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

Notes:

- The available features vary depending on the computer model.
- Lenovo Vantage makes periodic updates of the features to keep improving your experience with your computer. The description of features might be different from that on your actual user interface.

Color sensor (for selected models)

The color sensor enables you to measure and adjust the color accuracy of your computer display. Therefore, a color image or graphic is rendered as close as possible to its original intent. The color profile for your computer display is preinstalled on your computer. If you want to install a different color profile, go to:

<https://pcsupport.lenovo.com>

To use the color sensor, open the **Start** menu, click **X-Rite → PANTONE Color Calibrator**, and then follow the on-screen instructions.

When the color sensor is in use, the color-sensor indicator on the computer outer lid blinks twice at regular intervals. When the color measuring and adjustment finishes, the color-sensor indicator stays on.

After you use the color sensor for the first time, a calibration profile `ECCM2SensorData.dat` is generated. Back up this calibration profile on an external storage device in case that both the color sensor and the internal storage device are replaced.

To locate the DAT file, go to **This PC → Documents → X-Rite**.

The display provides a color profile that can work with the Microsoft Image Color Management (ICM) function. If the graphics software you are using is compatible with ICM, you can display a color image on your monitor and match it with the same quality one on another device, such as a scanner or a printer.

For more information about the Microsoft ICM, see the Windows help information.

Night light

Blue light is the high-energy visible light in the light spectrum. Excessive exposure to blue light might damage your vision. Night light is a feature that reduces the blue light emitted from computer screens. When the night light is on, your computer display shows warmer colors that help you reduce eye strain and fall asleep. For more information about low blue light and instructions, go to <https://www.lenovo.com/us/en/blue-light/>.

Note: Selected Lenovo computers are low blue-light certified. These computers are tested with night light turned on and color temperature set to the default value of 48.

To turn on or turn off the night light:

- Type Night light in the search box. Click **Night light**. Then, follow the on-screen instructions.
- Open the **Start** menu. Click **Settings → System → Display**. Then, turn on or turn off the **Night light** switch.

Set the power plan

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

- turn off the display: After 10 minutes
- put the computer to sleep: After 25 minutes

To awaken the computer from Sleep mode, press any key on your keyboard.

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

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **Power Options**, and then choose or customize a power plan of your preference.

Purchase accessories

Lenovo has a number of hardware accessories and upgrades to help expand the capabilities of your computer. Options include memory modules, storage devices, network cards, power adapters, keyboards, mice, and more.

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

Chapter 4. Troubleshooting, diagnostics, and recovery

This chapter provides solutions to resolve computer problems. Use the basic procedure as a starting point for resolving computer problems.

Basic procedure for resolving computer problems

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, 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. Use an antivirus program (if any) to see if the computer has been infected by a virus. If the program detects a virus, remove the virus.
3. See Chapter 4 “Troubleshooting, diagnostics, and recovery” on page 15 to resolve the problem you are experiencing, run the diagnostic program, and recover your operating system.
4. If the problem persists, contact Lenovo. See Chapter 6 “Help and support” on page 29.

Troubleshooting

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

Startup problems

Problem	Solution
The computer does not start up when you press the power button.	<ul style="list-style-type: none">• Ensure that the power cord is correctly connected to the rear of the computer and to a working electrical outlet.• If the computer has a secondary power switch on the rear of the computer, ensure that it is switched on.• The power indicator on the front of the computer is on.• The computer voltage matches the voltage available at the electrical outlet for your country or region.
The operating system does not start up from the correct storage drive or fails to start up	<ul style="list-style-type: none">• Ensure that all storage drive signal cables and power cables are connected correctly.• Ensure that the storage drive the computer starts up from is listed as the first startup device in UEFI BIOS.• 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.• If the computer is installed with an Optane memory:<ul style="list-style-type: none">– Ensure that the Optane memory is not removed.– Ensure that the Optane memory is not damaged. Check the Optane memory using diagnostic tools.
The computer beeps multiple times before the operating system starts up.	Ensure that no keys are stuck.

Screen problems

Problem	Solution
The screen goes blank while the computer is on.	<ul style="list-style-type: none">• The computer voltage matches the voltage available at the electrical outlet for your country or region.• Press a key to exit the screen saver.• Press the power button to wake the computer from sleep or hibernation mode.• The brightness and contrast is set correctly.• If the screen goes blank when some programs start, install the device drivers for the programs. Refer to the documentation for the affected program to check whether any device drivers are required.
The image appears to be flickering.	<ul style="list-style-type: none">• The screen might be affected by interference from nearby equipment. Magnetic fields around other devices, such as transformers, appliances, fluorescent lights, and other monitors, 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 the computer. Then, adjust the placement of the computer and other devices so that they are at least 305 mm (12 inches) apart. Turn on the computer.• Reset the refresh rate.<ol style="list-style-type: none">1. Right-click a blank area on the desktop.2. Click Display settings. On the Display tab, click Advanced display settings → Display adapter properties for Display 1.3. Click the Monitor tab, and then reset the refresh rate to be the highest and noninterlaced.
The image is discolored.	<ul style="list-style-type: none">• The 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.• Turn off the computer. Then, adjust the placement of the computer and other devices so that they are at least 305 mm (12 inches) apart. Turn on the computer.

Audio problems

Problem	Solution
The audio cannot be heard on the Windows® operating system.	<ul style="list-style-type: none"> • If you are using powered external speakers that have an On/Off control, ensure that: <ul style="list-style-type: none"> – The On/Off control is set to the On position. – The speaker power cable is connected to a properly grounded, functional ac electrical outlet. • If your external speakers have a volume control, ensure that the volume is not set too low. • Click the volume icon in the Windows notification area on the taskbar. Check the speaker and volume settings. Do not mute the speaker or set the volume at a very low level. • If your computer has a front audio panel, ensure that the volume is not set too low. • Ensure that your external speakers (and headphones, if used) are connected to the correct audio connector on the computer. Most speaker cables are color-coded to match the audio connector. <p>Note: When external-speaker or headphone cables are connected to the audio connector, the internal speaker, if present, is disabled. In most cases, if an audio adapter is installed in one of the expansion slots, the audio function built into the system board is disabled. Therefore, you must use the audio connectors on the audio adapter.</p> <ul style="list-style-type: none"> • Ensure that the program you are running is designed for use in the Microsoft Windows operating system. If the program is designed to run in DOS, the program does not use the Windows sound feature. The program must be configured to use SoundBlaster Pro or SoundBlaster emulation. • Ensure that the audio device drivers are correctly installed.
The sound does not come from the headset or headphones.	Select the headset or headphones as the default audio output device in advanced sound settings.
The sound comes from one of the external speakers.	<ul style="list-style-type: none"> • Ensure that the speaker cable is inserted completely into the connector on the computer. • Ensure that the cable that connects the left speaker to the right speaker is securely connected. • Ensure that the balance settings are set correctly. <ol style="list-style-type: none"> 1. Right-click the volume icon in the Windows notification area on the taskbar. Then, click Open Volume Mixer and select the desired speaker. 2. Click the speaker icon on top of the volume control, and then click the Levels tab.

Performance problems

Problem	Solution
Excessive fragmented files exist on the storage drives.	<p>Note: Depending on the volume of the storage drives and amount of data stored on the storage drives, the disk-defragmentation process might take up to several hours.</p> <ol style="list-style-type: none">1. Close any open programs and windows.2. Open the Start menu.3. Click Windows System → File Explorer → This PC.4. Right-click your C drive and then click Properties.5. Click the Tools tab.6. Click Optimize. Select the drive as desired, and then click Optimize.7. Follow the on-screen instructions.
The free storage drive space is insufficient.	<ul style="list-style-type: none">• Clean out your Inbox, Sent Items, and Deleted Items folders from your e-mail application.• Clean up your C drive.<ol style="list-style-type: none">1. Open the Start menu.2. Click Windows System → File Explorer → This PC.3. Right-click your C drive and then click Properties.4. Check the amount of free space, and then click Disk Cleanup.5. A list of unnecessary file categories is displayed. Select the category you want to delete, and then click OK.• Disable some Windows features or remove some unnecessary programs.<ol style="list-style-type: none">1. Go to Control Panel and view by large icons or small icons.2. Click Programs and Features.3. Do one of the following:<ul style="list-style-type: none">– To disable some Windows features, click Turn Windows features on or off. Follow the on-screen instructions.– To remove some unnecessary programs, select the program you want to remove, and then click Uninstall/Change or Uninstall.
The free memory space is insufficient.	<ul style="list-style-type: none">• Right-click a blank area on the taskbar and open Task Manager. Then, end some tasks you are not performing.• Install additional memory modules.

Storage drive problems

Problem	Solution
Some or all storage drives are missing from the BIOS menu.	<ul style="list-style-type: none">• Ensure that the signal cables and power cables for all the storage drives are connected correctly.• Ensure that the computer is configured correctly to support the storage drives.<ul style="list-style-type: none">– If the computer is installed with SATA storage drives, ensure that the SATA storage drive enablement module (one to five storage drives) is installed.– If the computer is installed with SAS storage drives, ensure that the SAS storage drive enablement module (one to five storage drives) or the LSI MegaRAID SAS adapter is installed.

CD or DVD problems

Problem	Solution
A CD or DVD does not work.	<ul style="list-style-type: none">• Ensure that the optical drive supports the CD or DVD.• Ensure that the disc is inserted correctly, with its label up.• Ensure that the disc you are using is clean. To remove dust or fingerprints, wipe the disc clean with a soft cloth from the center to the outside. Wiping a disc in a circular motion might cause loss of data.• Ensure that the power cable and signal cable are securely connected to the drive.• Ensure that the disc you are using is not scratched or damaged. Try inserting another disc that you know works.• If you have multiple CD or DVD drives installed (or a combination of CD and DVD drives), try inserting the disc into the other drive. In some cases, only one of the drives is connected to the audio subsystem.
A bootable recovery medium, such as the Product Recovery CD, cannot be used to start your computer.	<p>Ensure that the CD or DVD drive is set as the top priority of the boot priority order in UEFI BIOS.</p> <p>Note: On some computer models, the startup sequence is permanently set and cannot be changed.</p>
A black screen is displayed instead of the DVD video.	<ul style="list-style-type: none">• Restart the DVD player program.• Try a lower screen resolution or color depth.• Close any open files, and then restart the computer.
A DVD movie does not play.	<ul style="list-style-type: none">• Ensure that the disc surface is clean and not scratched.• Check the disc or package for regional coding. You might need to purchase a disc with coding for the region where you are using the computer.
No audio or only an intermittent audio comes out while a DVD movie is playing.	<ul style="list-style-type: none">• Check the volume control settings on the computer and on your speakers.• Ensure that the disc surface is clean and not scratched.• Check all cable connections to and from the speakers.• Use the DVD menu for the video to select a different audio track.

Problem	Solution
The playback is slow or choppy.	<ul style="list-style-type: none"> • Disable any background programs, such as AntiVirus or Desktop Themes. • Ensure that video resolution is less than 1152 x 864 pixels.
A message indicating invalid disc or no disc found is displayed.	<ul style="list-style-type: none"> • Ensure that the disc is in the drive with the shiny side of the disc facing down. • Ensure that video resolution is less than 1152 x 864 pixels. • Ensure that the DVD or CD is inserted into an appropriate optical drive. For example, do not insert a DVD into a CD-only drive.

Software problems

Problem	Solution
Some programs do not work as expected.	<ol style="list-style-type: none"> 1. Check whether the problem is caused by a program. <ol style="list-style-type: none"> a. Ensure that the software is compatible with the computer. Refer to the information supplied with the software for more information. b. Verify that other software works correctly on the computer. c. Verify that the software you are using works on another computer. 2. If the problem is caused by a program: <ul style="list-style-type: none"> • Refer to the printed documentation that comes with the program or the help system of the program. • Update the program. • Uninstall the program and then reinstall it. To download a program that is preinstalled on your computer, go to https://pcsupport.lenovo.com and follow the on-screen instructions.

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 your computer

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

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

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

Use advanced options

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.

Create a recovery USB drive

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

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

Use the recovery USB drive

If you cannot start your computer, go to Chapter 6 “Help and support” on page 29 first to try to solve the problem by yourself. If you still cannot start your computer, 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 Lenovo Vantage:

Open Lenovo Vantage to check the available update packages. If the latest UEFI BIOS update package is available, follow the on-screen instructions to download and install the package.

- From the Lenovo Support Web site:

Go to <https://pcsupport.lenovo.com> and select the entry for your computer. Then, follow the on-screen instructions to download and install necessary drivers and software.

Chapter 5. 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

CRU list

The following is the CRU list of your computer.

Self-service CRUs

- ac power adapter
- Power cord

Optional-service CRUs

- Coin-cell battery
- Internal speaker*
- Keyboard
- Memory module
- Storage drive

* for selected models

Remove or replace a CRU

This section provides instructions on how to remove or replace a CRU.

Power cord and ac power adapter

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

Replacement procedure

1. Turn off the computer and remove all connected devices and cables.
2. Remove the ac power adapter from the computer, and then remove the power cord from the power adapter.

Chapter 6. Help and support

Self-help resources

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

Resources	How to access?
Use Lenovo Vantage to: <ul style="list-style-type: none">• Configure device settings.• Download and install UEFI BIOS, drivers and firmware updates.• Secure you computer from outside threats.• Diagnose hardware problems.• Check the computer warranty status.• Access <i>User Guide</i> and helpful articles.	<ul style="list-style-type: none">• Open the Start menu and click Lenovo Vantage.• Use Windows Search.
Product documentation: <ul style="list-style-type: none">• <i>Safety and Warranty Guide</i>• <i>Generic Safety and Compliance Notices</i>• <i>Setup Guide</i>• <i>This User Guide</i>• <i>Regulatory Notice</i>	Go to https://pcsupport.lenovo.com . 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">• Drivers and software• Diagnostic solutions• Product and service warranty• Product and parts details• Knowledge base and frequently asked questions	https://pcsupport.lenovo.com
Windows help information	<ul style="list-style-type: none">• Open the Start menu and click Get Help or Tips.• Use Windows Search or the Cortana® personal assistant.• Microsoft support Web site: https://support.microsoft.com

Call Lenovo

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

Before you contact Lenovo

Prepare the following before you contact Lenovo:

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

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



Lenovo Customer Support Center

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

Telephone numbers

For a list of the Lenovo Support phone numbers for your country or region, go to:

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

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 “Warranty information” in the *Safety and Warranty Guide* that comes with your computer.

Purchase additional services

During and after the warranty period, you can purchase additional services from Lenovo at:

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

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

Appendix A. Accessibility and ergonomic information

This chapter provides information about accessibility and ergonomics.

Accessibility information

Lenovo is committed to providing users who have hearing, vision, and mobility limitations with greater access to information and technology. This section provides information about the ways these users can get the most out of their computer experience. You also can get the most up-to-date accessibility information from the following Web site:

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

Keyboard shortcuts

The following list contains keyboard shortcuts that can help make your computer easier to use.

Note: Depending on your keyboard, some of the following keyboard shortcuts might not be available.

- **Windows logo key + U:** Open Ease of Access Center
- **Right Shift for eight seconds:** Turn on or turn off Filter Keys
- **Shift five times:** Turn on or turn off Sticky Keys
- **Num Lock for five seconds:** Turn on or turn off Toggle Keys
- **Left Alt+Left Shift+Num Lock:** Turn on or turn off Mouse Keys
- **Left Alt+Left Shift+PrtScn (or PrtSc):** Turn on or turn off High Contrast

For more information, go to <https://windows.microsoft.com>, and then search using any of the following keywords: keyboard shortcuts, key combinations, shortcut keys.

Ease of Access Center

Ease of Access Center on the Windows operating system enables you to configure your computers to suit their physical and cognitive needs.

To access Ease of Access Center:

1. Go to **Control Panel** and view by Category.
2. Click **Ease of Access → Ease of Access Center**.
3. Choose the appropriate tool by following the on-screen instructions.

Ease of Access Center mainly includes the following tools:

- **Magnifier**

Magnifier is a useful utility that enlarges the entire screen or part of the screen so that you can see the items better.

- **Narrator**

Narrator is a screen reader that reads what is displayed on the screen aloud and describes events such as error messages.

- **On-Screen Keyboard**

If you prefer to type or enter data into your computer using a mouse, joystick, or other pointing device instead of a physical keyboard, you can use On-Screen Keyboard. On-Screen Keyboard displays a visual

keyboard with all the standard keys. You can select keys using the mouse or another pointing device, or you can tap to select the keys if your computer supports multi-touch screen.

- **High Contrast**

High Contrast is a feature that heightens the color contrast of some text and images on your screen. As a result, those items are more distinct and easier to identify.

- **Personalized keyboard**

Adjust keyboard settings to make your keyboard easier to use. For example, you can use your keyboard to control the pointer and make the keyboard easier to type certain key combinations.

- **Personalized mouse**

Adjust mouse settings to make your mouse easier to use. For example, you can change the pointer appearance and make your mouse easier to manage windows.

Speech Recognition

Speech Recognition enables you to control your computer by voice.

You can use verbal instructions to control the keyboard and mouse. With verbal instructions, you can start programs, open menus, click objects on the screen, dictate text into documents, and write and send e-mails.

To use Speech Recognition:

1. Go to **Control Panel** and view by Category.
2. Click **Ease of Access → Speech Recognition**.
3. Follow the on-screen instructions.

Screen-reader technologies

Screen-reader technologies are primarily focused on software program interfaces, help systems, and various online documents. For additional information about screen readers, see the following:

- Use PDFs with screen readers:
<https://www.adobe.com/accessibility.html?promoid=DJGVE>
- Use the JAWS screen reader:
<https://www.freedomscientific.com/Products/Blindness/JAWS>
- Use the NVDA screen reader:
<https://www.nvaccess.org/>

Screen resolution

You can make the text and images on your screen easier to read by adjusting the screen resolution of your computer.

To adjust the screen resolution:

1. Right-click an empty area of the desktop and then click **Display settings → Display**.
2. Follow the on-screen instructions.

Note: Setting a resolution too low might prevent some items from fitting on the screen.

Customizable item size

You can make the items on your screen easier to read by changing the item size.

- To change the item size temporarily, use the Magnifier tool in Ease of Access Center.
- To change the item size permanently:

- Change the size of all the items on your screen.
 1. Right-click an empty area of the desktop and then click **Display settings → Display**.
 2. Change the item size by following the on-screen instructions. For some applications, your configuration might not take effect until you sign out and then sign in again.
- Change the size of the items on a Web page.
Press and hold Ctrl, and then press the plus-sign key (+) to enlarge or the minus-sign key (–) to reduce the text size.
- Change the size of the items on the desktop or a window.

Note: This function might not work on some windows.

If your mouse has a wheel, press and hold Ctrl, and then scroll the wheel to change the item size.

Industry-standard connectors

Your computer provides industry-standard connectors that enable you to connect assistive devices.

Documentation in accessible formats

Lenovo provides electronic documentation in accessible formats, such as properly tagged PDF files or HyperText Markup Language (HTML) files. Lenovo electronic documentation is developed to ensure that visually impaired users can read the documentation through a screen reader. Each image in the documentation also includes adequate alternative text so that visually impaired users can understand the image when they use a screen reader.

Ergonomic information

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

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

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



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

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

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

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

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

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

Appendix B. Supplemental information about the Ubuntu operating system

In limited countries or regions, Lenovo offers customers an option to order computers with the preinstalled Ubuntu® operating system.

If the Ubuntu operating system is available on your computer, read the following information before you use the computer. Ignore any information related to Windows-based programs, utilities, and Lenovo preinstalled applications in this documentation.

Access the Lenovo Limited Warranty

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

https://www.lenovo.com/warranty/llw_02

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

```
/usr/share/doc/lenovo-doc
```

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

Access the Ubuntu help system

The Ubuntu help system provides information about how to use the Ubuntu operating system. To access the help system from Home Screen, move your pointer to the Launch bar, and then click the **Help** icon. If you cannot find the **Help** icon from the Launch bar, click the **Search** icon on the bottom left, and type Help to search it.

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

<https://www.ubuntu.com>

Get support information

If you need help, service, technical assistance, or more information about the Ubuntu operating system or other applications, contact the provider of the Ubuntu operating system or the provider of the application. If you need the service and support for hardware components shipped with your computer, contact Lenovo. For more information about how to contact Lenovo, refer to the *User Guide* and *Safety and Warranty Guide*.

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

<https://pcsupport.lenovo.com>

Appendix C. Compliance information

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

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

The following information refers to:

Model name	Machine types (MT)
IdeaCentre AIO 24IRH9	F0HN
IdeaCentre AIO 27IRH9	F0HM
ThinkCentre neo 50a 24 Gen 5	12SC, 12SD

FCC REGULATORY COMPLIANCE

Note: 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 the dealer or an experienced radio/TV technician for help.
- Changes or modifications not expressly approved by hp could void your authority



to operate the equipment. This device complies with Part 15 of the FCC Rules.

Operation is subject

to the following 2 conditions:

1 These devices may not cause harmful interference.

2 These devices must accept any interference received, including interference that may cause undesired operation.

Maintain a distance of 20 cm (8 inches) from your body to be consistent with how the device is tested for compliance with RF exposure requirements.

FCC ID: 2APYS-LPS15WPK

EMC COMPLIANCE STATEMENT

Important: This device [and its power adapter] have demonstrated Electromagnetic Compatibility (EMC) compliance under conditions that included the use of compliant peripheral devices and shielded cables between system components. It is important that you use compliant peripheral devices and shielded cables between system components to reduce the possibility of causing interference to radios, televisions, and other electronic devices.

RADIO FREQUENCY EXPOSURE

This device meets the U.S. Federal Communications Commission's (FCC) requirements for exposure to radio waves and is designed and manufactured not to exceed the FCC's emission limits for exposure to radiofrequency (RF) energy. To comply with FCC RF exposure compliance requirements, this device must not be co-located or operating in conjunction with any other antenna or transmitter.

Innovation, Science and Economic Development (ISED) Canada Regulatory Compliance

IC: 23965-LPS15WPK

INDUSTRY CANADA, CLASS B

This Class B digital apparatus complies with CAN ICES-003(B)/NMB-003(B).

Innovation, Science and Economic Development Canada (ISED Canada)/Innovation, Sciences et Développement économique Canada Industry Canada/Industrie

This device complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISED Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio Frequency Exposure/Exposition aux radiofréquences

The output power of the radio technology used in the Device is below the radio frequency exposure limits set by ISED for an uncontrolled environment.

Maintain a distance of 20 cm from your body to be consistent with how the device is tested for compliance with RF exposure requirements.

La puissance de sortie de la technologie radio utilisée dans le périphérique est inférieure

aux limites d'exposition aux fréquences radio définies par ISED Canada pour un environnement non contrôlé.

Maintenez une distance de 20 cm de votre corps pour être cohérent avec la façon dont l'appareil est testé pour la conformité aux exigences d'exposition RF.

Operating environment

Temperature

- Operating: From 10°C (50°F) to 35°C (95°F)
- Storage or transportation:
 - For common desktop computers: From -40°C (-40°F) to 55°C (131°F)
 - For all-in-one desktop computers: From -20°C (-4°F) to 55°C (131°F)

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

Relative humidity

- Operating: 35%-80% (non-condensing)
- Storage: 20%–93% (non-condensing)

Atmospheric pressure 86

kPa to 106 kPa

Appendix D. Notices and trademarks

Notices

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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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This product contains a Qi Module, contains FCC ID: 2APYS-LPS15WPK, the device will be assembled in factories by professional workers, and verified EMC, radiated and RF exposure compliance. We provided manuals to guide our customers to use the host device and to use wireless charge function for the host device.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01r01

2.2 List of applicable FCC rules

CFR 47 FCC PART 15 SUBPART C has been investigated. It is applicable to the modular.

2.3 Specific operational use conditions

This module is stand-alone modular. If the end product will involve the Multiple simultaneously transmitting condition or different operational conditions for a stand-alone modular transmitter in a host, host manufacturer have to consult with module manufacturer for the installation method in end system.

2.4 Limited module procedures

The module will be installed only on the host device: "IdeaCentre AIO 24IRH9, IdeaCentre AIO 27IRH9, ThinkCentre neo 50a 24 Gen 5". The module and the device will be assembled in factories by professional workers. Our customer didn't need to know how to install the modules with the devices by themselves. We provided manuals to guide our customers to use the host device and to use wireless charge function for the host device.

2.5 Trace antenna designs

Not applicable

2.6 RF exposure considerations

To maintain compliance with FCC's RF Exposure guidelines, this equipment should be installed and operated with minimum distance of 20cm from your body.

2.7 Antennas

This module device tested with follow Loop antenna.

2.8 Label and compliance information

The module with label, FCC ID: 2APYS-LPS15WPK listed. Please refer to label. The final end product must be labeled in a visible area with the following "Contains FCC ID: 2APYS-LPS15WPK"

2.9 Information on test modes and additional testing requirements

Host manufacturer is strongly recommended to confirm compliance with FCC requirements for the transmitter when the module is installed in the host.

2.10 Additional testing, Part 15 Subpart B disclaimer

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B

The Lenovo logo is displayed in white text on a black rectangular background.