



Data Center Group Safety Information



Version 3.0

Note

Before using this information and the product it supports, read the information in [Appendix A “Notices” on page 27](#).

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About this information

Note: For Lenovo System x and System Storage products **purchased prior to July 2017**, refer to: http://systemx.lenovofiles.com/help/topic/com.lenovo.sysx.safety.doc/safety_page.html.

This *Safety information for ThinkSystem server, Version 3* information contains the safety statements and safety labels that might appear in your Lenovo Data Center Group (DCG) product documentation.

Important: Be sure that you read and understand this safety information and any additional safety information that might be provided specifically for your Lenovo DCG products *before* you install the products.

Safety statements consist of danger and caution notices for Lenovo DCG systems, system racks, and other components.

- **Danger** notices call attention to situations that are potentially lethal or extremely hazardous to people.
- **Caution** notices call attention to situations that are potentially hazardous to people because of existing conditions.

Safety labels are typically applied directly to products or components to warn of potential hazards.

The *Safety information for ThinkSystem server, Version 2* information is available in many languages, and in most cases, will be displayed in the language you have set for your web browser.

The safety statements are divided into three groups and have been assigned an identifier (ID) that is used consistently in Lenovo DCG product documents to allow you to cross reference safety statements to that same statement in any of language versions of the *Data Center Group Safety Information, Version 2* documents. The groups and ID ranges are listed below:

- **Statements S001-S041:** General safety statements.
- **Statements R001-R009:** Safety statements that apply to products installed in a rack enclosure.
- **Statements I001-I002:** Safety statements that apply to rack infrastructure products (for example, PDU and UPS options).

Chapter 1. Safety statements (S001-S041)

This section includes general safety statements that might appear in your Lenovo product documentation. These safety statements call attention to situations that are potentially lethal, hazardous or dangerous to people.

S001

S001



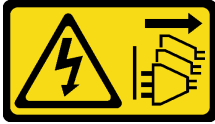
 **DANGER**

**Electrical current from power, telephone, and communication cables is hazardous.
To avoid a shock hazard:**

- **Connect all power cords to a properly wired and grounded electrical outlet/source.**
- **Connect any equipment that will be attached to this product to properly wired outlets/sources.**
- **When 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.**
- **The device might have more than one power cord, to remove all electrical current from the device, ensure that all power cords are disconnected from the power source.**

S002

S002



CAUTION:

The power-control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

S003

S003



CAUTION:

If you install a strain-relief bracket option over the end of the power cord that is connected to the device, you must connect the other end of the power cord to an easily accessible power source.

S004

S004



CAUTION:

When replacing the lithium battery, use only Lenovo specified part number or an equivalent type of battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

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

S005

S005



CAUTION:

The battery is a lithium ion battery. To avoid possible explosion, do not burn the battery. Exchange it only with the approved part. Recycle or discard the battery as instructed by local regulations.

S006

S006



CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

S007

S007



CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments.

S008

S008



Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:
Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

S009

S009



CAUTION:

To avoid personal injury, disconnect the fan cables before removing the fan from the device.

S010

S010



CAUTION:

Do not place any object weighing more than 82 kg (180 lb) on top of rack-mounted devices.

S011

S011



CAUTION:

Sharp edges, corners, or joints nearby.

S012

S012



CAUTION:
Hot surface nearby.

S013

S013



 **DANGER**

Overloading a branch circuit is potentially a fire hazard and a shock hazard under certain conditions. To avoid these hazards, ensure that your system electrical requirements do not exceed branch circuit protection requirements. Refer to the information that is provided with your device for electrical specifications.

S014

S014



CAUTION:
Hazardous voltage, current, and energy levels might be present. Only a qualified service technician is authorized to remove the covers where the label is attached.

S015

S015



CAUTION:
Make sure that the rack is secured properly to avoid tipping when the server unit is extended.

S016

S016



CAUTION:

Some accessory or option board outputs exceed Class 2 or limited power source limits and must be installed with appropriate interconnecting cabling in accordance with the national electric code.

S017

S017



CAUTION:

Hazardous moving fan blades nearby. Keep fingers and other body parts away.

S018

S018



CAUTION:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed or serviced by trained personnel in a restricted-access location, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Connect the equipment to a reliably grounded safety extra low voltage (SELV) source. An SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
- The branch circuit overcurrent protection must be rated at a minimum of 5 A to a maximum of 15 A.
- Use 14 American Wire Gauge (AWG) or 2.5 mm² copper conductor only, not exceeding 3 meters in length.
- Torque the wiring-terminal screws to 12 inch-pounds (1.4 newton-meters).
- Incorporate a readily available approved and rated disconnect device in the field wiring.

S019

S019



CAUTION:

The power-control button on the device does not turn off the electrical current supplied to the device. The device also might have more than one connection to dc power. To remove all electrical current from the device, ensure that all connections to dc power are disconnected at the dc power input terminals.

S020

S020



CAUTION:

To avoid personal injury, before lifting the unit, remove all the blades to reduce the weight.

S021

S021



CAUTION:

Hazardous energy is present when the blade is connected to the power source. Always replace the blade cover before installing the blade.

S022

S022



CAUTION:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed or serviced by trained personnel in a restricted-access location, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Connect the equipment to a reliably grounded safety extra low voltage (SELV) source. An SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
- The branch circuit overcurrent protection must be rated at a minimum of 13 A to a maximum of 15 A.
- Use 16 American Wire Gauge (AWG) or 1.3 mm² copper conductor only, not exceeding 3 meters in length.
- Torque the wiring-terminal screws to 12 inch-pounds (1.4 newton-meters).
- Incorporate a readily available approved and rated disconnect device in the field wiring.

S023

S023



CAUTION:

Do not place any object weighing more than 50 kg (110 lb) on top of rack-mounted devices.

S024

S024



CAUTION:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed or serviced by trained personnel in a restricted-access location, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Connect the equipment to a reliably grounded safety extra low voltage (SELV) source. An SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
- The branch circuit overcurrent protection must be rated at a minimum of 12 A to a maximum of 15 A.
- Use 14 American Wire Gauge (AWG) or 2.5 mm² copper conductor only, not exceeding 3 meters in length.
- Torque the wiring-terminal screws to 12 inch-pounds (1.4 newton-meters).
- Incorporate a readily available approved and rated disconnect device in the field wiring.

S025

S025



CAUTION:

Do not place any object on top of rack-mounted devices.

S026

S026



CAUTION:

Hazardous moving parts are nearby.

S027

S027



CAUTION:

This equipment is designed to permit the connection of the earthed conductor of the dc supply circuit to the earthing conductor at the equipment. If this connection is made, all of the following conditions must be met:

- This equipment shall be connected directly to the dc supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the dc supply system earthing electrode conductor is connected.
- This equipment shall be located in the same immediate area (such as, adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same dc supply circuit and the earthing conductor, and also the point of earthing of the dc system. The dc system shall not be earthed elsewhere.
- The dc supply source shall be located within the same premises as this equipment.
- Switching or disconnecting devices shall not be in the earthed circuit conductor between the dc source and the point of connection of the earthing electrode conductor.

S028

S028



CAUTION:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed or serviced by trained personnel in a restricted-access location, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Connect the equipment to a reliably grounded safety extra low voltage (SELV) source. An SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
- The branch circuit overcurrent protection must be rated 20 A.
- Use 12 American Wire Gauge (AWG) or 2.5 mm² copper conductor only, not exceeding 4.5 meters in length.
- Incorporate a readily available approved and rated disconnect device in the field wiring.

S029

S029



For -48V dc power supply, electrical current from power cords is hazardous.

To avoid a shock hazard:

- **To connect or disconnect -48V dc power cords when you need to remove/install redundancy power supply unit(s).**

To Connect:

1. Turn OFF subject dc power source(s) and equipment (s) that are attached to this product.
2. Install the power supply unit(s) into the system housing.
3. Attach dc power cord(s) to the product.
 - Ensure correct polarity of -48 V dc connections: RTN is + and -Vin (typical -48 V) dc is -. Earth ground should be connected very well.
4. Connect dc power cord(s) to subject power source (s).
5. Turn ON all the power source(s).

To Disconnect:

1. Disconnect or turn off the subject dc power source(s) (at the breaker panel) before removing the power supply unit(s).
2. Remove the subject dc cord(s) and make sure the wire terminal of power cord(s) is insulated.
3. Unplug the subject power supply unit(s) from the system housing.

S030

S030



CAUTION:

To avoid personal injury, before lifting the unit, remove all the blades, power modules, and other removable modules to reduce the weight.

S031

S031



CAUTION:

This product does not provide a power-control button. Turning off blades or removing power modules and I/O modules does not turn off electrical current supplied to the product. The product also might have more than one power cord. To remove all electrical current from the product, ensure that all power cords are disconnected from the power source.

S032

S032



CAUTION:

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed or serviced by trained personnel in a restricted-access location, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Connect the equipment to a properly grounded safety extra low voltage (SELV) source. A SELV source is a secondary circuit that is designed so that normal and single fault conditions do not cause the voltages to exceed a safe level (60 V direct current).
- See the specifications in the product documentation for the required circuit-breaker rating for branch circuit overcurrent protection.
- Use copper wire conductors only. See the specifications in the product documentation for the required wire size.
- See the specifications in the product documentation for the required torque values for the wiring-terminal screws.

- Incorporate a readily available approved and rated disconnect device in the field wiring.

S033

S033



CAUTION:

Hazardous energy present. Voltages with hazardous energy might cause heating when shorted with metal, which might result in spattered metal, burns, or both.

S034

S034



CAUTION:

Always install the slide retention screw.

S035

S035



CAUTION:

Never remove the cover on a power supply or any part that has this 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.

S036

S036



18 - 32 kg (39 - 70 lb)



32 - 55 kg (70 - 121 lb)

CAUTION:

Use safe practices when lifting.

S037

S037



CAUTION:

The weight of this part or unit is more than 55 kg (121.2 lb). It takes specially trained persons, a lifting device, or both to safely lift this part or unit.

S038

S038



CAUTION:

Eye protection should be worn for this procedure.

S039

S039



CAUTION:

Hearing protection should be worn for this procedure.

S040

S040



CAUTION:

Protective gloves should be worn for this procedure.

S041

S041



CAUTION:

- This equipment must be installed or serviced by trained personnel, as defined by the NEC, IEC 62368-1 and IEC 60950-1, the standard for Safety of Electronic Equipment within the Field of Audio/Video, Information Technology and Communication Technology.
- Access to the equipment is by the use of a tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

Chapter 2. Safety statements (R001-R009)

The safety statements in this section might appear in documentation for Lenovo products when installed in a rack cabinet. The safety statements call attention to situations that are potentially lethal, hazardous or dangerous to people.

R001

R001



CAUTION:

To ensure safety, all configurations of the rack cabinet must be certified by a nationally recognized testing laboratory to verify compliance with country-specific safety regulations. This process ensures that the end product remains safe for the operator and service personnel under normal and foreseeable misuse conditions.

R002

R002



DANGER

- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- Always install the heaviest devices in the bottom of the rack cabinet.
- Always install servers and optional devices starting from the bottom of the rack cabinet.

R003

R003



 **DANGER**

- Do not extend more than one sliding device at a time.
 - The maximum allowable weight for a device on slide rails is 80 kg (176 lb). Do not install a sliding device that exceeds this weight.

R004

R004



CAUTION:

See the instructions in the rack documentation before you install devices, remove devices, or relocate the rack.

R005

R005



When you populate a rack cabinet, adhere to the following guidelines:

- Always lower the leveling pads on the rack cabinet.
- Always install the stabilizer brackets on the rack cabinet.
- Always install the heaviest devices in the bottom of the rack cabinet.
- Always install devices starting from the bottom of the rack cabinet.
- Do not extend multiple devices from the rack cabinet simultaneously, unless the rack-mounting instructions guide you to do so. Multiple devices extended into the service position can cause your rack cabinet to tip.
- Be sure to securely anchor the rack cabinet to ensure its stability.

R006

R006

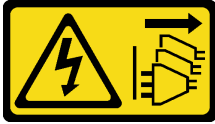


CAUTION:

Do not place any object on top of a rack-mounted device unless that rack-mounted device is intended for use as a shelf.

R007

R007



- Connect power cords from devices in the rack cabinet to electrical outlets that are near the rack cabinet and are easily accessible.
- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet before you service any device in the rack cabinet.
- Install an emergency-power-off switch if more than one power device (power distribution unit or uninterruptible power supply) is installed in the same rack cabinet.
- Connect all devices that are installed in a rack cabinet to power devices that are installed in the same rack cabinet. Do not connect a power cord from a device that is installed in one rack cabinet to a power device that is installed in a different rack cabinet.

R008

R008



Overloading a branch circuit is a potential fire hazard and shock hazard under certain conditions. To avoid these hazards, make sure that your system electrical requirements do not exceed branch circuit protection requirements. See the information that is provided with your device for electrical specifications.

R009

R009



CAUTION:

Removing components from the upper positions in the Enterprise Rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must do the following:
 - Remove all devices in the 32 U position and above.
 - Make sure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Make sure that there are no empty U positions between devices installed in the rack cabinet below the 32 U position.
- If the rack cabinet that you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take, to eliminate potential hazards.
- Make sure that the route that you choose can support the weight of the loaded rack cabinet. See the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Make sure that all door openings are at least 760 x 2030 mm (30 x 80 in.)
- Make sure that all devices, shelves, drawers, doors, and cables are secure.
- Make sure that the four leveling pads are raised to their highest positions.
- Make sure that no stabilizer bracket is installed on the rack cabinet.
- Do not use a ramp that is inclined more than 10 degrees.
- When the rack cabinet is in the new location, do the following:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.

If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also, lower the leveling pads to raise the casters off the pallet and bolt the rack cabinet to the pallet.

Chapter 3. Safety statements (I001-I002)

This section includes safety statements related to rack infrastructure that might appear in your Lenovo product documentation. These safety statements call attention to situations that are potentially lethal, hazardous or dangerous to people.

I001

I001



 **DANGER**

Uninterruptible power supply (UPS) units contain specific hazardous materials. Observe the following precautions if your product contains a UPS:

- **The UPS contains lethal voltages. All repairs and service must be performed only by an authorized service support representative. There are no user serviceable parts inside the UPS.**
- **The UPS contains its own energy source (batteries). The output receptacles might carry live voltage even when the UPS is not connected to an AC supply.**
- **Do not remove or unplug the input cord when the UPS is turned on. This removes the safety ground from the UPS and the equipment connected to the UPS.**
- **The UPS is heavy because of the electronics and batteries that are required. To avoid injury, observe the following precautions:**
 - **Do not attempt to lift the UPS by yourself. Ask another service representative for assistance.**
 - **Remove the battery, electronics assembly, or both from the UPS before removing the UPS from the shipping carton or installing or removing the UPS in the rack.**

I002

I002



CAUTION:

Power distribution unit (PDU) outlets provide 200 to 240 V ac. Use these outlets only for devices that operate within this voltage range.

Chapter 4. Safety Labels

Safety labels that might appear on a Lenovo DCG product are explained in following table.

Table 1. Safety labels



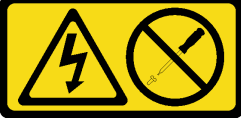

















Safety Label	What the label means
	Attention. Use caution when working with components where you see this label.
	Attention – Shock hazard. Hazardous voltage, current, or energy levels are present.
	Shock hazard. Hazardous voltage, current, or energy levels are present. Do not open any cover or barrier that contains this label.
	Attention – Shock hazard. 240VA energy levels or greater are present.
	Attention – Shock hazard. Protection against the thermal effect of the electric arc.
	Shock hazard – Product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
	Attention – Hazardous voltage, current, or energy levels and hot surfaces are present.
	Attention – Lift weight is 18–32 kg. (39–70 lb). Use two people to lift.
	Attention – Lift weight is 32–55 kg. (70–121 lb). Use three people to lift.
	Attention – Lift weight is 55–100 kg. (121–220 lb). Use a mechanical lift device when lifting is required.

Table 1. Safety labels (continued)

Safety Label	What the label means
	Attention – Laser hazard
	Attention – Moving fan blade nearby.
	Attention – Hot surface nearby.
	Attention – Sharp edge nearby.
	Attention – Drop hazard.
	Attention – Tip hazard.
	Attention – Do not place any object on top of rack-mounted devices.
	Attention – Use eye protection.
	Attention – Use hearing protection.
	Attention – Use protective gloves.

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