

ThinkPad®

ThinkPad 11e Chromebook 4th Gen and
ThinkPad Yoga 11e Chromebook 4th Gen
User Guide

ThinkPad

Lenovo™

Note: Before using this information and the product it supports, be sure to read and understand the following:

- *Safety, Warranty, and Setup Guide*
- “Important safety information” on page iii

The latest *Safety, Warranty, and Setup Guide* and the *Regulatory Notice* are available on the Lenovo Support Web site at:

<http://www.lenovo.com/support>

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Important safety information

Note: Read the important safety information first.

Read this first

This information can help you safely use your notebook 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, see "Warranty Information" in the *Safety, Warranty, and Setup Guide* that comes with your computer.

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.

Note: This information includes references to power adapters and batteries. In addition to notebook computers, 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.

Important information about using your computer

Ensure that you follow the important tips given here to get the most use and enjoyment out of your computer. Failure to do so might lead to discomfort or injury, or cause the computer to fail.

Protect yourself from the heat that your computer generates.



When your computer is turned on or the battery is charging, the base, the palm rest, and some other parts may become hot. The temperature they reach depends on the amount of system activity and the level of charge in the battery.

Extended contact with your body, even through clothing, could cause discomfort or even a skin burn.

- Avoid keeping your hands, your lap, or any other part of your body in contact with a hot section of the computer for any extended time.
- Periodically take hands from using the keyboard by lifting your hands from the palm rest.

Protect yourself from the heat generated by the ac power adapter.



When the ac power adapter is connected to an electrical outlet and your computer, it generates heat.

Extended contact with your body, even through clothing, may cause a skin burn.

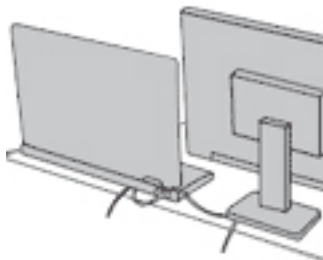
- Do not place the ac power adapter in contact with any part of your body while it is in use.
- Never use it to warm your body.

Prevent your computer from getting wet.



To avoid spills and the danger of electrical shock, keep liquids away from your computer.

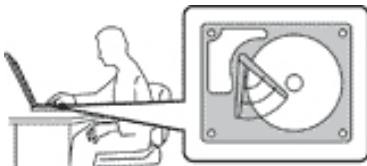
Protect the cables from being damaged.



Applying strong force to cables may damage or break them.

Route communication lines, or the cables of an ac power adapter, a mouse, a keyboard, a printer, or any other electronic device, so that they cannot be walked on, tripped over, pinched by your computer or other objects, or in any way subject to treatment that could interfere with the operation of your computer.

Protect your computer and data when moving it.

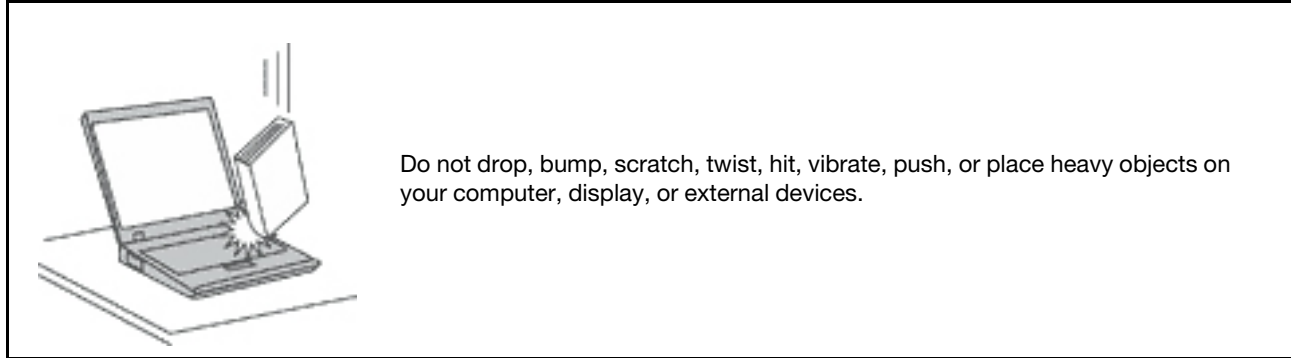


Before moving a computer equipped with a hard disk drive, do one of the following:

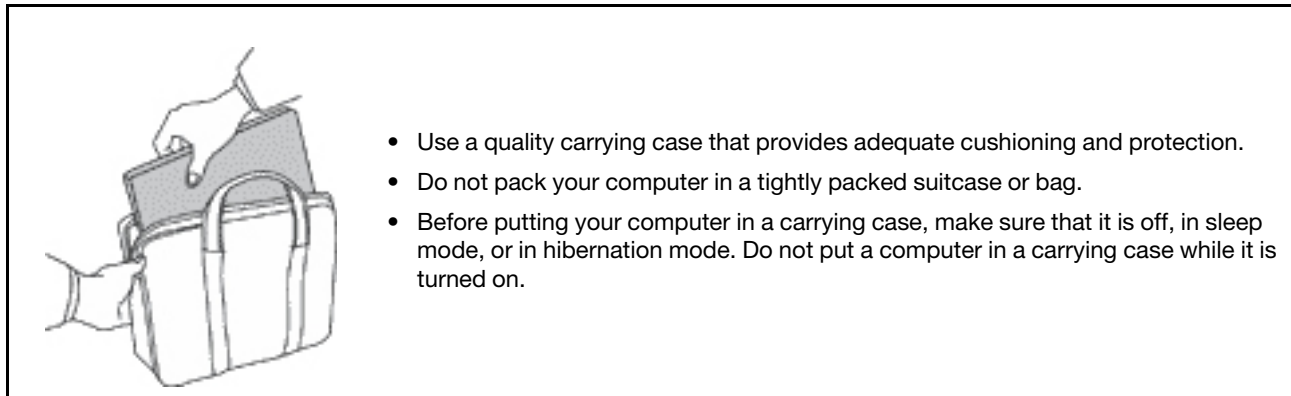
- Turn it off.
- Put it in sleep mode.
- Put it in hibernation mode.

This helps to prevent damage to the computer, and possible loss of data.

Handle your computer gently.



Carry your computer carefully.



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. Or you might hear sounds like popping, cracking, or hissing. These conditions might merely mean that an internal electronic component has failed in a safe and controlled manner. Or, they might indicate a potential safety issue. However, 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:

<http://www.lenovo.com/support/phone>

Frequently inspect your computer and its components for damage or 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 make sure 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.



CAUTION:
Hazardous moving parts. Keep fingers and other body parts away.

CAUTION:



Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

Power cords and power adapters



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 mm², 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.

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.

General battery notice



Batteries supplied by Lenovo for use with your product have been tested for compatibility and should only be replaced with approved parts. A battery other than the one specified by Lenovo, or a disassembled or modified battery is not covered by the warranty.

Battery abuse or mishandling can cause overheating, liquid leakage, or an explosion. To avoid possible injury, do the following:

- Do not open, disassemble, or service any battery.
- Do not crush or puncture the battery.
- Do not short-circuit the battery, or expose it to water or other liquids.
- Keep the battery away from children.
- Keep the battery away from fire.

Stop using the battery if it is damaged, or if you notice any discharge or the buildup of foreign materials on the battery leads.

Store the rechargeable batteries or products containing the rechargeable batteries at room temperature, charged to approximately 30 to 50% of capacity. We recommend that the batteries be charged about once per year to prevent overdischarge.

Do not put the battery in trash that is disposed of in landfills. When disposing of the battery, comply with local ordinances or regulations.

Notice for built-in rechargeable battery



Do not attempt to remove or replace the built-in rechargeable battery. Replacement of the battery must be done by a Lenovo-authorized repair facility or technician.

Only recharge the battery strictly according to instructions included in the product documentation.

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

Heat and product ventilation



Computers, ac power adapters, and many accessories can generate heat when turned on and when batteries are charging. Notebook computers can generate a significant amount of heat due to their compact size. Always follow these basic precautions:

- When your computer is turned on or the battery is charging, the base, the palm rest, and some other parts may become hot. Avoid keeping your hands, your lap, or any other part of your body in contact with a hot section of the computer for any extended length of time. When you use the keyboard, avoid keeping your palms on the palm rest for a prolonged period of time. Your computer generates some heat during normal operation. The amount of heat depends on the amount of system activity and the battery charge level. Extended contact with your body, even through clothing, could cause discomfort or even a skin burn. Periodically take breaks from using the keyboard by lifting your hands from the palm rest; and be careful not to use the keyboard for any extended length of time.
- Do not operate your computer or charge the battery near flammable materials or in explosive environments.
- Ventilation slots, fans and/or 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.
- When the ac power adapter is connected to an electrical outlet and your computer, it generates heat. Do not place the adapter in contact with any part of your body while using it. Never use the ac power adapter to warm your body. Extended contact with your body, even through clothing, may cause a skin burn.

For your safety, always follow these basic precautions with your 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 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).

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 to properly wired outlets 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.



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.



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

CAUTION:

The liquid crystal display (LCD) is made of glass, and rough handling or dropping the computer can cause the LCD to break. If the LCD breaks and the internal fluid gets into your eyes or on your hands, immediately wash the affected areas with water for at least 15 minutes; if any symptoms are present after washing, get medical care.

Note: For products with mercury-containing fluorescent lamps (for example, non-LED), the fluorescent lamp in the liquid crystal display (LCD) contains mercury; dispose of according to local, state, or federal laws.

Using headphones or earphones

CAUTION:

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) for 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 package, 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.

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.

Chapter 1. Product overview

This chapter provides basic information to help you get familiar with your computer.

Computer controls, connectors, and indicators

This section introduces hardware features of the computer.

Front view

ThinkPad 11e Chromebook 4th Gen



1 Microphone	2 Camera status indicator
3 Camera	4 Speakers
5 Power key	6 System status indicator
7 Touch pad	

1 Microphone

The microphone captures sound and voice when used with a program capable of handling audio.

2 Camera status indicator

When this indicator is on, the camera is in use.

3 Camera

The camera enables you to take pictures or hold a video conference. For more information, see “Using the camera” on page 27. The multi-touch screen enables you to use your computer with simple touch gestures. For more information, see “Using the multi-touch screen” on page 18.



4 Speakers


Your computer is equipped with a pair of stereo speakers.

5 Power key

Press the power key to turn on the computer.

To turn off the computer, do the following:

- If you are not logged in to the operating system, click the power icon  in the lower-left corner of the screen.
- If you are logged in to the operating system, click the status area in the lower-right corner of the screen, and then click the power icon .

If the computer stops responding, press and hold the power key for about eight seconds to turn off the computer. If the computer still does not respond, press the refresh key  and the power key at the same time to turn off the computer.

6 System status indicator

The illuminated dot on the ThinkPad logo functions as a system status indicator.

7 Touch pad

Your computer is equipped with a touch pad. The touch pad enables you to move the pointer and perform click actions, without the use of a conventional mouse.

ThinkPad Yoga 11e Chromebook 4th Gen



1 Microphone	2 Camera status indicator
3 Camera	4 Speakers

5 Power key	6 System status indicator
7 Trackpad	8 Multi-touch screen

1 Microphone

The microphone captures sound and voice when used with a program capable of handling audio.

2 Camera status indicator

When this indicator is on, the camera is in use.

3 Camera

The camera enables you to take pictures or hold a video conference. For more information, see “Using the camera” on page 27. The multi-touch screen enables you to use your computer with simple touch gestures. For more information, see “Using the multi-touch screen” on page 18.



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Your computer is equipped with a pair of stereo speakers.

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- If you are logged in to the operating system, click the status area in the lower-right corner of the screen, and then click the power icon .

If the computer stops responding, press and hold the power key for about eight seconds to turn off the computer. If the computer still does not respond, press the refresh key  and the power key at the same time to turn off the computer.

6 System status indicator

The illuminated dot on the ThinkPad logo functions as a system status indicator.

7 Touch pad

Your computer is equipped with a touch pad. The touch pad enables you to move the pointer and perform click actions, without the use of a conventional mouse.

8 Multi-touch screen

The multi-touch screen enables you to use your computer with simple touch gestures. For more information, see “Using the multi-touch screen” on page 18.

Left-side view



1 USB-C™ connector	2 microSD card slot
3 Audio connector	

1 USB-C connector

USB-C is a new USB standard that supports power, data transfer, and video output at the same time.

The following Lenovo accessories do not come with your computer. You can purchase the following accessories from Lenovo <http://www.lenovo.com/essentials> to connect your computer to power or other devices through the USB-C connector.

- **Lenovo USB-C 45W AC Adapter:** Used to provide ac power to your computer and charge the battery.
- **Lenovo USB-C to HDMI Adaptor:** Used to connect your computer to an HDMI-compatible audio device or video monitor.
- **Lenovo USB-C to VGA Adaptor:** Used to connect your computer to a video graphics array (VGA) monitor or other VGA-compatible video device.

2 microSD card slot

Your computer is equipped with a microSD card reader. Insert a microSD card into the microSD card slot for data access or storage.

3 Audio connector

You can connect headphones or a headset with a 3.5-mm (0.14-inch), 4-pole plug to the audio connector to listen to the sound from the computer.

Note: If you are using a headset with a function switch, the audio connector might not fully support the function switch.

Right-side view






1 Power button (available on computer models with multi-touch screen)	2 Volume-control buttons (available on computer models with multi-touch screen)
3 USB 3.0 connector	4 USB-C connector
5 Security-lock slot	

1 Power button (available on computer models with multi-touch screen)

Use the power button to turn on the computer. To turn off the computer, do the following:

To turn off the computer, do the following:

- If you are not logged in to the operating system, click the power icon  in the lower-left corner of the screen.
- If you are logged in to the operating system, click the status area in the lower-right corner of the screen, and then click the power icon .

If the computer stops responding, press and hold the power key for about eight seconds to turn off the computer. If the computer still does not respond, press the refresh key  and the power key at the same time to turn off the computer.

2 Volume-control buttons (available on computer models with multi-touch screen)

Use the volume-control buttons to adjust the volume.

3 USB 3.0 connector

The USB 3.0 connector is used for connecting USB-compatible devices, such as a USB mouse, a USB storage drive, a USB printer, or a digital camera.

Attention: When you attach a USB cable to this connector, ensure that the USB mark is facing upward. Otherwise the connector might get damaged.

4 USB-C connector

USB-C is a new USB standard that supports power, data transfer, and video output at the same time.

The following Lenovo accessories do not come with your computer. You can purchase the following accessories from Lenovo <http://www.lenovo.com/essentials> to connect your computer to power or other devices through the USB-C connector.

- **Lenovo USB-C 45W AC Adapter:** Used to provide ac power to your computer and charge the battery.
- **Lenovo USB-C to HDMI Adaptor:** Used to connect your computer to an HDMI-compatible audio device or video monitor.
- **Lenovo USB-C to VGA Adaptor:** Used to connect your computer to a video graphics array (VGA) monitor or other VGA-compatible video device.

5 Security-lock slot

To protect your computer from theft, lock your computer to a desk, table, or other fixture through a security cable lock that fits this security-lock slot.

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.

Status indicators

This topic provides information about locating and identifying the various status indicators on your computer.

Note: Depending on the model, your computer might look different from the following illustrations.



1 Camera status indicator

When this indicator is on, the camera is in use.

2 3 System status indicators

The indicator in the ThinkPad logo on the computer lid and the indicator in the power button show the system status of your computer.

- **Solid on:** The computer is on (in normal mode).
- **Blinks for three times:** The computer is initially connected to power.
- **Blinks slowly:** The computer is in sleep mode.
- **Off:** The computer is off or in hibernation mode.

4 Wireless-status indicator

The wireless-status indicator is located on the outer lid of the computer and it helps you identify the wireless status of your computer.

- **Solid green:** The wireless features of the computer are on.
- **Off:** The wireless features of the computer are off.

■ ac power status indicator

This indicator shows the ac power and battery power status of the computer.

- **Green:** connected to ac power (battery power 80%–100%)
- **Yellow:** connected to ac power (battery power 1%–80%)
- **Off:** not connected to ac power

Important product information labels

This section provides information to help you locate the following labels:

- Machine type and model label
- FCC ID and IC Certification label
- Labels for the Windows operating systems

Machine type and model label

When you contact Lenovo for help, the machine type and model information helps the technicians to identify your computer and provide faster service.

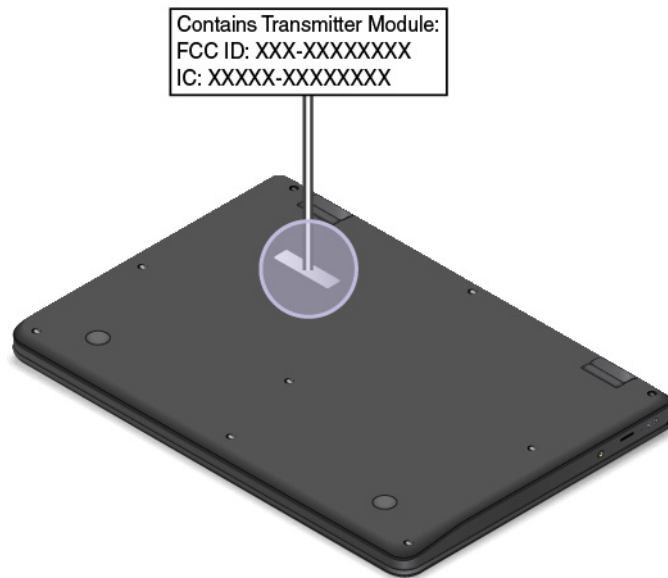
The following illustration shows where to find the label that contains the machine type and model information of your computer.



FCC ID and IC Certification number

The FCC and IC Certification information is identified by a label on the computer as shown in the following illustration.

Note: Depending on the model, your computer might look different from the following illustration.



For a preinstalled wireless module, this label identifies the actual FCC ID and IC certification number for the wireless module installed by Lenovo.

Note: Do not remove or replace a preinstalled wireless module by yourself. For replacement, you must contact Lenovo service first. Lenovo is not responsible for any damage caused by unauthorized replacement.

Computer features

The computer features introduced in this topic cover various models. Some computer features might be available only on specific models.

Microprocessor

To view the microprocessor information of your computer, right-click the **Start** button and then select **System**.

Memory

- Double data rate 4 (DDR4) small outline dual in-line memory module (SODIMM)

Storage device

- 2.5-inch form factor, 7-mm (0.28-inch) height hard disk drive
- M.2 solid-state drive (available on some models)
- Intel® Optane™ memory (available on some models)

Display

- Brightness control
- Color display with Thin Film Transistor (TFT) technology
- Display size: 439.42 mm (17.3 inches)
- Display resolution: 1920 x 1080 pixels or 3840 x 2160 pixels
- Multi-touch technology (available on some models)
- NVIDIA® Optimus Graphics or discrete graphics

Keyboard

- Six-row keyboard (traditional or backlight)
- Function keys
- Numeric keypad
- ThinkPad pointing device (including the TrackPoint pointing device and trackpad with buttons)

Connectors and slots

- ac power connector
- Audio connector
- Docking-station connector
- Ethernet connector
- ExpressCard slot
- Four USB 3.0 connectors (including one Always On USB 3.0 connector)
- HDMI connector
- Media-card slot
- Micro-SIM-card slot (inside the battery compartment)
- Mini DisplayPort connector
- Optical drive bay (available on some models)
- Smart-card slot (available on some models)
- Two Thunderbolt 3 connectors

Security features

- Fingerprint reader
- Security-lock slot
- Trusted Platform Module (TPM) (available on some models)

Wireless features

- Bluetooth
- Wireless LAN
- Wireless WAN (available on some models)

Others

- Camera (available on some models)
- Color sensor (available on some models)
- Microphones

Computer specifications

Size

- Width: 416 mm (16.4 inches)
- Depth: 275.5 mm (10.8 inches)
- Thickness:
 - Non-touch models: 29.9 mm to 34.2 mm (1.18 inches to 1.35 inches)

- Touch models: 30.65 mm to 34.95 mm (1.21 inches to 1.38 inches)

Maximum heat output (depending on the model)

- 170 W (580 Btu/hr)
- 230 W (786 Btu/hr)

Power source (ac power adapter)

- Sine-wave input at 50 Hz to 60 Hz
- Input rating of the ac power adapter: 100 V to 240 V ac, 50 Hz to 60 Hz

Operating environment

Maximum altitude (without pressurization)

- 3048 m (10 000 ft)

Temperature

- At altitudes up to 2438 m (8000 ft)
 - Operating: 5°C to 35°C (41°F to 95°F)
 - Storage: 5°C to 43°C (41°F to 109°F)
- At altitudes above 2438 m (8000 ft)
 - Maximum temperature when operating under the unpressurized condition: 31.3°C (88°F)

Note: When you charge the battery, its temperature must be at least 10°C (50°F).

Relative humidity

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

If possible, place your computer in a well-ventilated and dry area without direct exposure to sunshine.

Attention:

- Keep electrical appliances such as electric fans, radio, air conditioners, and microwave ovens away from the computer. The strong magnetic fields generated by these appliances can damage the monitor and data on the internal storage drive.
- Do not place any beverages on top of or beside the computer or other attached devices. If liquid is spilled on or in the computer or an attached device, a short circuit or other damage might occur.
- Do not eat or smoke over your keyboard. Particles that fall into your keyboard can cause damage.

Chapter 2. Using your computer

This chapter provides information to help you use the various features provided by your computer.

Registering your computer

When you register your computer, information is entered into a database, which enables Lenovo to contact you if there is a recall or other severe problem. In addition, some locations offer extended privileges and services to registered users.

When you register your computer with Lenovo, you also will receive the following benefits:

- Quicker service when you call Lenovo for help
- Automatic notification of free software and special promotional offers

To register your computer with Lenovo, go to <http://www.lenovo.com/register> and follow the instructions on the screen.

Frequently asked questions

This topic provides a few tips to help you optimize the use of your ThinkPad notebook computers.

To ensure the best computer performance, go to the following Web site to find information such as aids for troubleshooting and answers to frequently asked questions:

<http://www.lenovo.com/support/faq>

Can I get my user guide in another language?

To download the user guide in another language, go to <http://www.lenovo.com/support>. Then follow the instructions on the screen.

How to turn off my computer?

Open the Start menu, click  **Power**, and then click **Shut down**.

How do I access Control Panel?

Right-click the **Start** button, and then click **Control Panel**.

How do I use battery power more effectively when I am on the go?

- To conserve power, or to suspend operation without exiting programs or saving files, see “Power-saving modes” on page 23.
- To achieve the best balance between performance and power saving, create and apply an appropriate power plan. See “Managing the battery power” on page 23.
- If your computer will be turned off for an extended period of time, you can prevent battery power from draining by removing the battery.

How do I attach an external display?

- Refer to “Using an external display” on page 28.
- With the Extend desktop function, you can display output on both the computer display and an external display.

How do I attach or replace a device?

Refer to the appropriate topic in “Replacing devices” on page 61.

Print the following topics and keep them with your computer in case you are unable to access this electronic user guide when necessary.

- “Power problems” on page 57

Operating modes

The ThinkPad Yoga 11e Chromebook 4th Gen computer features four operating modes: notebook mode, stand mode, tablet mode, and tent mode. You can switch between different modes according to your preference and working convenience.

Note: Depending on the model, your computer might look different from the illustrations in this topic.

Rotating the computer display

This topic provides instructions on how to rotate the display of your computer properly. This topic also provides information about the operating modes of your computer and corresponding display angle ranges.

You can open the computer display to any angle within a range of up to 360 degrees as shown in the following illustration.

Attention: Do not rotate the computer display with too much force, otherwise the computer display or hinges might get damaged. Do not apply too much force to the upper-right or upper-left corner of the computer display.



Notebook mode

You can use the computer in the notebook mode in scenarios that require using a keyboard and a mouse, such as editing documents and writing e-mails.

Attention: The angle between the front of the computer display and the keyboard for the notebook mode is at most 190 degrees. Do not rotate the computer display with too much force, otherwise the computer display or hinges might get damaged. Do not apply too much force to the upper-right or upper-left corner of the computer display.

Open the computer display slowly as shown in the following illustration. Your computer is now in the notebook mode.



In the notebook mode, the keyboard, the trackpad, the TrackPoint buttons, and the TrackPoint pointing stick are automatically enabled.

Stand mode

You can use your computer in the stand mode in scenarios that require limited interaction with the screen, such as viewing photos and playing videos.

Attention: The angle between the front of the computer display and the keyboard for the stand mode is above 190 degrees and below 350 degrees. Do not rotate the computer display with too much force, otherwise the computer display or hinges might get damaged. Do not apply too much force to the upper-right or upper-left corner of the computer display.

If your computer is in the notebook mode, do the following to turn the computer from the notebook mode into the stand mode:

1. Slowly rotate the display clockwise until the back of the display is facing the base cover.



2. Position your computer as shown. Your computer is now in the stand mode.



In the stand mode, the keyboard, the trackpad, the TrackPoint buttons, and the TrackPoint pointing stick are automatically disabled. However, you can control some functions of your computer through the special buttons and the multi-touch screen, without the use of the keyboard and the trackpad. For more information, see “Using the special buttons” on page 19 and “Using the multi-touch screen” on page 18.

Tablet mode

You can use the computer in the tablet mode in scenarios that require frequent interaction with the screen, such as browsing the Web site.

Attention: The angle between the front of the computer display and the keyboard for the tablet mode is 360 degrees. Do not rotate the computer display with too much force, otherwise the computer display or hinges might get damaged. Do not apply too much force to the upper-right or upper-left corner of the computer display.

If your computer is in the stand mode, do the following to turn the computer from the stand mode into the tablet mode:

1. Position your computer as shown and slowly rotate the computer display clockwise.



2. Position your computer as shown. Your computer is now in the tablet mode. By default, the autorotate feature is enabled.



In the tablet mode, the keyboard, the trackpad, the TrackPoint buttons, and the TrackPoint pointing stick are automatically disabled. However, you can control some functions of your computer through the special buttons and the multi-touch screen, without the use of the keyboard and the trackpad. For more information, see “Using the special buttons” on page 19 and “Using the multi-touch screen” on page 18.

Tent mode

You can use your computer in the tent mode in scenarios that require limited interaction with the screen, such as viewing photos and making a presentation.

Attention: The angle between the front of the computer display and the keyboard for the tent mode is at least 270 degrees and at most 340 degrees. Do not rotate the computer display with too much force, otherwise the computer display or hinges might get damaged. Do not apply too much force to the upper-right or upper-left corner of the computer display.

If your computer is in the tablet mode, do the following to turn the computer from the tablet mode into the tent mode:

1. Slowly rotate your computer display counterclockwise to any angle within a range of 270 degrees to 340 degrees.

Note: The degrees refer to the angle degrees between the computer display and the keyboard.



2. Position your computer as shown. Your computer is now in the tent mode.



In the tent mode, the keyboard, the trackpad, the TrackPoint buttons, and the TrackPoint pointing stick are automatically disabled. However, you can control some functions of your computer through the special buttons and the multi-touch screen, without the use of the keyboard and the trackpad. For more information, see “Using the special buttons” on page 19 and “Using the multi-touch screen” on page 18.

Keyboard frame travel function

Your computer keyboard features the frame travel function. This topic provides information about the behavior of the keyboard.

- The frame of the keyboard does not travel when you rotate the computer display from 10 degrees to 190 degrees. The following illustration shows the keyboard when the keyboard frame does not travel.



- When you rotate the computer display from 190 degrees to 360 degrees, the frame of the keyboard travels upward for about 2.0 mm (0.08 inches). The following illustration shows the keyboard after the keyboard frame travels upward.



Note: In the notebook mode, the keyboard, the ThinkPad trackpad, the TrackPoint buttons, and the TrackPoint pointing stick are automatically enabled. In the stand mode, tablet mode, and tent mode, the keyboard, the ThinkPad trackpad, and the TrackPoint pointing stick are automatically disabled.

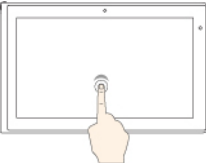

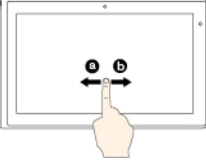
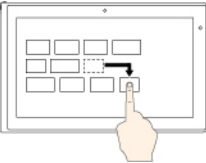
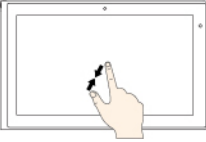
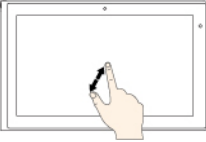
Using the multi-touch screen

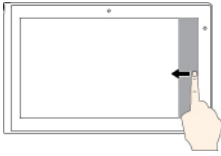

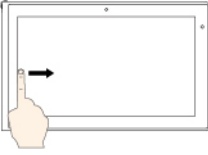

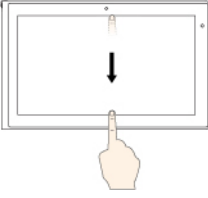
This topic provides instructions on how to use the multi-touch screen that is available on some models.

Notes:

- Your computer screen might look different from the following illustrations.
- Depending on the program you use, some gestures might not be available.

The following table introduces some frequently used gestures.

Touch gesture (touch models only)	Description
	<p>Touch: Tap.</p> <p>Mouse action: Click.</p> <p>Function: Open an app or perform an action on an open app, such as Copy, Save, and Delete, depending on the app.</p>
	<p>Touch: Tap and hold.</p> <p>Mouse action: Right-click.</p> <p>Function: Open a menu with multiple options.</p>
	<p>Touch: Slide.</p> <p>Mouse action: Scroll the mouse wheel, move the scroll bar, or click the scroll arrow.</p> <p>Function: Scroll through items, such as lists, pages, and photos.</p>
	<p>Touch: Drag an item to the location you want.</p> <p>Mouse action: Click, hold, and drag an item.</p> <p>Function: Move an object.</p>
	<p>Touch: Move two fingers closer together.</p> <p>Mouse action: Press the Ctrl key while scrolling the mouse wheel backward.</p> <p>Function: Zoom out.</p>
	<p>Touch: Move two fingers farther apart.</p> <p>Mouse action: Press the Ctrl key while scrolling the mouse wheel forward.</p> <p>Function: Zoom in.</p>

Touch gesture (touch models only)	Description
	<p>Touch: Swipe in from the right edge.</p> <p>Mouse action: Click the action center icon  in the Windows notification area.</p> <p>Function: Open the action center to see your notifications and quick actions.</p>
	<p>Touch: Swipe in from the left edge.</p> <p>Mouse action: Click the task-view icon  on the taskbar.</p> <p>Function: View all your open windows in task view.</p>
	<ul style="list-style-type: none"> <p>Short swipe for full-screened app or when your computer is in the tablet mode</p> <p>Touch: Swipe downwards shortly from the top edge.</p> <p>Mouse action: Move your pointer to the top edge of the screen.</p> <p>Function: Show a hidden title bar.</p> <p>Long swipe when your computer is in the tablet mode</p> <p>Touch: Swipe in from the top edge to the bottom edge.</p> <p>Mouse action: From the top edge of the screen, click and hold, move the pointer to the bottom of the screen, and then release.</p> <p>Function: Close the current app.</p>

Tips on using the multi-touch screen

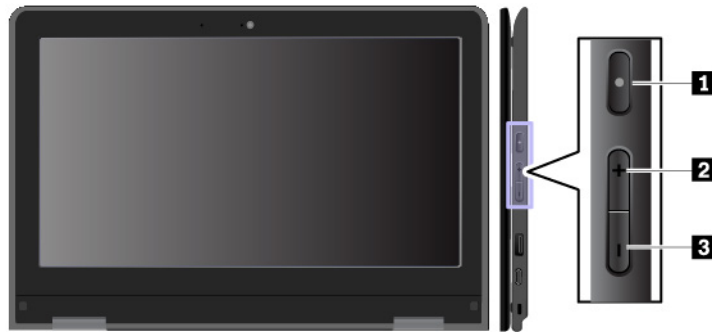
- The multi-touch screen is a glass panel covered with a plastic film. Do not apply pressure or place any metallic object on the screen, which might damage the touch panel or cause it to malfunction.
- Do not use fingernails, gloved fingers, or inanimate objects for input on the screen.
- Regularly calibrate the accuracy of the finger input to avoid a discrepancy.

Tips on cleaning the multi-touch screen

- Turn off the computer before cleaning the multi-touch screen.
- Use a dry, soft, and lint-free cloth or a piece of absorbent cotton to remove fingerprints or dust from the multi-touch screen. Do not apply solvents to the cloth.
- Gently wipe the screen using a top-down motion. Do not apply any pressure on the screen.

Using the special buttons

The ThinkPad Yoga 11e Chromebook 4th Gen computer is equipped with special buttons as shown in the following illustration. You can control some functions of your computer through the special buttons, without the use of the keyboard.



1 Power button: Press the power button to turn on the computer.


2 Volume-up button: Press the volume-up button to increase the speaker volume.


3 Volume-down button: Press the volume-down button to decrease the speaker volume.


Using the special keys


Your computer has several special keys to help you work more easily and effectively.





 Goes to the previous page.


 Goes to the next page.

 Reloads the current page.

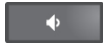
 Views the current page in full-screen mode.


 Switches between windows.


 Decreases the screen brightness.


 Increases the screen brightness.

 Mutes the volume.

 Decreases the volume.

 Increases the volume.

 Locks the computer screen. This key is available on computer models with a multi-touch screen.

 Turns on the computer. This key is available on computer models without a multi-touch screen.

 Searches applications and the Web.

For more information about customizing and using the keyboard, go to the Chrome OS Web site at <http://support.google.com/chromeos>.

Using the ThinkPad pointing device

This section provides information about using the ThinkPad pointing device.

Using the touch pad

Your computer is equipped with a touch pad **1**. To move the pointer **2** on the screen, slide your fingertip over the trackpad in the corresponding direction.



Customizing the touch pad

You can customize the touch pad as follows:

- Enable the tap-to-click function.
- Enable the simple scrolling function.

To change your touch pad settings, click the status area in the lower-right corner of the screen. Then go to **Settings** → **Device** → **Touchpad and mouse settings**. Change the settings as desired.

If the trackpad surface is stained with oil, turn off the computer first. Then gently wipe the trackpad surface with a soft and lint-free cloth moistened with lukewarm water or computer cleaner.

Power management

This section provides information about how to use ac power and battery power to achieve the best balance between performance and power management.

Using the ac power adapter

The power to run your computer can come either from the battery or from ac power. While you use ac power, the battery charges automatically.

Your computer comes with an ac power adapter and a power cord.

- ac power adapter: Converts ac power for notebook computer use.
- Power cord: Connects the ac outlet and the ac power adapter.

Connecting the ac power adapter

To connect the computer to ac power, ensure that you follow the steps in order:

Attention: Using an improper power cord might severely damage your computer.

1. Connect the power cord to the ac power adapter.
2. Connect the ac power adapter to the power connector of the computer.
3. Connect the power cord to an electrical outlet.

Tips on using the ac power adapter

- When the ac power adapter is not in use, disconnect it from the electrical outlet.
- Do not bind the power cord tightly around the ac power adapter transformer pack when it is connected to the transformer.

Using the battery

When you use your computer away from electrical outlets, you depend on battery power to keep your computer running. Different computer components consume power at different rates. The more you use the power-intensive components, the faster you consume battery power.

Spend more time unplugged with ThinkPad batteries. Mobility has revolutionized business by enabling you to take your work wherever you go. With ThinkPad batteries, you are able to work longer without being tied to an electrical outlet.

Checking the battery status

Move your pointer to the battery-status icon in the Windows notification area to check the battery status. The battery-status icon displays the percentage of battery power remaining and how long you can use your computer before you must charge the battery.

The rate at which you use battery power determines how long you can use the battery of your computer between charges. Because every computer user has individual habits and needs, it is difficult to predict how long a battery charge lasts. There are two main factors:

- How much energy is stored in the battery when you begin to work
- The way you use your computer, for example:

- How often you access the storage drive
- How bright you make the computer display
- How often you use the wireless feature

Charging the battery

When you find that the remaining battery power is low, charge your battery or replace the battery with a charged battery.

If an ac outlet is convenient, connect the computer to ac power. The battery is fully charged in about four to eight hours. The actual charging time depends on the battery size, the physical environment, and whether you are using the computer. You can check the battery charging status at any time through the battery-status icon in the Windows notification area.

Note: To maximize the life of the battery, the computer does not start recharging the battery if the remaining power is greater than 95%.

Tips on charging the battery

- Before you charge the battery, ensure that the battery temperature is lower than 10°C (50°F).
- Charge the battery in any of the following conditions:
 - A new battery is installed.
 - The percentage of power remaining is low.
 - The battery has not been used for a long time.

Maximizing the battery life

To maximize the life of the battery, do the following:

- Use the battery until the charge is depleted.
- Recharge the battery completely before using it. You can see whether the battery is fully charged from the battery-status icon in the Windows notification area.
- Always use power management features such as power-saving modes.

Managing the battery power

To achieve the best balance between performance and power saving, adjust your power plan settings. To adjust power plan settings, do the following:

1. Go to Control Panel, and then change the view of Control Panel from Category to Large icons or Small icons.
2. Click **Power Options**.
3. Follow the instructions on the screen.

For more information, see the Windows help information system.

Power-saving modes

There are several modes that you can use at any time to conserve power. This section introduces each mode and gives tips on the effective use of battery power.

- **Sleep mode**

In sleep mode, your work is saved to memory, and then the storage drive and the computer display are turned off. When your computer wakes up, your work is restored within seconds.

To put your computer into sleep mode, open the Start menu, click  **Power**, and then click **Sleep**.

- **Hibernation mode**

By using this mode, you can turn off your computer completely without saving files or exiting any programs that are running. When the computer enters hibernation mode, all open programs, folders, and files are saved to the storage drive, and then the computer turns off.

To put the computer into hibernation mode, define what the power button does first, and then press the power button to put the computer into hibernation mode.

If you put your computer into hibernation mode with the wake-up function disabled, the computer does not consume any power. The wake-up function is disabled by default. If you put your computer into hibernation mode with the wake-up function enabled, the computer consumes a small amount of power.

To enable the wake-up function, do the following:

1. Open Control Panel, view Control Panel by Category, and then click **System and Security**.
2. Click **Administrative Tools**.
3. Double-click **Task Scheduler**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
4. From the left pane, select the task folder for which you want to enable the wake-up function. The scheduled tasks are displayed.
5. Click a scheduled task, and then click the **Conditions** tab.
6. Under **Power**, select **Wake the computer to run this task**.

- **Wireless off**

When you are not using the wireless features, such as Bluetooth or wireless LAN, turn them off to help conserve power.

Wireless connections

Wireless connection is the transfer of data without the use of cables but by means of radio waves only.

Using the wireless-LAN connection

A wireless local area network (LAN) covers a relatively small geographic area, such as an office building or a house. Devices based on the 802.11 standards can connect to this type of network.

Your computer comes with a built-in wireless network card to help you establish wireless connections and monitor the connection status.

To establish a wireless-LAN connection, do the following:

1. Turn on the wireless feature. See “Using the special keys” on page 20.
2. Click the wireless-network-connection-status icon in the Windows notification area. A list of available wireless networks is displayed.
3. Double-click a network to connect to it. Provide required information if needed.

The computer automatically connects to an available and remembered wireless network when the location changes. If the available wireless network is secured, provide the password as required. For more information, see the Windows help information system.

Tips on using the wireless-LAN feature

To achieve the best connection, use the following guidelines:

- Place your computer so that there are as few obstacles as possible between the wireless-LAN access point and the computer.
- Open your computer cover to an angle of slightly more than 90 degrees.

Checking the wireless-LAN connection status

You can check the wireless-LAN connection status through the wireless-network-connection-status icon in the Windows notification area. The more bars encompassed, the better the signal is.

Using the Bluetooth connection


Bluetooth can connect devices that are within a short distance from one another. Bluetooth is commonly used in the following scenarios:

- Connecting peripheral devices to a computer
- Transferring data between hand-held devices and a personal computer
- Remotely controlling and communicating with devices such as mobile phones

Depending on the model, your computer might support the Bluetooth feature. To transfer data through the Bluetooth feature, do the following:

Note: It is not recommended to use the wireless feature (the 802.11 standards) of your computer simultaneously with a Bluetooth option. The data transmission speed can be delayed and the performance of the wireless feature can be degraded.

1. Do one of the following:

- Press the Bluetooth-control key  and turn on the Bluetooth feature.
- Open the Start menu, and then click **Settings** → **Devices** → **Bluetooth & other devices**. Turn on the **Bluetooth** switch to enable the Bluetooth feature.


2. Right-click the data that you want to send.

3. Select **Send To** → **Bluetooth Devices**.

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

For more information, see the Windows help information system and the help information system of the Bluetooth device.

Using the NFC devices

If your computer supports the near field communication (NFC) feature, you will see an NFC icon or label  around the trackpad area.

NFC is a high-frequency and short-range wireless communication technology. By using NFC, you can establish the radio communications between your computer and another NFC-enabled device over a few centimeters or inches.

This section provides instructions on how to pair your computer with an NFC device. For more information about data transfer, see the documentation of the NFC device.

Attention:

- Before handling the NFC card, touch a metal table or a grounded metal object. Otherwise the card might get damaged by the static electricity from your body.
- During the data transfer, do not put your computer or NFC-enabled smartphone into sleep mode; otherwise, your data might get damaged.

Enabling the NFC feature

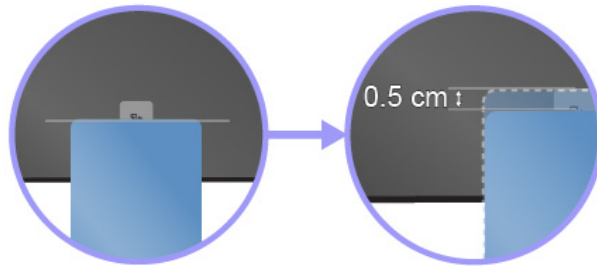
By default, the NFC feature is enabled. If the NFC feature of your computer is disabled, do the following to enable the NFC feature:

1. Open the Start menu and then click **Settings → Network & Internet → Airplane mode**.
2. Turn off the Airplane mode.
3. Turn on the NFC function.

Pairing your computer with an NFC card

Before you start, ensure that the card is in NFC Data Exchange Format (NDEF), otherwise the card cannot be detected. Then do the following:

1. Position the card closely above the NFC label as shown. Align the shorter edge of the card with the horizontal extension line for the center of the NFC label.
2. Slowly move the card a distance within 0.5 cm (0.20 inches) to the direction of the computer display. Then hold the card for seconds until you are prompted that the card has been successfully detected.

**Pairing your computer with an NFC-enabled smartphone**

Before you start, ensure that the smartphone screen is facing upward. Then do the following:

1. Position the smartphone closely above the NFC label as shown. Align the shorter edge of the smartphone with the horizontal extension line for the center of the NFC label.
2. Slowly move the smartphone a distance within 5 cm (1.97 inches) to the direction of the computer display. Then hold the smartphone for seconds until you are prompted that the smartphone has been successfully detected.



Using the Airplane mode

The Airplane mode is supported on the Windows 10 operating system. If the Airplane mode is enabled, all wireless features are disabled.

To enable or disable the Airplane mode, do the following:

1. Open the Start menu.
2. Click **Settings → Network & Internet → Airplane mode**.
3. Slide the control for **Airplane mode** to turn it on or off.

Using the NVIDIA Optimus Graphics feature

Some ThinkPad notebook computers support NVIDIA Optimus Graphics.

The running program and power plan settings that you use on your computer have specific graphics quality demand. To achieve the best balance between the computer performance and a long battery life, the NVIDIA Optimus Graphics feature automatically switches between High Performance Graphics and Energy Saving Graphics. You do not have to restart your computer, close programs, or intervene manually.

Using audio features

Your computer is equipped with the following items:

- Audio connector, 3.5 mm (0.14 inches) in diameter
- Microphones
- Speakers

Your computer also has an audio chip that enables you to enjoy various multimedia audio features, such as the following:

- Compliant with High Definition Audio
- Playback of MIDI and MP3 files
- Recording and playback of PCM and WAV files
- Recording from various sound sources, such as a headset attached

The following list provides information about supported functions of the audio devices attached to the connectors on your computer or the docking station.

- **Headset with a 3.5-mm (0.14-inch), 4-pole plug:** Headphone and microphone functions
- **Conventional headphone:** Headphone function

Note: The conventional microphone is not supported.

Using the camera

If your computer has a camera, you can use the camera to preview your video image and take a snapshot of your current image.

To start the camera, open the Start menu and click **Camera**.

When the camera is started, the indicator is turned on in green, indicating that the camera is in use.

You also can use the integrated camera with other programs that provide features such as photographing, video capturing, and video conferencing. To use the integrated camera with other programs, open one of the programs and start the photographing, video capturing, or video conferencing function. Then, the camera starts automatically and the green camera status indicator turns on. For more information about using the camera with a program, see the help information system of the program.

Configuring camera settings

You can configure the camera settings to meet your needs, such as adjusting the quality of the video output.

To configure the camera settings, do one of the following:

- Open the Camera app, and click the settings icon in the upper-right corner. Follow the instructions on the screen to configure the camera settings as desired.
- Open the Start menu and then click **Lenovo Companion** → **Hardware Settings** → **Display, Camera & Audio/Media**. Locate the **Camera** section and then follow the instructions on the screen to configure the camera settings.

Using an external display

This section provides instructions on how to connect an external display, choose display modes, and change display settings.

You can use an external display such as a projector or a monitor to give presentations or to expand your workspace.

Your computer supports the following video resolution, if the external display also supports that resolution.

- Up to 3840 x 2160 pixels / 60 Hz, with an external display connected to the Thunderbolt 3 connector or the Mini DisplayPort connector
- Up to 3840 x 2160 pixels / 30 Hz, with an external display connected to the HDMI connector

For more information about the external display, see the manuals that come with it.

Connecting an external display

You can use either a wired display or a wireless display. The wired display can be connected to a video connector such as the HDMI connector and Mini DisplayPort connector by a cable. The wireless display can be added through the Miracast® function.

- **Connecting a wired display**

Note: When you connect an external monitor, a video interface cable with a ferrite core is required.


1. Connect the external display to an appropriate video connector on your computer, such as the HDMI connector or Mini DisplayPort connector.
2. Connect the external display to an electrical outlet.
3. Turn on the external display.

If your computer cannot detect the external display, right-click on the desktop, and then click **Screen resolution/Display settings** → **Detect**.

- **Connecting a wireless display**


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

Do one of the following:

- Open the Start menu, and then click **Settings** → **Devices** → **Connected devices** → **Add a device**.
- Click the action center icon  in the Windows notification area. Click **Connect**. Select the wireless display and follow the instructions on the screen.

For more information, see the Windows help information system.

Choosing a display mode

You can display your desktop and apps on the computer display, the external display, or both. To choose how to display the video output, press the display-mode switching key  and then select a display mode you prefer.

There are four display modes:

- **Disconnect:** Displays the video output only on your computer screen.
Note: Depending on the situation, you might see **Disconnect**, **PC screen only**, **Computer only**, or **Disconnect projector**.
- **Duplicate:** Displays the same video output on both your computer screen and an external display.
- **Extend:** Extends the video output from your computer display to an external display. You can drag and move items between the two displays.
- **Projector only:** Shows the video output only on an external display.

Note: Depending on the situation, you might see **Projector only** or **Second screen only**.

If you show programs using DirectDraw or Direct3D® in full-screen mode, only the main display shows the video output.

Changing display settings

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

To change display settings, do the following:

1. Right-click on the desktop and select **Display settings**.
2. Select the display that you want to configure.
3. Change display settings as you want.

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

Traveling with your computer

This topic provides information to help you work with your computer when you are traveling.

Use the following travel tips to travel more confidently and efficiently with your computer.

- When your computer goes through the x-ray machines at airport security stations, it is important to keep your eyes on the computer at all times to prevent theft.
- Consider bringing an electrical adapter for use on an airplane or automobile.
- If you carry an ac power adapter, detach the ac cord from it to avoid damaging the cord.

Travel tips on airplanes

If you carry your computer onto an airplane, observe the following tips:

- Be careful about the seat in front of you on airplanes. Angle your computer display so that it does not get caught when the person in front of you leans back.
- When taking off, remember to turn off your computer or put it into hibernation mode.
- If you intend to use your computer or wireless services (such as Internet and Bluetooth), check with the airline for restrictions and availability of services before boarding the airplane. If there are restrictions on the use of computers with wireless features on the airplane, you must abide by those restrictions.

The Airplane mode is supported on the Windows 10 operating system. In the Airplane mode, all wireless features are disabled.

To enable the Airplane mode, do the following:

1. Open the Start menu, and then click **Settings → Network & Internet → Airplane mode**.
2. Slide the **Airplane mode** control to turn it on.

Travel accessories

If you are traveling to another country or region, you might want to consider an appropriate ac power adapter for the country or region to which you are traveling.

To purchase travel accessories, go to:

http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades

Chapter 3. Enhancing your computer

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

Finding ThinkPad options

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

To shop at Lenovo, go to:

http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades

ThinkPad Pen Pro

Some computer models are equipped with the ThinkPad Pen Pro (an electronic pen). The ThinkPad Pen Pro enables you to input text in a natural manner when you are:

- Taking notes
- Annotating Portable Document Format (PDF) files
- Drawing graphics with applications capable of editing and sketching

When you draw or write with the ThinkPad Pen Pro, keep it perpendicular to the computer display to achieve the best line quality.

Use the ThinkPad Pen Pro instead of your finger in conditions such as the following:

- You need precise and detailed input, such as drawing a picture or using the handwriting mode.
- Too many elements are crowded on the screen, for example, when you are playing games.
- You want to keep your screen free from smudges.
- You have long fingernails and it is difficult for you to type.

Notes:

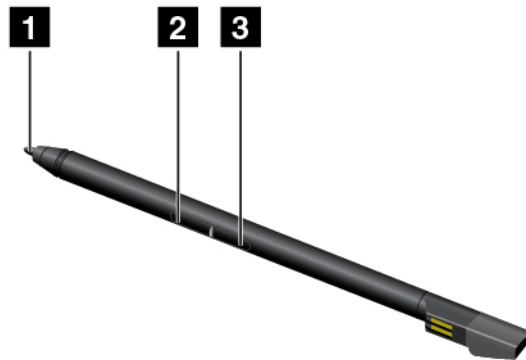
- The ThinkPad Pen Pro is not waterproof. Take care not to soak it or dip it in water.
- If your computer does not come with a ThinkPad Pen Pro, your computer does not support the use of the pen.
- To purchase the ThinkPad Pen Pro, go to:

http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades

Using the ThinkPad Pen Pro

The following illustration shows the ThinkPad Pen Pro.

- ❶ Tip
- ❷ Eraser button
- ❸ Click button



You can perform the following operations with the ThinkPad Pen Pro:

- To click or make a selection, tap the display once with the pen.
- To double-click, tap twice without pausing.
- To right-click, tap the tip **❶** on the display and hold the pen there for one second. Alternatively, you can press and hold the click button **❸** while tapping the tip **❶** on the display.
- To erase ink, press and hold the eraser button **❷**, tap the tip **❶** on the display, and drag the pen across the ink you want to erase.

The ThinkPad Pen Pro is stored in the slot on the bottom side of the computer. To remove the pen from the slot, slide the tab of the pen a little bit out, and then completely pull out the pen.

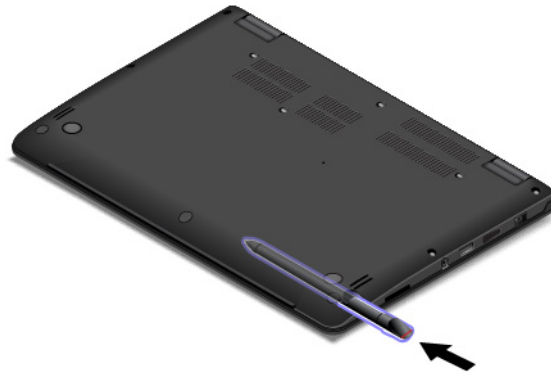


Charging the ThinkPad Pen Pro

To charge the pen, insert the pen slightly into the slot until it snaps into position. The pen will be 80% charged in about 15 seconds and 100% charged in about five minutes.

The following illustration is an example. You can insert the pen into the slot for charging no matter the computer is in the notebook mode, stand mode, tent mode, or tablet mode.

Note: Ensure that your computer is on or in sleep mode. Otherwise, the pen will not be charged.



ThinkPad Pen Pro

Some computer models are equipped with a ThinkPad Pen Pro. The ThinkPad Pen Pro enables you to input text in a natural manner when you are:

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When you draw or write with the pen, keep it perpendicular to the display to achieve the best line quality.

Use the ThinkPad Pen Pro instead of your finger in conditions such as the following:

- You need precise and detailed input, such as drawing a picture or using the handwriting mode.
- Too many elements are crowded on the screen, for example, when you are playing games.
- You want to keep your screen free from smudges.
- You have long fingernails and it is difficult for you to type.

Notes:

- The ThinkPad Pen Pro is not waterproof. Take care not to soak it or dip it in water.
- The ThinkPad Pen Pro does not apply to computer models equipped with the Tablet Digitizer Pen, and vice versa.
- If your computer does not come with a ThinkPad Pen Pro, your computer does not support the use of a pen.
- To purchase the ThinkPad Pen Pro, go to:
http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades

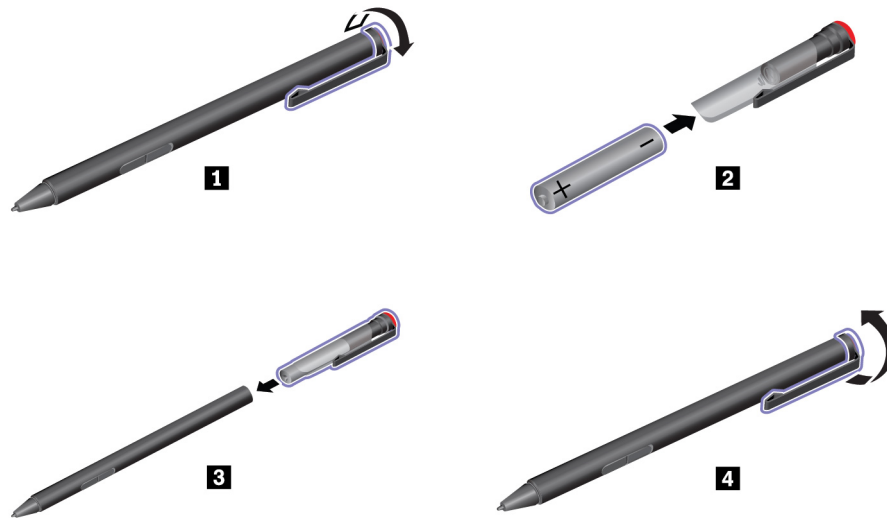
Using the ThinkPad Pen Pro

The ThinkPad Pen Pro is battery-powered and used with one AAAA alkaline battery.

To install a battery into the ThinkPad Pen Pro, do the following:

1. Unscrew and remove the end cap of the ThinkPad Pen Pro.

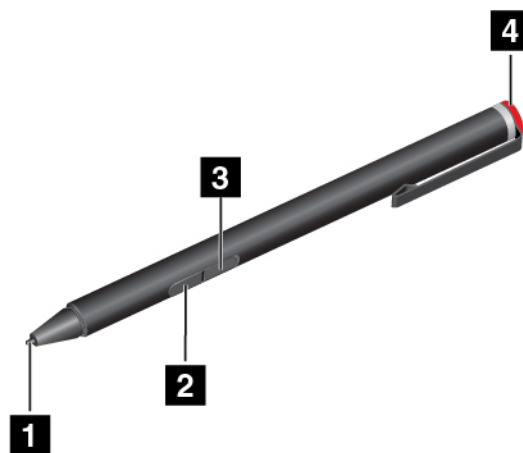
2. Insert an AAAA alkaline battery into the battery compartment with the negative polarity facing outward.
3. Reinstall the end cap and tighten it into position.



When the battery power runs out, the ThinkPad Pen Pro stops functioning. In this case, replace the battery.

The following illustration shows the ThinkPad Pen Pro.

- 1 Tip
- 2 Eraser button
- 3 Click button
- 4 End cap



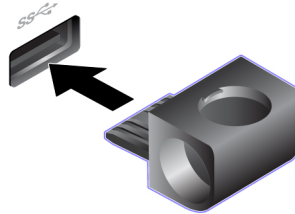
You can perform the following operations with the ThinkPad Pen Pro:

- To click or make a selection, tap the display once with the pen.
- To double-click, tap twice without pausing.
- To right-click, tap the tip on the display and hold the pen for one second. Alternatively, you can press the click button and tap the tip on the display.

- To erase ink, press and hold the eraser button, tap the tip on the display, and drag the pen across the ink you want to erase.

The ThinkPad Pen Pro is delivered with a pen holder. To store the ThinkPad Pen Pro on the computer, do the following:

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



2. Insert the ThinkPad Pen Pro into the pen holder in any ways as shown in the following illustrations:



Tablet Digitizer Pen

Some computer models are equipped with a Tablet Digitizer Pen. The Tablet Digitizer Pen enables you to input text in a natural manner when you are:

- Taking notes
- Annotating Portable Document Format (PDF) files
- Drawing graphics with applications capable of editing and sketching

When you draw or write with the pen, keep it perpendicular to the display to achieve the best line quality.

Use the Tablet Digitizer Pen instead of your finger in conditions such as the following:

- You need precise and detailed input, such as drawing a picture or using the handwriting mode.
- Too many elements are crowded on the screen, for example, when you are playing games.
- You want to keep your screen free from smudges.
- You have long fingernails and it is difficult for you to type.

Notes:

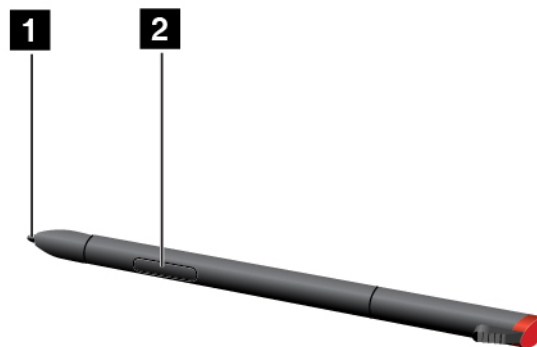
- The Tablet Digitizer Pen is not waterproof. Take care not to soak it or dip it in water.
- The Tablet Digitizer Pen does not apply to computer models equipped with the ThinkPad Pen Pro, and vice versa.
- If your computer does not come with a Tablet Digitizer Pen, your computer does not support the use of a pen.
- To purchase the Tablet Digitizer Pen, go to:
http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades

Using the Tablet Digitizer Pen

The Tablet Digitizer Pen functions without batteries.

1 Tip

2 Click button



You can perform the following operations with the Tablet Digitizer Pen:

- To click or make a selection, tap the display once with the pen.
- To double-click, tap twice without pausing.
- To right-click, tap the tip on the display and hold the pen for one second. Alternatively, you can press the click button and tap the tip on the display.

The Tablet Digitizer Pen is stored in the slot on the right side of the computer. To remove the pen from the slot, slide the tab of the pen a little bit out, and then completely pull out the pen.



Chapter 4. Accessibility, ergonomic, and maintenance information

This chapter provides information about accessibility, ergonomic, and cleaning and maintenance.

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:

<http://www3.lenovo.com/us/en/lenovo/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, do the following:

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

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.

Using only your voice, you can start programs, open menus, click objects on the screen, dictate text into documents, and write and send e-mails. Everything you do with the keyboard and mouse can be done with only your voice.

To use Speech Recognition, do the following:

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

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:

- Using PDFs with screen readers:
<https://www.adobe.com/accessibility.html?promoid=DJGVE>
- Using the JAWS screen reader:
<https://www.freedomscientific.com/Products/Blindness/JAWS>
- Using 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, do the following:

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

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, do the following:
 - 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 instructions on the screen. 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.

What if you are traveling?

It might not be possible to observe the best ergonomic practices when you are using your computer while on the move or in a casual setting. Regardless of the setting, try to observe as many of the tips as possible. Sitting properly and using adequate lighting, for example, helps you maintain desirable levels of comfort and performance. If your work area is not in an office setting, ensure to take special note of employing active sitting and taking work breaks. Many ThinkPad product solutions are available to help you modify and expand your computer to best suit your needs. You can find some of these options at http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades. Explore your options for docking solutions and external products that provide the adjustability and features that you want.

Questions about vision?

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

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 in top working order.

Basic maintenance tips

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

- Store packing materials safely out of the reach of children to prevent the risk of suffocation from plastic bags.
- Keep your computer away from magnets, activated cellular phones, electrical appliances, or speakers (more than 13 cm or 5 inches).
- Avoid subjecting your computer to extreme temperatures (below 5°C/41°F or above 35°C/95°F).
- Avoid placing any objects (including paper) between the display and the keyboard or the palm rest.
- Your computer display is designed to be opened and used at an angle slightly greater than 90 degrees. Do not open the display beyond 180 degrees. Otherwise, the computer hinge might get damaged.

- Do not turn your computer over when the ac power adapter is plugged in, otherwise, it could break the adapter plug.
- Before moving your computer, be sure to remove any media, turn off attached devices, and disconnect cords and cables.
- When picking up your open computer, hold it by the bottom. Do not pick up or hold your computer by the display.
- Only an authorized ThinkPad repair technician should disassemble and repair your computer.
- Do not modify or tape the latches to keep the display open or closed.
- Avoid directly exposing your computer and peripherals to the air from an appliance that can produce negative ions. Wherever possible, ground your computer to facilitate safe electrostatic discharge.

Cleaning your computer

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

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

Cleaning 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.

Cleaning 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.

Chapter 5. Advanced configuration

This chapter provides information to help you further configure the computer:

Installing device drivers

Device drivers are programs that contain instructions for the operating system about how to operate or “drive” a certain piece of hardware. Each hardware component on your computer has its own specific driver. If you add a component, the operating system must be instructed on how to operate that piece of hardware. After you install the driver, the operating system can recognize the hardware component and understand how to use it.

Note: Because drivers are programs, like any other file on your computer, they are susceptible to corruption and might not perform properly if corruption occurs.

It is not always necessary to download the latest drivers. However, 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.

Getting the latest drivers from the Web site

You can download and install updated device drivers from the Lenovo Support Web site by doing the following:

1. Go to <http://www.lenovo.com/support>.
2. Select the entry for your computer and then follow the instructions on the screen to download and install necessary software.

Getting the latest drivers using Lenovo Companion

The system update function of Lenovo Companion helps you keep the software on your computer up-to-date. Update packages are stored on Lenovo servers and can be downloaded from the Lenovo Support Web site. Update packages can contain applications, device drivers, UEFI BIOS flashes, or software updates. When Lenovo Companion connects to the Lenovo Support Web site, the program automatically recognizes the following information and determines what updates are available for your computer:

- Machine type and model of your computer
- Installed operating system
- Language of the operating system

Lenovo Companion then displays a list of update packages and categorizes each update as critical, recommended, or optional to help you understand the importance. You have complete control of which updates to download and install. After you select the update packages you want, Lenovo Companion automatically downloads and installs the updates.

Lenovo Companion is preinstalled on your computer and is ready to run. The only prerequisite is an active Internet connection. You can start the program manually, or you can use the schedule feature to enable the program to search for updates automatically at specified intervals. You also can predefine scheduled updates to search by the critical severity level so the list you choose from contains only those update types that you need.

For more information about how to use Lenovo Companion, see the help system of the program.

Using system management

This topic is primarily intended for the network administrators.

Your computer is designed for manageability, so that you can redirect more resources to better meet your business objectives.

This manageability, known as total cost of ownership (TCO), enables you to remotely operate client computers in the same way as you operate your own computer, such as turning on a client computer, formatting a storage drive, and installing a program.

Once the computer is configured and operational, you can manage it by using the software and the manageability features that are already integrated into the client computer and the network.

Desktop Management Interface

The UEFI BIOS of your computer supports an interface called System Management BIOS (SMBIOS) Reference Specification, version 2.8 or later. SMBIOS provides information about the hardware components of your computer. It is the responsibility of the UEFI BIOS to provide information about itself and the devices on the system board. This specification documents the standards for getting access to this BIOS information.

Preboot eXecution Environment

The Preboot eXecution Environment (PXE) technology makes the computer more manageable by enabling the computer to start from a server. Your computer supports the personal computer functions that PXE requires. For example, with the appropriate LAN card, your computer can be started from the PXE server.

Note: The Remote Initial Program Load (RIPL or RPL) function cannot be used with your computer.

Wake on LAN

The network administrator can turn on a computer from a management console by using the Wake on LAN feature.

When the Wake on LAN feature is enabled, many operations, such as data transfer, software updates, and flash updates of the UEFI BIOS, can be done remotely without remote attendance. The updating process can perform after normal working hours and on weekends, so that the users are not interrupted during work, and the LAN traffic is kept to a minimum. It saves time and increases productivity.

If the computer is turned on through Wake on LAN, the computer starts follow the **Network Boot** sequence.

Asset ID EEPROM

The Asset ID EEPROM contains information about the computer configuration and the serial numbers of the key components. It also includes a number of blank fields where you can record information about the end users in your network.

To enable a network administrator to remotely control your computer, set the following system-management features in the ThinkPad Setup program:

- Wake on LAN
- Network Boot sequence

Note: If a supervisor password has been set, you are required to enter the supervisor password when you start the ThinkPad Setup program.

Enabling or disabling the Wake on LAN feature

When the Wake on LAN feature is enabled and the computer is connected to a LAN, the network administrator can start the computer remotely from a management console, using a remote network-management program.

To enable or disable the Wake on LAN feature, do the following:

1. Restart the computer. When the logo screen is displayed, press F1 to start the ThinkPad Setup program.
2. Select **Config → Network**. The **Network** submenu is displayed.
3. Select a corresponding option for the Wake on LAN feature.
4. Press F10 to save the settings and exit.

Defining a Network Boot sequence

When the computer wakes on LAN, the computer boots from the device as specified on the **Network Boot** menu, and then follow the boot order list on the **Boot** menu.

To define a Network Boot sequence, do the following:

1. Restart the computer. When the logo screen is displayed, press F1 to start the ThinkPad Setup program.
2. Select **Startup → Network Boot**. The boot device list is displayed.
3. Select a boot device to make it as the top boot priority.
4. Press F10 to save the settings and exit.

You can press F9 to restore to the factory default settings.

Chapter 6. Troubleshooting computer problems

This chapter provides information about what to do if you experience a problem with your computer.

Troubleshooting

If your computer has an error, it typically displays a message or an error code, or makes a beep when you turn it on. When you experience a problem, see the corresponding symptom and solution in this topic to try to solve the problem by yourself.

Computer stops responding

Print these instructions now and keep them with your computer for reference later.

Problem: My computer is unresponsive (I cannot use the ThinkPad pointing device or the keyboard).

Solution: Do the following:

1. Press and hold the power button until the computer turns off. If you cannot turn off the computer by pressing the power button, remove the ac power adapter and the removable battery. After the computer is turned off, reconnect the ac power adapter and reinstall the removable battery, and then restart the computer by pressing the power button. If the computer does not turn on, continue with step 2.
2. While the computer is turned off, remove all power sources from the computer (removable battery and the ac power adapter). Plug in the ac power adapter while keeping the removable battery out of the computer. If the computer does not turn back on, continue with step 3.

Note: When the computer starts up and enters the Windows environment, use the proper shutdown procedure to turn off the computer. When the computer is off, reattach the removable battery and restart the computer. If the computer does not start with the removable battery reattached, remove the removable battery and again start with step 2. If the computer starts with ac power but does not start when the removable battery is attached, call the Customer Support Center for support.

3. While the computer is off, remove all sources of power (removable battery and the ac power adapter). Remove all external devices that are attached to your computer (keyboard, mouse, printer, scanner, and so on). Repeat step 2. If step 2 is unsuccessful, continue with step 4.

Note: The following steps involve removing static sensitive components from your computer. Make sure that you are properly grounded and remove all sources of power attached to the computer. If you are uncomfortable or unsure about removing components, call the Customer Support Center for assistance.

4. While the computer is off, remove all sources of power and external hardware. Remove any non-original memory module added to your computer. After removing the extra memory module and reinstalling the original memory module, repeat step 2. If the computer still does not turn on, consult the user manual for other customer-replaceable components that are attached to your computer.

If the computer still does not start up, call the Customer Support Center and a Customer Support Specialist will assist you.

Spills on the keyboard

Problem: I spill something on the computer.

Solution: Because most liquids conduct electricity, liquid spilled on the keyboard could create numerous short circuits and damage your computer. To solve the problem, do the following:

1. Ensure that no liquid creates a short circuit between you and the ac power adapter (if in use).
2. Carefully unplug the ac power adapter immediately.
3. Turn off the computer immediately. If the computer does not turn off, remove the removable battery. The more quickly you stop the current from passing through the computer the more likely you will reduce damage from short circuits.

Attention: Although you might lose some data or work by turning off the computer immediately, leaving the computer on might make your computer unusable.

4. Wait until you are certain that all the liquid is dry before turning on your computer.

Ethernet problems

- **Problem:** My computer cannot connect to the network.

Solution:

Ensure that:

- The cable is installed correctly.

The network cable must be securely connected both to the Ethernet connector of your computer and to the RJ45 connector of the hub. The maximum allowable distance from the computer to hub is 100 m (328 ft). If the cable is connected and the distance is within the acceptable limits but the problem persists, try a different cable.

- You are using the correct device driver. To install the correct driver, do the following:

1. Go to Control Panel, and ensure that you view Control Panel by Category.
2. Click **Hardware and Sound** → **Device Manager**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
3. Double-click **Network adapters** to view all network adapters. If an exclamation mark ! is displayed next to the adapter name, you might not be using the correct driver or the driver might have been disabled.
4. Right-click the highlighted adapter, click **Update driver**, and then follow the instructions on the screen to update the driver.

- The switch port and the adapter have the same duplex setting.

If you configured the adapter for full duplex, ensure that the switch port also is configured for full duplex. Setting a wrong duplex mode can degrade performance, cause data loss, or result in lost connections.

- You have installed all networking software that is necessary for your network environment.

Check with your LAN administrator for the necessary networking software.

- **Problem:** The adapter stops working for no apparent reason.

Solution: The network driver files might be corrupt or missing.

- **Problem:** My computer is a Gigabit Ethernet model and I use a speed of 1000 Mbps, the connection fails or errors occur.

Solution:

- Use Category 5 wiring and ensure that the network cable is securely connected.
- Connect to a 1000 BASE-T hub/switch (not 1000 BASE-X).

- **Problem:** The Wake on LAN feature is not working.

Solution: Ensure that Wake on LAN is enabled in ThinkPad Setup. If it is, check with your LAN administrator for the necessary settings.

- **Problem:** My computer is a Gigabit Ethernet model, but it cannot connect to the network at 1000 Mbps. Instead, it connects at 100 Mbps.

Solution:

- Try another Ethernet cable.
- Ensure that the link partner is set to auto-negotiate.
- Ensure that the switch is 802.3ab-compliant (gigabit over copper).

Wireless-LAN problem

Problem: I cannot connect to the network using the built-in wireless network card.

Solution: Ensure that:

- The Airplane mode is off.
- Your wireless-LAN driver is the latest version.
- Your computer is within the range of a wireless access point.
- The wireless radio is enabled.

Bluetooth problem

Note: Check your connection anytime and ensure that no other Bluetooth-enabled device is searching for the device to which you want to connect. Simultaneous searching is not allowed in the Bluetooth connection.

Problem: Sound does not come from the Bluetooth headset/headphones but comes from the local speaker even though the Bluetooth headset/headphones is connected using a Headset profile or AV profile.

Solution: Do the following:

1. Exit the program that uses the sound device (for example, Windows Media Player).
2. Go to Control Panel, and ensure that you view Control Panel by Category.
3. Click **Hardware and Sound** → **Sound** → **Playback**.
4. If you are using a Headset profile, select **Bluetooth Hands-free Audio** and click **Set Default**. If you are using an AV profile, select **Stereo Audio** and click **Set Default**.
5. Click **OK** to close the Sound window.

Keyboard problems

- **Problem:** All or some keys on the keyboard do not work.

Solution: If an external numeric keypad is connected:

1. Turn off the computer.
2. Remove the external numeric keypad.
3. Turn on the computer and try using the keyboard again.

If the keyboard problem is resolved, carefully reconnect the external numeric keypad.

If the problem persists, ensure that the correct device driver is installed by doing the following:

1. Go to Control Panel, and then change the view of Control Panel from Category to Large icons or Small icons.
2. Click **Keyboard**.
3. Click the **Hardware** tab. In the **Device Properties** section, ensure that you see this message: Device Status: This device is working properly.

If keys on the keyboard still do not work, have the computer serviced.

- **Problem:** All or some keys on the external numeric keypad do not work.
Solution: Ensure that the external numeric keypad is correctly connected to the computer.
- **Problem:** The keys on the top row of the numeric keypad might not function the same as the icon printed on each key.

Solution: Do the following:

1. Go to Control Panel, and then change the view of Control Panel from Category to Large icons or Small icons.
2. Click **Keyboard**. In the Keyboard Properties window, click the **Fn and function keys** tab.

Note: If the **Fn and function keys** tab is not displayed, connect your computer to the Internet. Then download and install the ThinkPad Hotkey Features program from the Lenovo Support Web site. For more information, see “Installing device drivers” on page 45.

3. In the **How to use Fn key combinations** section, select your preferred option.
4. If you select **Fn sticky method**, press Fn to reset the Fn sticky status.
5. Try to press keys on the top row of the numeric keypad again to check if the problem is resolved.

Computer screen problems

- **Problem:** My screen keeps blanking when I do not want it to.

Solution: Do the following:

1. Go to Control Panel, and ensure that you view Control Panel by Category.
2. Click **Hardware and Sound → Power Options**.
3. Show the additional plans, and then select **High performance**.

- **Problem:** When I turn on the computer, nothing is displayed on the screen and the computer does not beep while starting up.

Note: If you are not sure whether you heard any beeps, turn off the computer by pressing and holding the power button for four seconds or more. Then turn on the computer and listen again.

Solution: Ensure that:

- The battery is installed correctly.
- The ac power adapter is connected to the computer and the power cord is plugged into a working electrical outlet.
- The computer is turned on. (Press the power button again for confirmation.)
- The brightness level of the screen is appropriately set.

If a power-on password is set, press any key to display the prompt for the power-on password and then type the correct password and press **Enter**.

If these items are correctly set, and the screen remains blank, have the computer serviced.

- **Problem:** When I turn on the computer, only a white cursor is displayed on a blank screen.

Solution: If you have modified a partition on your hard disk drive by using partition software, information about that partition, or the master boot record might have been destroyed.

Do the following to try to solve the problem:

1. Turn off the computer, and then turn it on again.
2. If you still see only the cursor on the screen, do the following:

- If you have used partition software, examine the partition on the hard disk drive by using the software, and recover the partition if required.

If the problem persists, have the computer serviced.



- **Problem:** The screen goes blank while the computer is on.

Solution: Your screen saver or power management might have been enabled. Do one of the following:

- Touch the TrackPoint pointing device or the trackpad, or press a key to exit the screen saver.
- Press the power button to resume the computer from sleep or hibernation mode.

- **Problem:** The screen is blank.

Solution: Do the following:

1. Press the display-mode switching key  to bring up the image.
2. If you are using the ac power adapter, or using the battery and the battery gauge shows that the battery is not depleted, press the brightness-up key  to make the screen brighter.
3. If your computer is in sleep mode, press Fn to resume the computer from sleep mode.
4. If the problem persists, follow the solution for the following problem.

- **Problem:** The screen is unreadable or distorted.

Solution: Ensure that:

- The display device driver is installed correctly.
- The screen resolution and color quality are correctly set.
- The monitor type is correct.

To check these settings, do the following:

1. Right-click on the desktop, and click **Display settings** → **Advanced display settings**.

Note: If your computer cannot detect the external monitor, click **Detect** in the Display window.

2. Select the external monitor and set **Resolution**.

3. Click **Display adapter properties**.

4. Click the **Monitor** tab. Check the monitor information to make sure that the monitor type is correct. If it is, click **OK** to close the window; otherwise proceed with the following steps.

5. If more than two monitor types are displayed, select **Generic PnP Monitor** or **Generic Non-PnP Monitor**.

6. Click **Properties**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

7. Click the **Driver** tab.

8. Click **Update Driver**.

9. Click **Browse my computer for driver software**, and then click **Let me pick from a list of device drivers on my computer**.

10. Clear the **Show compatible hardware** check box.

11. Select the correct manufacturer and model for the external monitor. If you cannot find your monitor on the list, stop the installation of this driver and use the driver shipped with your monitor.

12. After updating the driver, click **Close**.

- **Problem:** Incorrect characters are displayed on the screen.

Solution: Ensure that you install the operating system and program correctly. If the problem persists, have the computer serviced.

- **Problem:** I try to turn off my computer but the screen stays on and I cannot completely turn off my computer.


Solution: Press and hold the power button for four seconds or more to turn off the computer.

- **Problem:** Missing, discolored, or bright dots appear on the screen every time I turn on my computer.

Solution: This is an intrinsic characteristic of the TFT technology. Your computer display contains multiple thin-film transistors (TFTs). Only a very small number of missing, discolored, or bright dots on the screen might exist all the time.

External monitor problems

- **Problem:** The external monitor is blank.

Solution: To bring up the image, press the display-mode switching key  and select the monitor you want. If the problem persists, do the following:

1. Connect the external monitor to another computer to ensure that it works.
2. Reconnect the external monitor to your computer.
3. See the manual shipped with the external monitor to check the resolutions and refresh rates that are supported.
 - If the external monitor supports the same resolution as the computer display or a higher resolution, view output on the external monitor or on both the external monitor and the computer display.
 - If the external monitor supports a lower resolution than the computer display, view output on the external monitor only. (If you view output on both the computer display and the external monitor, the external monitor screen will be blank or distorted.)

- **Problem:** I cannot set a higher resolution than the present one on my external monitor.

Solution: Ensure that the monitor information is correct. If necessary, update the monitor driver.

- **Problem:** The screen is unreadable or distorted.

Solution: Ensure that:

- The monitor information is correct and the appropriate monitor type is selected. If necessary, update the monitor driver.
- Ensure that an appropriate refresh rate is selected by doing the following:
 1. Connect the external monitor to the monitor connector, and then connect the monitor to an electrical outlet.
 2. Turn on the external monitor and the computer.
 3. Right-click on the desktop, and then click **Display settings** → **Display**.

Note: If your computer cannot detect the external monitor, click **Detect** in the Display window.

4. Click the icon for the appropriate monitor (**Monitor-2** icon is for the external monitor).
5. Click **Display adapter properties**.
6. Click the **Monitor** tab.
7. Select the correct screen refresh rate.

- **Problem:** Wrong characters are displayed on the screen.

Solution: Ensure that you follow the correct procedure when installing the operating system and program. If they are installed and configured correctly, but the problem still persists, have the external monitor serviced.

- **Problem:** The Extend desktop function does not work.

Solution: Enable the Extend desktop function. See “Using an external display” on page 28.

- **Problem:** I am using the Extend desktop function, but I cannot set a higher resolution or higher refresh rate on the secondary display.
Solution: Change the resolution and the color depth to lower settings for the primary display. See “Using an external display” on page 28.
- **Problem:** Display switching does not work.
Solution: If you use the Extend desktop function, disable it, and change the display output location. If a DVD movie or a video clip is playing, stop the playback, close the program, and then change the display output location.
- **Problem:** The screen position on the external monitor is incorrect when that monitor is set for a high resolution.
Solution: Sometimes, when you use a high resolution such as 1600 x 1200 pixels, the image is shifted to the left or right on the screen. To correct this, first ensure that your external monitor supports the display mode (the resolution and the refresh rate) that you have set. If it does not, set a display mode that the monitor supports. If it does support the display mode you have set, go to the setup menu for the monitor itself and adjust the settings there. Usually the external monitor has buttons for access to the setup menu. For more information, see the documentation that comes with the monitor.

Audio problems

- **Problem:** Wave or MIDI sound does not play properly.
Solution: Ensure that the built-in audio device is configured correctly.
 1. Go to Control Panel, and ensure that you view Control Panel by Category.
 2. Click **Hardware and Sound**.
 3. Click **Device Manager**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.
 4. Double-click **Sound, video and game controllers**.
 5. Ensure that the device following **Sound, video and game controllers** is enabled and configured correctly.
- **Problem:** Recordings made by using the microphone input are not loud enough.
Solution: Ensure that the Microphone Boost function is turned on and set by doing the following:
 1. Go to Control Panel, and ensure that you view Control Panel by Category.
 2. Click **Hardware and Sound**.
 3. Click **Sound**.
 4. Click the **Recording** tab in the Sound window.
 5. Select **Internal Microphone**, and click **Properties**.
 6. Click the **Levels** tab, and move the Microphone Boost slider upwards.
 7. Click **OK**.

Note: For more information about controlling volume, see your Windows online help.
- **Problem:** I cannot move the volume slider or balance slider.
Solution: The slider might be grayed out. This means that its position is fixed by the hardware and cannot be changed.
- **Problem:** The volume sliders do not stay in place when some audio programs are used.
Solution: It is normal for the sliders to change position when certain sound programs are used. The programs are aware of the settings in the Volume Mixer window and are enabled to change the settings themselves. An example is the Windows Media Player program. Usually the program has sliders available to control the sound from within the program.

- Problem:** The balance slider cannot completely mute one channel.

Solution: The control is designed to compensate for minor differences in balance and does not completely mute either channel.
- Problem:** There is no volume control for MIDI sound in the Volume Mixer window.

Solution: Use the hardware volume control. This is because the built-in synthesizer software does not support the control.
- Problem:** The sound cannot be turned off even if I set the Master volume control at minimum.

Solution: You still can hear some sound even though you have set the Master volume control at minimum. To turn off the sound completely, go to the Master volume control and select **Mute Speaker/HP**.
- Problem:** When I connect headphones to my computer while playing sound, a speaker does not produce sound.

Solution: When the headphones are attached, the streaming is automatically redirected to it. If you want to listen to sound from the speakers again, ensure that you set those speakers as the default device. For more information, see the help information system for Realtek HD Audio Manager.
- Problem:** Sound does not come from a headphone or a speaker, or the computer cannot record sounds.

Solution: To switch from one device to another (for example, from a speaker to a headphone, or from an external microphone to a built-in microphone), do the following:

 1. Go to Control Panel, and ensure that you view Control Panel by Category.
 2. Click **Hardware and Sound**.
 3. Click the **SmartAudio** icon.
 4. Ensure that the computer is in MULTI-STREAM mode in the Device advanced settings window.
 5. In the Volume Mixer window, select the device you want, for example, speakers.
 6. Play any sound through a music program (for example, Windows Media Player). Ensure that sound comes from the speakers now.
 7. Then, if you would like to switch to a headphone, close the music program.
 8. Go to the Volume Mixer window. Then select another device (for example, the headphone).
 9. Play any sound through the music program. Ensure that sound comes from the headphone attached directly to the system. For more information, see the help information system of the SmartAudio program.

Note: The Volume Mixer window of **SmartAudio** displays all audio devices detected in the system, such as speakers for a playback device, or a built-in microphone for a recording device. A check mark beside the audio device shows that the device has been selected.

Battery problems

- Problem:** The battery cannot be fully charged in the standard charge time when the computer is powered off.

Solution: The battery might be over-discharged. Do the following:

 1. Turn off the computer.
 2. Ensure that the over-discharged battery is in the computer.
 3. Connect the ac power adapter to the computer and let it charge.

If a quick charger is available, use it to charge the over-discharged battery.

If the battery cannot be fully charged in 24 hours, use a new battery.
- Problem:** The computer shuts down before the battery status icon shows that the battery is empty.

Solution: Discharge and recharge the battery.

- **Problem:** The computer operates after the battery status icon shows that the battery is empty.
Solution: Discharge and recharge the battery.
- **Problem:** The operating time for a fully charged battery is short.
Solution: Discharge and recharge the battery. If your battery operating time is still short, use a new battery.
- **Problem:** The computer does not operate with a fully charged battery.
Solution: The surge protector in the battery might be active. Turn off the computer for one minute to reset the protector; then turn on the computer again.
- **Problem:** The battery cannot get charged.
Solution: You cannot charge the battery when it is too hot. If the battery feels hot, remove it from the computer and wait for a while to let it cool to room temperature. After it cools, reinstall it and recharge the battery. If it still cannot be charged, have it serviced.

ac power adapter problem

Problem: The ac power adapter is connected to the computer and the working electrical outlet, but the power adapter (power plug) icon is not displayed in the Windows notification area. The ac power indicator also does not light up.

Solution: Do the following:

1. Ensure that the connection of the ac power adapter is correct. For instructions on how to connect the ac power adapter, see “Using the ac power adapter” on page 22.
2. If the connection of the ac power adapter is correct, turn off the computer, and then disconnect the ac power adapter and remove the removable battery.
3. Reinstall the battery and reconnect the ac power adapter, and then turn on the computer.
4. If the power adapter icon still is not displayed in the Windows notification area, have the ac power adapter and your computer serviced.

Power problems

Print these instructions now and keep them with your computer for reference later.

- **Problem:** My computer is getting no power at all.
Solution: Check the following items:
 1. Verify the power button. The power button is illuminated whenever the computer is on.
 2. Check all power connections. Remove any power strips and surge protectors to connect the ac power adapter directly to the ac power outlet.
 3. Inspect the ac power adapter. Check for any physical damage, and ensure that the power cable is firmly attached to the adapter brick and the computer.
 4. Verify that the ac power source is working by attaching another device to the outlet.
- **Problem:** My computer does not run on battery power.
Solution: Check the following items:
 1. Remove and reinstall the removable battery to ensure that it is properly connected.
 2. If the battery runs out of power, attach the ac power adapter to recharge the battery.
 3. If the battery is charged but the computer does not run, replace the battery with a new one.
- **Problem:** The system does not respond, and I cannot turn off the computer.

Solution: Turn off the computer by pressing and holding the power button for four seconds or more. If the computer still does not respond, remove the ac power adapter and the battery.

Power button problem

Problem: The system does not respond, and I cannot turn off the computer.

Solution: Turn off the computer by pressing and holding the power button for four seconds or more. If the system still does not respond, remove the ac power adapter and reset the system by inserting one end of a needle or a straightened paper clip into the emergency-reset hole.

Boot problems

Print these instructions now and keep them with your computer for reference later.

- **Problem:** I receive an error message before the operating system loads.

Solution: Follow the appropriate corrective actions for power-on self-test (POST) error messages.

- **Problem:** I receive an error message while the operating system is loading the desktop configuration after the POST is completed.

Solution: Find solutions by searching for the error message at the following Web sites:

- <http://www.lenovo.com/support>
- <https://support.microsoft.com/>

Sleep and hibernation problems

- **Problem:** The computer enters sleep mode unexpectedly.

Solution: If the microprocessor overheats, the computer automatically enters sleep mode to allow the computer to cool and to protect the microprocessor and other internal components. Check the settings for sleep mode.

- **Problem:** The computer enters sleep mode immediately after the power-on self-test.

Solution: Ensure that:

- The battery is charged.
- The operating temperature is within the acceptable range. See “Operating environment” on page 10.


If the problem persists, have the computer serviced.

- **Problem:** A critical low-battery error occurs, and the computer immediately turns off.

Solution: The battery power is getting low. Plug the ac power adapter into an electrical outlet and then into the computer. Alternatively, replace the battery with a charged one.

- **Problem:** The computer display remains blank after you press Fn to resume from sleep mode.

Solution: Check whether an external monitor was disconnected or turned off while the computer was in sleep mode. If you disconnected or turned off the external monitor, connect it or turn it on before resuming the computer from sleep mode. When resuming the computer from sleep mode without attaching the external monitor or turning it on, and the computer display remains blank, press the display-mode

switching key  to bring up the computer display.

- **Problem:** The computer does not resume from sleep mode, or the system status indicator blinks slowly and the computer does not work.

Solution: If the system does not resume from sleep mode, it might have entered sleep or hibernation mode automatically because the battery is depleted. Check the system status indicator.

- If the system status indicator blinks slowly, your computer is in sleep mode. Connect the ac power adapter to the computer; then press Fn.
- If the system status indicator is off, your computer has no power or is in hibernation mode. Connect the ac power adapter to the computer; then press the power button to resume operation.

If the system still does not resume from sleep mode, your system might stop responding and you might not be able to turn off the computer. In this case, you must reset the computer. If you have not saved your data, it might be lost. To reset the computer, press and hold the power button for four seconds or more. If the system still does not respond, remove the ac power adapter and the battery.

- **Problem:** Your computer does not enter sleep or hibernation mode.

Solution: Check whether any option has been selected to disable your computer from entering sleep or hibernation mode.

If your computer tries to enter sleep mode but the request is rejected, the device attached to the USB connector might have been disabled. If this occurs, do a hot-unplug-and-plug operation for the USB device.

- **Problem:** The battery discharges slightly while the computer is in hibernation mode.

Solution: If the wakeup function is enabled, the computer consumes a small amount of power. This is not a defect. For more information, see “Power-saving modes” on page 23.

ThinkPad Pen Pro problem

Problem: The ThinkPad Pen Pro does not perform well.

Solution: The battery power for the pen might be low. Ensure that your computer is on. Then insert the pen into the pen slot to charge the pen for about five minutes.

Software problem

Problem: A program does not run properly.

Solution: Ensure that the problem is not being caused by the program.

Check that your computer has the minimum required memory to run the program. See the manuals supplied with the program.

Check the following:

- The program is designed to operate with your operating system.
- Other programs run properly on your computer.
- The necessary device drivers are installed.
- The program works when it is run on some other computer.

If an error message is displayed while you are using the program, see the manuals or help system supplied with the program.

If the program still does not run properly, contact your place of purchase or a service representative for help.

USB problem

Problem: A device connected to the USB connector does not work.

Solution: Ensure that the USB port is enabled in the ThinkPad Setup. Open the Device Manager window. Ensure that the USB device setup is correct, and that the assignment of computer resource and the

installation of the device driver are correct. To open the Device Manager window, go to Control Panel and ensure that you view Control Panel by Category, and click **Hardware and Sound → Device Manager**. If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

Chapter 7. Replacing devices

This chapter provides instructions on how to install or replace hardware for your computer.

Static electricity prevention

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

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 the components.
- Before you install a static-sensitive option or CRU, do either of the following to reduce static electricity in the package and your body:
 - Touch the static-protective package that contains the part to a metal expansion-slot cover for at least two seconds.
 - Touch the static-protective package that contains the part to other unpainted metal surface on the computer for at least two seconds.
- When possible, remove the static-sensitive part from the static-protective package and install the part without setting it down. When this is not possible, place the static-protective package on a smooth, level surface and place the part on the package.
- Do not place the part on the computer cover or other metal surface.

Disabling the built-in battery

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

To disable Fast Startup, do the following:

1. From the desktop, type **Power** in the search box on the taskbar, and select **Power Options**.
2. Click **Choose what the power buttons do** on the left pane.
3. Click **Change settings that are currently unavailable** at the top.
4. If prompted by User Account Control (UAC), click **Yes**.
5. Clear the **Turn on fast startup** check box, and then click **Save changes**.

To disable the built-in battery, do the following:

1. Restart your computer. When the logo screen is displayed, immediately press F1 to enter ThinkPad Setup.
2. Select **Config** → **Power**. The **Power** submenu is displayed.
3. Select **Disable built-in battery** and press Enter.

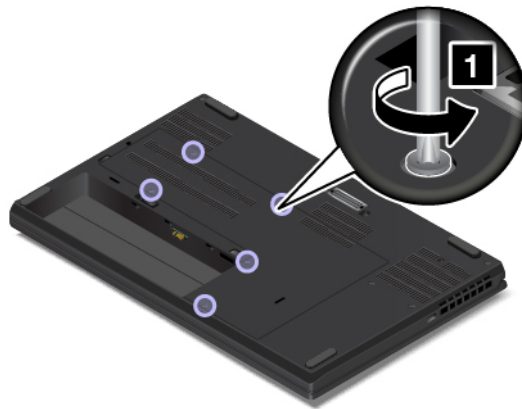
4. Select **Yes** in the Setup Confirmation window. The built-in battery is disabled and the computer turns off automatically. Wait three to five minutes to let the computer cool.

Replacing the bottom cover

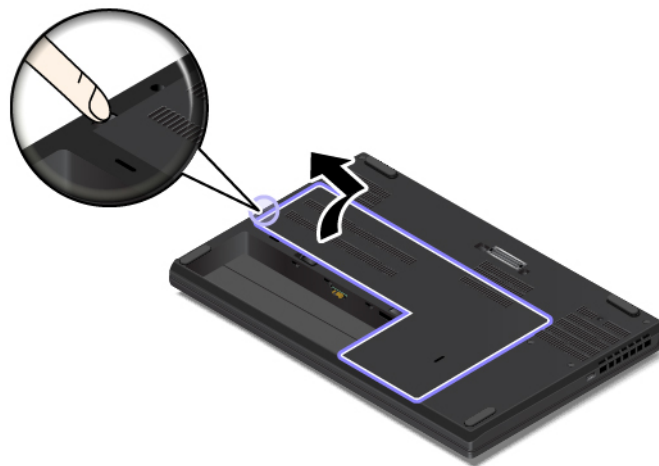
Before you start, read “Important safety information” on page iii and print the following instructions.

To replace the bottom cover, do the following:

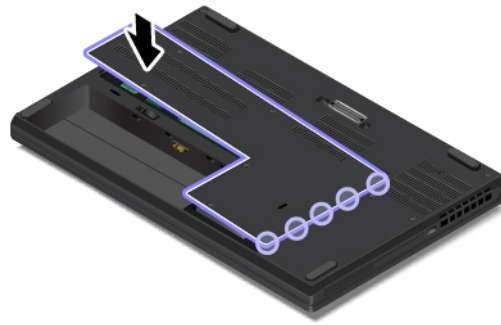
1. Disable the built-in battery. See “Disabling the built-in battery” on page 61.
2. Ensure that the computer is turned off and disconnected from ac power and all cables.
3. Close the computer display and turn the computer over.
4. Loosen the screws that secure the bottom cover.



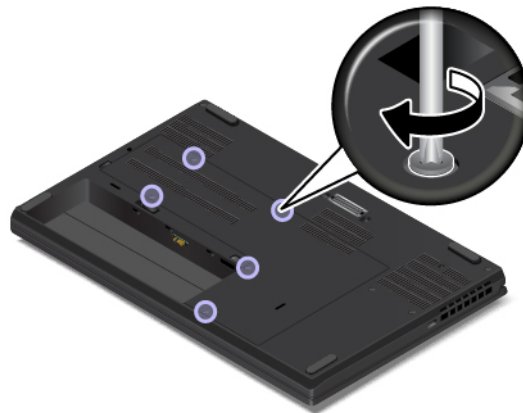
5. Slightly lift the left side of the bottom cover with your finger. Remove the bottom cover in the direction as shown by the arrow.



6. Install the new bottom cover as shown. Ensure that the latches of the bottom cover are secured under the base cover assembly.



7. Tighten the screws to secure the bottom cover.



8. Reinstall the removable battery.

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

Replacing the base cover assembly

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

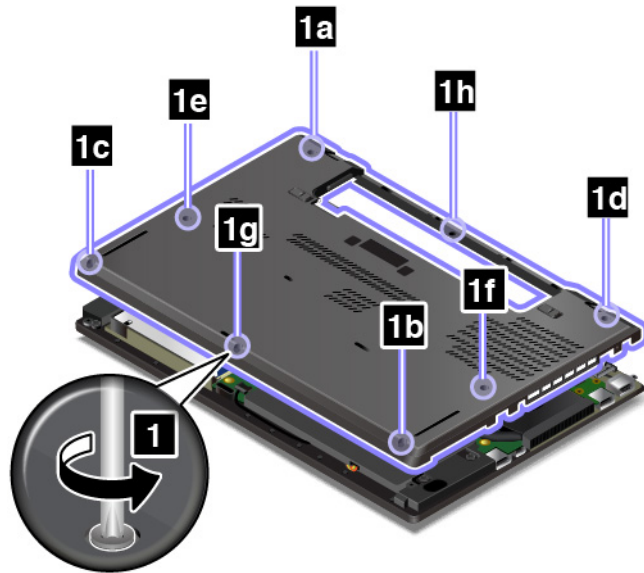
Notes:

- Depending on the model, your computer might look slightly different from the illustrations in this topic.
- There might be a risk of short circuits if you remove the base cover assembly in the following situations:
 - When your computer has the removable battery installed
 - When your computer is connected to ac power

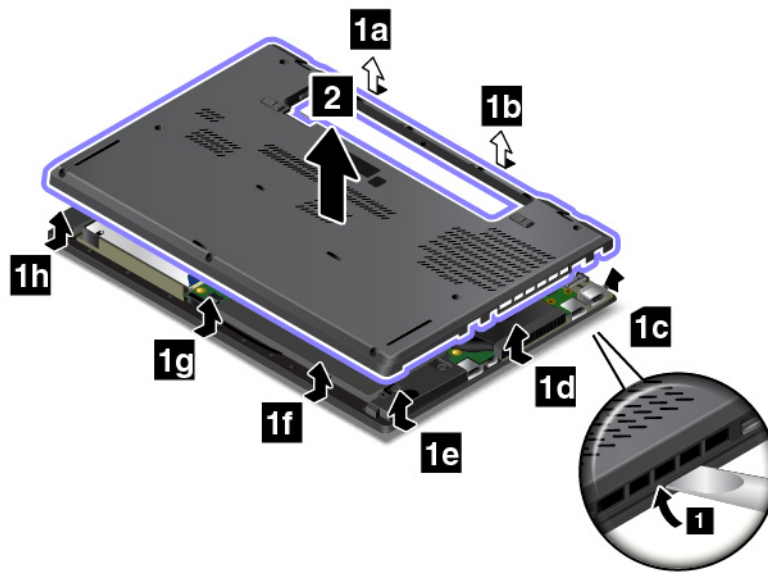
Besides, the computer will not start after you reinstall the base cover assembly. To start the computer, disconnect the ac power adapter and then reconnect it to the computer.

To replace the base cover assembly, do the following:

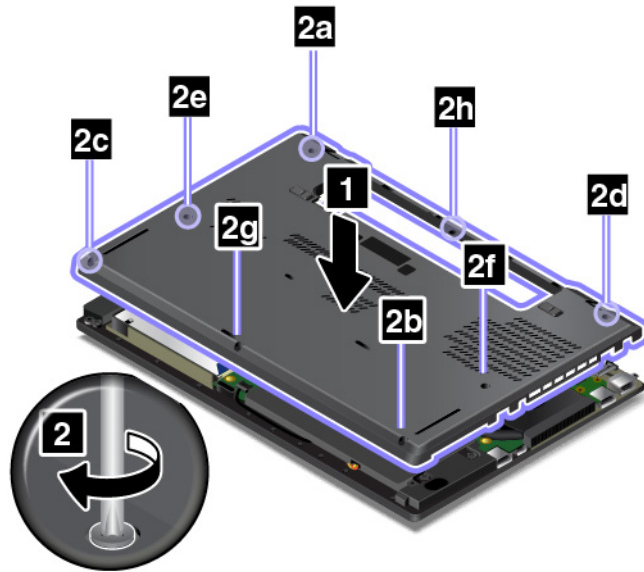
1. Disable the built-in battery. See “Disabling the built-in battery” on page 61.
2. Ensure that the computer is turned off and disconnected from ac power and all cables.
3. Close the computer display and turn the computer over.
4. Loosen the screws that secure the base cover assembly in ascending alphabetical order (a to h) as illustrated.



5. Pry up the latches **1** in ascending alphabetical order (a to h) as illustrated, and then remove the base cover assembly **2**.



6. Install the new base cover assembly **1** and tighten the screws **2** in ascending alphabetical order (a to h) as illustrated.



7. Reinstall the removable battery.
8. Turn the computer over. Connect the ac power adapter and all cables to the computer.

Chapter 8. Getting support

This chapter provides information about getting help and support from Lenovo.

Before you contact Lenovo

Often, you can solve your computer problems by referring to the information in the explanations of error codes, running diagnostic programs, or by consulting the Lenovo Support Web site.

Registering your computer

Register your computer with Lenovo. For more information, see “Registering your computer” on page 11.

Downloading system updates

Downloading updated software might resolve problems you experience with your computer.

To download updated software, go to the following Web site and follow the instructions on the screen:

<http://www.lenovo.com/support>

Recording information

Before you talk to a Lenovo representative, record the following important information about your computer.

Recording problem symptoms and details

Collect the answers to the following questions before you call for help. Then, you are able to get help as quickly as possible.

- What is the problem? Is it continuous or intermittent?
- Is there an error message? What is the error code, if any?
- 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?

Recording system information

The serial number label is on the bottom of your computer. Record the machine type and the serial number.

- What is the name of your Lenovo product?
- What is the machine type?
- What is the serial number?

Getting help and service

If you need help, service, technical assistance, or more information about Lenovo products, you will find a wide variety of sources available from Lenovo to assist you.

Information about your computer and preinstalled software, if any, is available in the documentation that comes with your computer or on the Lenovo Support Web site at <http://www.lenovo.com/support>. The documentation includes printed books, online books, readme files, and help files.

Microsoft Service Packs are the latest software source for Windows product updates. They are available through Web download (connection charges might apply) or through discs. For more specific information and links, go to <https://www.microsoft.com>. Lenovo offers technical assistance with installation of, or questions related to, Service Packs for your Lenovo-preinstalled Microsoft Windows product. For more information, contact the Customer Support Center.

Lenovo Support Web site

Technical support information is available on the Lenovo Support Web site at <http://www.lenovo.com/support>.

This Web site is updated with the latest support information such as the following:

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

Calling Lenovo

If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the Customer Support Center. The following services are 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.

The following items are 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, Warranty, and Setup Guide* that comes with your computer.

If possible, be near your computer when you make your call. Ensure that you have downloaded the most current drivers and system updates, run diagnostics, and recorded information before you call. When calling for technical assistance, have the following information available:

- Machine type and model
- Serial numbers of your computer, monitor, and other components, or your proof of purchase
- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information for your system

Telephone numbers

For a list of the Lenovo Support phone numbers for your country or region, go to <http://www.lenovo.com/support/phone> or refer to the *Safety, Warranty, and Setup Guide* that comes with your computer.

Note: Phone numbers are subject to change without notice. The latest phone numbers are available at <http://www.lenovo.com/support/phone>. If the number for your country or region is not provided, contact your Lenovo reseller or Lenovo marketing representative.

Purchasing additional services

During and after the warranty period, you can purchase additional services. Service availability and service name might vary by country or region.

For more information about these services, go to http://www3.lenovo.com/us/en/accessories-and-upgrades/c/ACCESSORY?menu-id=Accessories_Upgrades.

Appendix A. Regulatory information

This chapter provides regulatory and compliance information about Lenovo products.

Certification-related information

Product name: ThinkPad 11e Chromebook 4th Gen and ThinkPad Yoga 11e Chromebook 4th Gen

Compliance ID: TP00066D and TP00066E

Machine types: 20HW, 20HX, 20HY, and 20J0

The latest compliance information is available at:

<http://www.lenovo.com/compliance>

Wireless-related information

This topic provides wireless-related information about Lenovo products.

Wireless interoperability

Wireless-LAN card is designed to be interoperable with any wireless-LAN product that is based on Direct Sequence Spread Spectrum (DSSS), Complementary Code Keying (CCK), and/or Orthogonal Frequency Division Multiplexing (OFDM) radio technology, and is compliant to:

- The 802.11b/g Standard, 802.11a/b/g, 802.11n, or 802.11ac on wireless-LANs, as defined and approved by the Institute of Electrical and Electronics Engineers.
- The Wireless Fidelity (Wi-Fi®) certification as defined by the Wi-Fi Alliance®.

Your Bluetooth card supports Windows 10 in-box Bluetooth profiles. Some computer models might be equipped with a Bluetooth card compliant with the Bluetooth Specification version 4.2 as defined by the Bluetooth Special Interest Group SIG. However, the Windows operating system might limit the support only on the Bluetooth Specification version 4.1.

Usage environment and your health

This computer contains integrated wireless cards that operate within the guidelines identified by radio frequency (RF) safety standards and recommendations; therefore, Lenovo believes that this product is safe for use by consumers. These standards and recommendations reflect the consensus of the worldwide scientific community, and result from deliberations of panels and committees of scientists, who continually review and interpret the extensive research literature.

In some situations or environments, the use of wireless devices might be restricted by the proprietor of a building or responsible representatives of an organization. For example, these situations and areas might include the following:

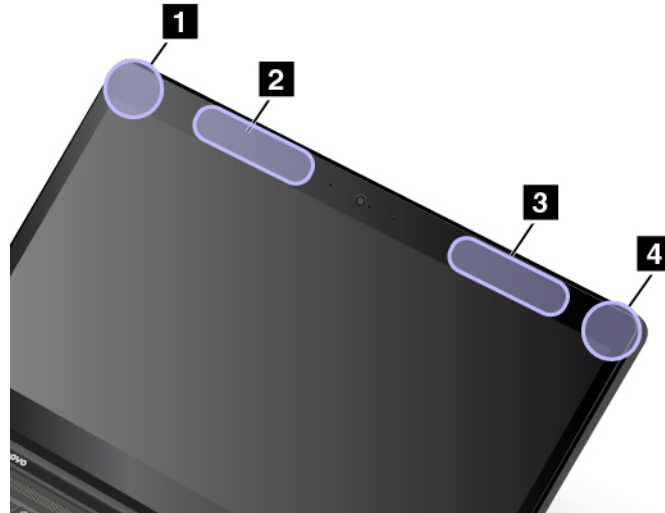
- On board of airplanes, in hospitals or near petrol stations, blasting areas (with electro-explosive devices), medical implants or body-worn electronic medical devices, such as pace makers.
- In any other environment where the risk of interference to other devices or services is perceived or identified as harmful.

If you are uncertain of the policy that applies to the use of wireless devices in a specific area (such as an airport or hospital), you are encouraged to ask for authorization to use a wireless device prior to turning on the computer.

Locating the UltraConnect wireless antennas

ThinkPad notebook computers feature an integrated UltraConnect™ wireless antenna system built into the display for optimal reception, enabling wireless communication wherever you are.

The following illustration shows the antennas locations of your computer:



- 1 Wireless-LAN antenna (auxiliary)
- 2 Wireless-WAN antenna (auxiliary, available on some models)
- 3 Wireless-WAN antenna (main, available on some models)
- 4 Wireless-LAN antenna (main)

Wireless-radio compliance information

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.

Brazil wireless-radio compliance information

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não pode causar interferência a sistemas operando em caráter primário.

This equipment is a secondary type device, that is, it is not protected against harmful interference, even if the interference is caused by a device of the same type, and it also cannot cause any interference to primary type devices.

Mexico wireless-radio compliance information

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.

Locating wireless regulatory notices

For more information about the wireless regulatory notices, refer to the *Regulatory Notice* shipped with your computer.

If your computer is shipped without the *Regulatory Notice*, you can find it on the Web site at:

<http://www.lenovo.com/support>

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.

Electronic emission notices

Federal Communications Commission Declaration of Conformity

The following information refers to ThinkPad 11e Chromebook 4th Gen and ThinkPad Yoga 11e Chromebook 4th Gen, machine types: 20HW, 20HX, 20HY, and 20J0.

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 specified or 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
1009 Think Place - Building One
Morrisville, NC 27560
Phone Number: 919-294-5900



Industry Canada Class B emission compliance statement

CAN ICES-3(B)/NMB-3(B)

European Union conformity

EU Contact: Lenovo, Einsteinova 21, 851 01 Bratislava, Slovakia



EMC Directive Statement: This product is in conformity with the protection requirements of EU Council EMC Directive 2014/30/EU on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This product has been tested and found to comply with the limits for Class B equipment according to European Standards harmonized in the Directives in compliance. The Class B requirements for equipment are intended to offer adequate protection to broadcast services within residential environments.

Radio Equipment Directive Statement: This product is in conformity with all the requirements and essential norms that apply to EU Council R&TTE Directive 1999/5/EC (until June 12, 2017) and Council Radio Equipment Directive 2014/53/EU (from June 13, 2017) on the approximation of the laws of the Member States relating to radio equipment. The full text of the system EU declaration of conformity and the EU wireless module declarations are available at the following Internet addresses:

- For notebook computers: <http://www.lenovo.com/eu-doc-notebooks>
- For tablets: <http://www.lenovo.com/eu-doc-tablets>

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 Standards harmonized in the Directives in compliance. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

German Class B compliance statement

Deutschsprachiger EU Hinweis:

Hinweis für Geräte der Klasse B EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur 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.

Deutschland:

Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Betriebsmitteln

Dieses Produkt entspricht dem „Gesetz über die elektromagnetische Verträglichkeit von Betriebsmitteln“ EMVG (früher „Gesetz über die elektromagnetische Verträglichkeit von Geräten“). Dies ist die Umsetzung der EMV EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

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 EMV EU Richtlinie 2014/30/EU, 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.

Informationen in Hinsicht EMVG Paragraf 4 Abs. (1) 4:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55032 Klasse B.

Class 1 laser product compliance statement



This product is classified as Class 1 under the IEC 60825-1 edition 2, 2007 in the US and is classified as Class 1 under the EN/IEC60825-1 edition 3, 2014 in the EU and other countries, at the time of publication. This device also complies with US FDA performance standards for laser products except for deviations pursuant to Laser notice No. 50, dated June 24, 2007.

Manufactured by Intel Corporation

2200 Mission College Blvd., Santa Clara, CA 95054

Model: Intel RealSense™ Camera (R200)

Korea Class B compliance statement

B급 기기(가정용 방송통신기자재)
이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다

Japan VCCI Class B compliance statement

この装置は、クラスB情報技術装置です。この装置は家庭環境で使用する事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。

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: 台北市內湖區堤頂大道2段89號5樓
進口商電話: 0800-000-702 (代表號)

Eurasian compliance mark



Brazil audio notice

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

Appendix B. WEEE and recycling statements

This chapter provides environmental information about Lenovo products.

General recycling information

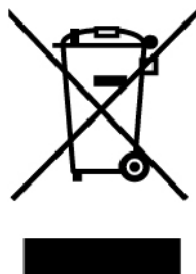
Lenovo encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Lenovo offers a variety of programs and services to assist equipment owners in recycling their IT products. For information about recycling Lenovo products, go to:

http://www3.lenovo.com/us/en/social_responsibility/product_recycling_program/

The latest environmental information about our products is available at:

http://www3.lenovo.com/us/en/social_responsibility/datasheets_notebooks/

Important WEEE information



The WEEE marking on Lenovo products applies to countries with WEEE and e-waste regulations (for example, the European WEEE Directive, India E-Waste Management Rules). Appliances are labeled in accordance with local regulations concerning waste electrical and electronic equipment (WEEE). These regulations determine the framework for the return and recycling of used appliances 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.

Users of electrical and electronic equipment (EEE) with the WEEE marking must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to them for the return, recycle, and recovery of WEEE and to minimize any potential effects of EEE 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.

For additional WEEE information, go to:

http://www3.lenovo.com/us/en/social_responsibility/product_recycling_program/

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.

Japan recycling statements

Collecting and recycling 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:

http://www3.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:

http://www3.lenovo.com/us/en/social_responsibility/sustainability/ptb_japan

Disposing 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.

Disposing 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.

Disposing of a disused battery from Lenovo notebook computers

Your Lenovo notebook computer has a lithium ion battery or a nickel metal hydride battery. If you are a company employee who uses a Lenovo notebook computer and need to dispose of a battery, contact the proper person in Lenovo sales, service, or marketing, and follow that person's instructions. You also can refer to the instructions at:

<https://www.lenovo.com/jp/ja/environment/recycle/battery/>

If you use a Lenovo notebook computer at home and need to dispose of a battery, you must comply with local ordinances and regulations. You also can refer to the instructions at:

<https://www.lenovo.com/jp/ja/environment/recycle/battery/>

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, informando o modelo, número de série e cidade, a fim de enviarmos as instruções para o correto descarte do seu produto Lenovo.

Battery recycling information for the European Union

EU



Notice: This mark applies only to countries within the European Union (EU).

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. 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 batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances.

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.

Disposing 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.

Disposing of battery packs from Lenovo products

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:

http://www3.lenovo.com/us/en/social_responsibility/environment/

Battery recycling information for Taiwan



廢電池請回收

Battery recycling information for the United States and Canada



US & Canada Only

Recycling information for 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>

Appendix C. Restriction of Hazardous Substances (RoHS) Directive

The latest environmental information about Lenovo products is available at:

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

European Union RoHS

This Lenovo product, with included parts (cables, cords, and so on) meets the requirements of Directive 2011/65/EU 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:

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

Turkish RoHS

The Lenovo product meets the requirements of the Republic of Turkey Directive on the Restriction of the Use of Certain Hazardous Substances in Waste Electrical and Electronic Equipment (WEEE).

Türkiye AEEE Yönetmeliğine Uygunluk Beyanı

Bu Lenovo ürünü, T.C. Çevre ve Orman Bakanlığı'nın "Atık Elektrik ve Elektronik Eşyalarda Bazı Zararlı Maddelerin Kullanımının Sınırlandırılmasına Dair Yönetmelik (AEEE)" direktiflerine 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.

China RoHS

The information in the following table is applicable for products manufactured on or after January 1, 2015 for sale in the People's Republic of China.

产品中有害物质的名称及含量

部件名称	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	○	○	○	○	○
硬盘	X	○	○	○	○	○
光驱	X	○	○	○	○	○
LCD 面板 (LED 背光源)	X	○	○	○	○	○
键盘	X	○	○	○	○	○
内存	X	○	○	○	○	○
电池	X	○	○	○	○	○
电源适配器	X	○	○	○	○	○
底壳、顶盖和扬声器	X	○	○	○	○	○

注：

本表依据SJ/T 11364的规定编制。

○：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 标准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 标准规定的限量要求。标有“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（PCB）及其组件、集成电路（IC）和连接器。某些型号的产品可能不包含上表中的某些部件，请以实际购买机型为准。

图示：



在中华人民共和国境内销售的电子信息产品上将印有“环保使用期限”（EPuP）符号。圆圈中的数字代表产品的正常环保使用期限。

Taiwan RoHS

單元 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛Lead (Pb)	汞Mercury (Hg)	鎘Cadmium (Cd)	六價鉻 Hexavalent chromium (Cr ⁺⁶)	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
印刷電路板組件	-	○	○	○	○	○
硬碟機	-	○	○	○	○	○
光碟機	-	○	○	○	○	○
LCD面板 (LED背光源)	-	○	○	○	○	○
鍵盤	-	○	○	○	○	○
記憶體	-	○	○	○	○	○
電源供應器	-	○	○	○	○	○
底殼、頂蓋和喇叭	-	○	○	○	○	○
<p>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。 Note 1 : “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition.</p> <p>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。 Note 2 : “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.</p> <p>備考3. “-” 係指該項限用物質為排除項目。 Note 3 : The “-” indicates that the restricted substance corresponds to the exemption.</p>						

Appendix D. ENERGY STAR model information



ENERGY STAR® is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy aimed at saving money and protecting the environment through energy efficient products and practices.

Lenovo is proud to offer our customers products with the ENERGY STAR qualified designation. You might find an ENERGY STAR mark affixed on the computer or displayed on the power settings interface. Lenovo computers of the following machine types, if carry an ENERGY STAR mark, have been designed and tested to conform to the ENERGY STAR program requirements for computers.

20HW, 20HX, 20HY, and 20J0

By using ENERGY STAR qualified products and taking advantage of the power-management features of the computer, you can help reduce the consumption of electricity. Reduced electrical consumption can contribute to potential financial savings, a cleaner environment, and the reduction of greenhouse gas emissions.

For more information about ENERGY STAR, go to:

<https://www.energystar.gov>

Lenovo encourages you to make efficient use of energy an integral part of your day-to-day operations. To help in this endeavor, Lenovo has preset the following power-management features to take effect when the computer has been inactive for a specified length of time:

Power plan: Default (when plugged into ac power)

- Turn off the display: After 10 minutes
- Put the computer to sleep: After 30 minutes

To awaken the computer from sleep mode, press the Fn key on your keyboard. For more information about these settings, see the Windows help information on the computer.

The Wake on LAN function is enabled when your Lenovo computer is shipped from the factory, and the setting remains valid even when the computer is in sleep mode. If you do not need to have Wake on LAN enabled while the computer is in sleep mode, you can reduce the power consumption and prolong the time in sleep mode, by disabling the setting of Wake on LAN for sleep mode.

To disable the setting of Wake on LAN for sleep mode, do the following:

1. Go to Control Panel and click **Hardware and Sound → Device Manager**.
2. In the Device Manager window, expand **Network adapters**.
3. Right-click your network adapter device, and click **Properties**.

4. Click the **Power Management** tab.
5. Clear the **Allow this device to wake the computer** check box.
6. Click **OK**.

Appendix E. Notices

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To obtain the most up-to-date documentation for your computer, go to:

<http://www.lenovo.com/support>

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