TS-h2477AXU-RP

TS-h2477AXU-RP

User Guide



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1. Important Information

Original Packaging

Please keep the original packaging and packaging materials. If you want to return the product or send it for repairs, please use the original packaging to avoid damage.

QNAP reserves the right not to provide a refund or warranty service for products that are damaged due to improper packaging.

Hardware Defects

If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third party invalidates the warranty.

QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.

For details, see the QNAP Warranty Terms and Conditions.

Safety information

The following instructions help ensure personal safety and environmental safety. Read these instructions carefully before performing any operation.

General Instructions

- The device should be stored in a secure location with restricted access, controlled through the use of a tool, lock and key, or any means of security.
- Only qualified, skilled, and authorized persons with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the device.

⚠ WARNING



- To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.
- Always ensure that all drive trays, including empty ones, are properly installed in the device. Missing trays can alter the intended airflow, potentially causing internal components to overheat.



Observe electrostatic discharge (ESD) procedures to avoid potential injury or damage to components.

Power

⚠ WARNING



To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.



Devices with redundant power supply may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords from the device before installing or replacing system components.

Moving Parts

⚠ WARNING



Moving fan blades: Keep your body parts away from any moving fan blades while the device is connected to a power source.



Moving components: Keep your body parts away from any other moving components.

The device is not suitable for use in locations where children are likely to be present.

System Battery

⚠ WARNING



INGESTION HAZARD

- This product may contain a button battery.
- Keep batteries out of reach of children.
- If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours.
- If you think batteries may have been swallowed or placed inside any part of the body, seek immediate medical attention.

- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.

- Dispose of used batteries properly according to local regulations or the instructions of the battery manufacturer.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- For information on the type and voltage of the button battery in your device, please see the hardware specification table.
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat, or incinerate. Doing so may result in injury due to venting, leakage, or explosion resulting in chemical burns.
- Ensure the batteries are installed correctly according to polarity (+ and -).
- Do not mix old and new batteries, or different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
- Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time according to local regulations.
- Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

Rail Kits

Rackmount models may require rail kits for installation onto a server rack or cabinet.

To ensure equipment and personal safety, please carefully read the installation instructions for your rail kit before you install the rail kit and mount your device.

To check if your device is a rackmount unit, see the hardware specification table.

⚠ WARNING

- When the rail kit is installed on the server rack, do not fully extend and unlatch the rails except when mounting or unmounting a device.
- Leaving the rails fully extended out and unlatched may cause heavy equipment to fall. This can cause equipment damage and severe or even fatal injuries.
- Before you prepare the rails for device mounting or unmounting, please carefully read and ensure you understand the installation instructions.
- Do not place any objects or add any extra load onto the device or rails when mounting or unmounting a device.
- When mounting a device, slide the device all the way into the server rack to fully latch the rails and secure the device to the server rack.

2. Product Overview

This chapter provides basic information about your QNAP device.

About the TS-h2477AXU-RP

The TS-h2477AXU-RP is a powerful and versatile network-attached storage solution designed to meet the needs of businesses and creative professionals seeking reliable data management and high-performance storage. Powered by an AMD Ryzen™ 7 PRO series processor, up to 192 GB of DDR5 memory, and an HDD/SSD hybrid storage architecture, the TS-h2477AXU-RP delivers reliable server-grade performance ideal for enterprise applications, large-scale data backup, multimedia editing, and server virtualization. The various comprehensive data protection features offered by the ZFS-based QuTS hero operating system, such as inline data deduplication, up to 65536 snapshots with Snapshot Manager, real-time SnapSync, and QSAL (QNAP SSD Antiwear Leveling), ensure that your critical information is safe and secure.

Hardware specification

Warning

- If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third party invalidates the warranty.
- QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.
- For details, see the QNAP Warranty Terms and Conditions.

Tip

Model specifications are subject to change without prior notice. To see the latest specifications, go to https://www.qnap.com.

TS-h2477AXU-RP Ordering P/N Specification

Ordering P/N	CPU	Pre-installed memory
TS-h2477AXU-RP-R7-32G	AMD Ryzen™ 7 PRO 7745	32 GB

TS-h2477AXU-RP Hardware Specification

Component	TS-h2477AXU-RP-R7-32G
Processor	

Component	TS-h2477AXU-RP-R7-32G
CPU	AMD Ryzen™ 7 PRO 7745
Frequency	8-core/16-thread 3.8 GHz base, up to 5.3 GHz
Architecture	x86 64-bit
Encryption engine	AES-NI
Memory	
Pre-installed memory	32 GB RAM DDR5 UDIMM
Memory slots	4 x ECC DDR5 UDIMM **Note** • This device supports ECC memory modules. • Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications. • Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.
Maximum memory	192 GB RAM: 4 x 48 GB
Flash memory	8 GB (dual-boot OS protection)
Storage	
Drive bays	24 x 3.5-inch SATA 6 Gbps bays **Note** The SATA 6 Gbps bays are backward compatible with SATA 3 Gbps drives.
Drive compatibility	3.5-inch bays: • 3.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives

Component	TS-h2477AXU-RP-R7-32G
M.2 SSD slots	2 x M.2 2280 PCIe Gen 5 x2 NVMe **Note** The M.2 PCIe NVMe slots support PCIe Gen 5 x2, PCIe Gen 4 x2, and PCIe Gen 3 x2 NVMe solid-state drives.
M.2 SSD form factor	2280
SSD cache acceleration support	This device supports SSD cache acceleration for all drives.
Hot-swapping	The device supports hot-swapping drives except for the following: M.2 SSDs
Network	
10 Gigabit network interface	2 x 10GBASE-T **Note** The 10GBASE-T port RJ45 supports the following network connectivity speeds: 10 GbE, 5 GbE, 2.5 GbE, 1 GbE, 100 Mbps, and 10 Mbps.
2.5 Gigabit network interface	2 x 2.5 GbE RJ45 **Note** The 2.5 Gigabit Ethernet RJ45 ports support the following network connectivity speeds: 2.5 GbE, 1 GbE, 100 Mbps, and 10 Mbps.
External I/O Ports & Expansion Slots	
PCIe slots	• Slot 1: PCIe Gen 4 x4 • Slot 2: PCIe Gen 4 x8 or PCIe Gen 4 x4 **Note** Slot 2 provides the width of PCIe Gen4 x8 when Slot 1 is not in use and PCIe Gen4 x4 when Slot 1 is in use. • Slot 3: PCIe Gen 4 x4
USB ports	2 x USB 3.2 Gen 2 x1 Type-A

Component	TS-h2477AXU-RP-R7-32G
Wake-on-LAN	All network ports on this device support Wake-on LAN.
Interface	
Buttons	• Power • Reset
LEDs	
System	• System status • Expansion unit • LAN • Drive LEDs
Network ports	• Speed • Activity
Dimensions	
Form factor	4U Rackmount
Dimensions (H x W x D)	177.35 x 432.4 x 511.7 mm (6.98 x 17.02 x 20.14 in)
Net weight	18.62 kg (41.05 lbs)
Others	
Rail compatibility	RAIL-A03 **Note** • Rail kits are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to https://shop.qnap.com. • Information on rail kit installation can be found in the installation guide included in the rail kit package.
Power supply unit	2 x CRPS 800W, 100-240V, 50/60 Hz

Component	TS-h2477AXU-RP-R7-32G
System battery	CR2032 lithium battery 3V **Warning** • This battery is a button battery. If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours. Keep batteries out of reach of children. • To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type. **Important** Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.
Fans	System fans: 4 x 80 mm, 12VDC
Operating temperature	0˚C to 40˚C (32˚F to 104˚F)
Relative humidity	• Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27˚C (80.6˚F)
Security slot	Kensington security slot

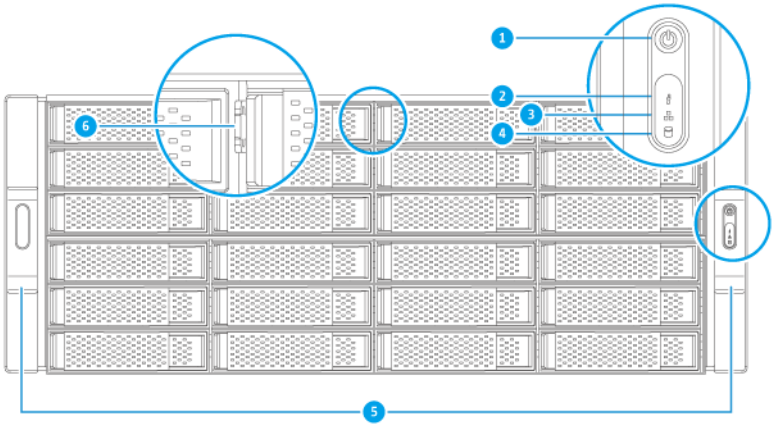
Package contents

Item	Quantity
TS-h2477AXU-RP	1
3.5-inch drive trays	24
Screws for 3.5-inch drives	24 x 4 = 96
Screws for 2.5-inch drives	24 x 3 = 72
Power cords	2
Ethernet cable	Cat6a (RJ45)

Item	Quantity
Quick Installation Guide (QIG)	1

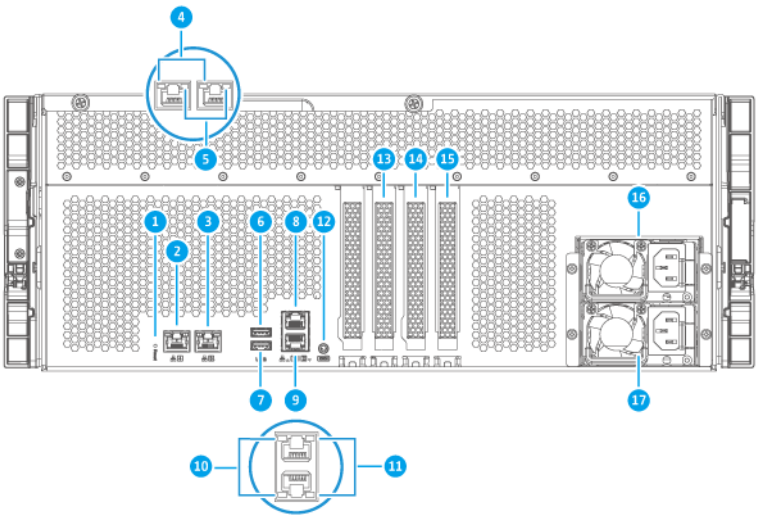
Components

Front panel



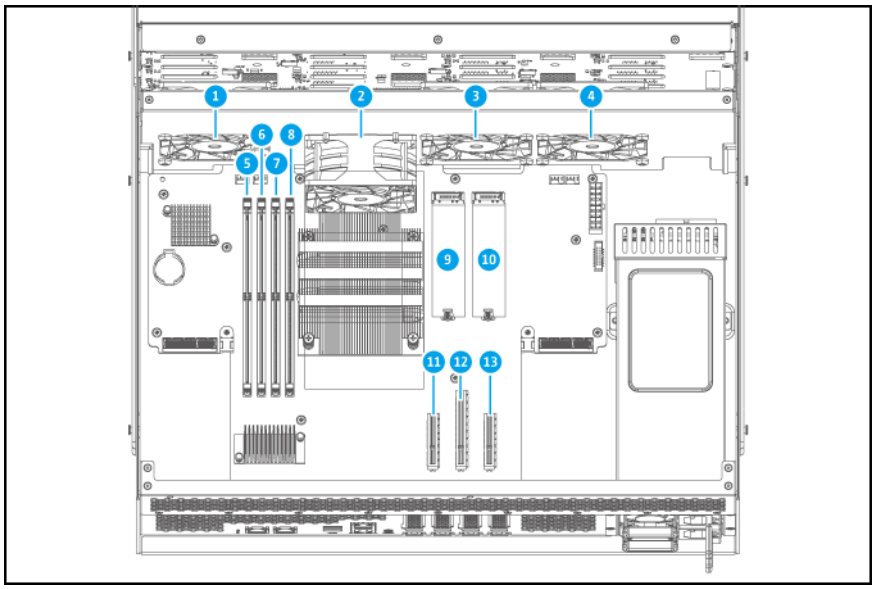
No.	Component	No.	Component
1	Power button	4	Expansion unit LED
2	Status LED	5	Handles
3	LAN LED	6	Drive LED

Rear panel



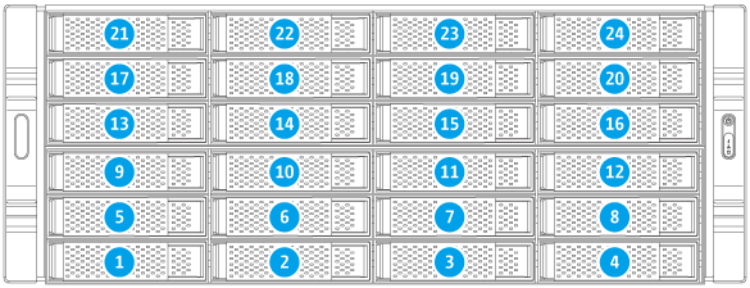
No.	Component	No.	Component
1	Reset button	10	2.5 Gigabit Ethernet speed LEDs
2	Network port #4: 10BASE-T (RJ45)	11	2.5 Gigabit Ethernet activity LEDs
3	Network port #3: 10BASE-T (RJ45)	12	Console port **Note** This port is only for engineering purposes.
4	10 Gigabit Ethernet speed LEDs	13	PCIe slot 3 cover
5	10 Gigabit Ethernet activity LEDs	14	PCIe slot 2 cover
6	USB port #1: 3.2 Gen 2x1 Type-A	15	PCIe slot 1 cover
7	USB port #2: 3.2 Gen 2x1 Type-A	16	Power supply unit 1
8	Network port #1: 2.5 Gigabit Ethernet (RJ45)	17	Power supply unit 2
9	Network port #2: 2.5 Gigabit Ethernet (RJ45)	-	-

System board



No.	Component	No.	Component
1	System fan 3	8	Memory slot 1 (Channel A, DIMM 1, black)
2	CPU fan	9	M.2 SSD slot 2
3	System fan 2	10	M.2 SSD slot 1
4	System fan 1	11	PCIe slot #3: PCIe Gen 4.0 x4
5	Memory slot 4 (Channel B, DIMM 2, blue)	12	PCIe slot #2: PCIe Gen 4.0 x8 **Note** PCIe slot #2 provides the width of PCIe Gen4 x8 when PCIe slot #1 is not in use, and provides the width of PCIe Gen4 x4 when PCIe slot #1 is in use.
6	Memory slot 3 (Channel B, DIMM 1, black)	13	PCIe slot #1: PCIe Gen 4.0 x4
7	Memory slot 2 (Channel A, DIMM 2, blue)	-	-

Drive numbering



Installation requirements

Category	Item
Environment	• Room temperature: 0˚C to 40˚C (32˚F to 104˚F) • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27˚C (80.6˚F) • Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals • Free from objects that may obstruct device ventilation or apply pressure to the device or power cord
Hardware and peripherals	• Storage drives **Tip** For the list of compatible drive models, go to https://www.qnap.com/compatibility. • Network cable
Tools	• Phillips #1 or #2 screwdriver • Anti-static wrist strap

Setting up the NAS

Important

Read all safety requirements and information carefully before setting up the NAS or installing NAS components.

1. Place your NAS device in an environment that meets the requirements.
   For details, see Installation requirements.
2. Install drives.
   For details, see the following topics.
   - Installing 3.5-inch hard drives
   - Installing 2.5-inch solid-state drives
   - Installing M.2 drives
3. Optional: Install expansion cards.
   For details, see Installing expansion cards
4. Optional: Replace memory modules.
   For details, see Replacing memory modules
5. Optional: Connect expansion units.
   For details, see Connecting expansion units
6. Connect the power cords and all applicable cables.

   Note

   To set up redundant power supply, connect power cords to both power supply units.
7. Power on the NAS.
8. Install QuTS hero.
   For details, see QuTS hero installation
9. Log on to QuTS hero.

3. Installation and Configuration

This chapter provides specific hardware and firmware installation and configuration steps.

Hardware installation

This section provides information on installing drives and expansion cards, and replacing memory modules, system fans, and power supply units.

Drive installation

The TS-h2477AXU-RP is compatible with 3.5-inch hard drives, 2.5-inch solid-state drives, and M.2 solid-state drives.

Installing 3.5-inch hard drives

For the list of compatible drive models, go to https://www.qnap.com/compatibility.

Warning

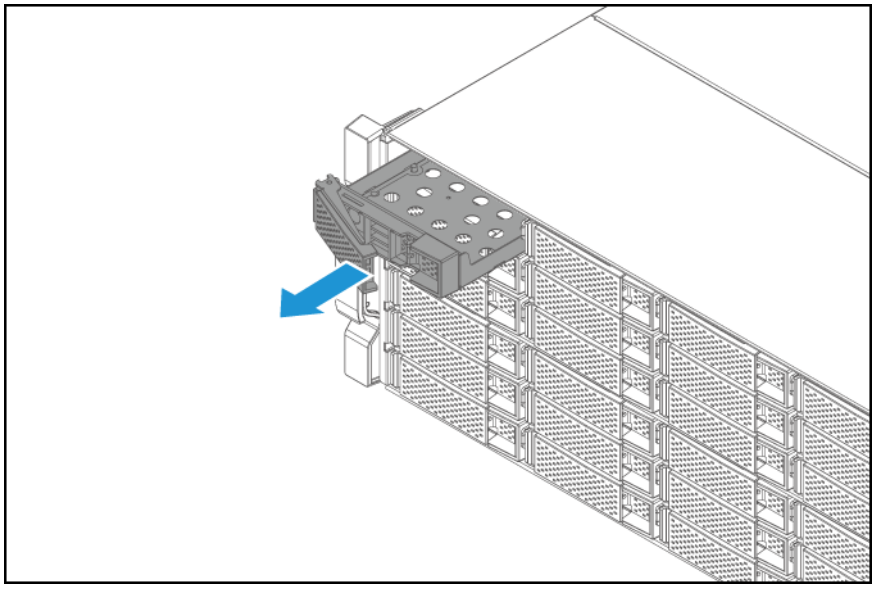
- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 
  Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the NAS.

2. Remove the drive tray.

   a. Pull the handle to release the tray.

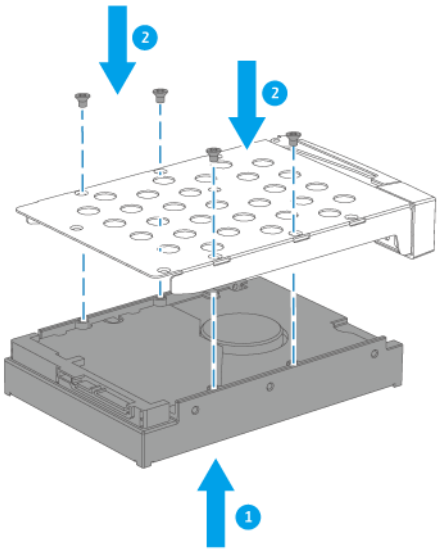
   b. Pull the tray out.



3. Install a drive on the tray.

   a. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.

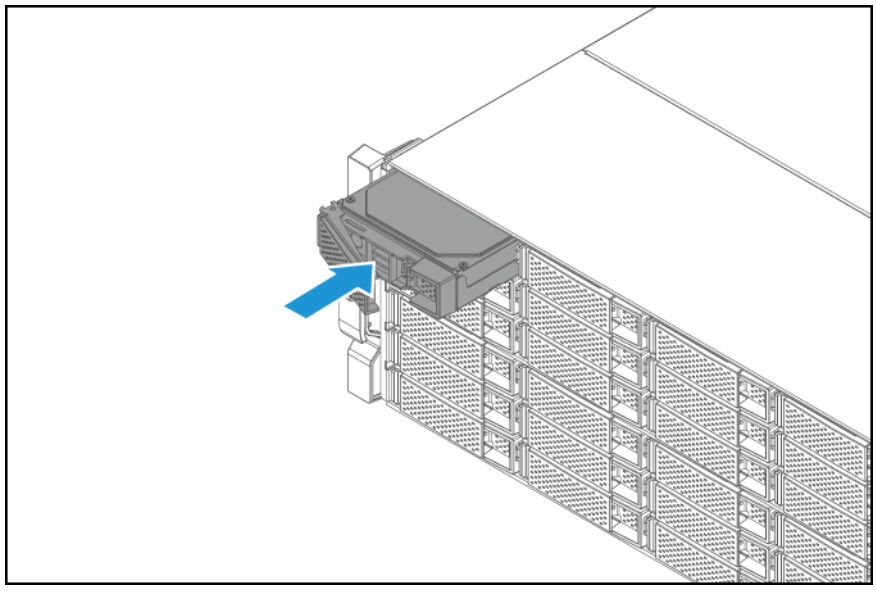
   b. Attach the screws.



4. Load the tray into the bay.

   a. Insert the tray into the bay.

b. Push the handle.



5. Power on the NAS.

Installing 2.5-inch solid-state drives

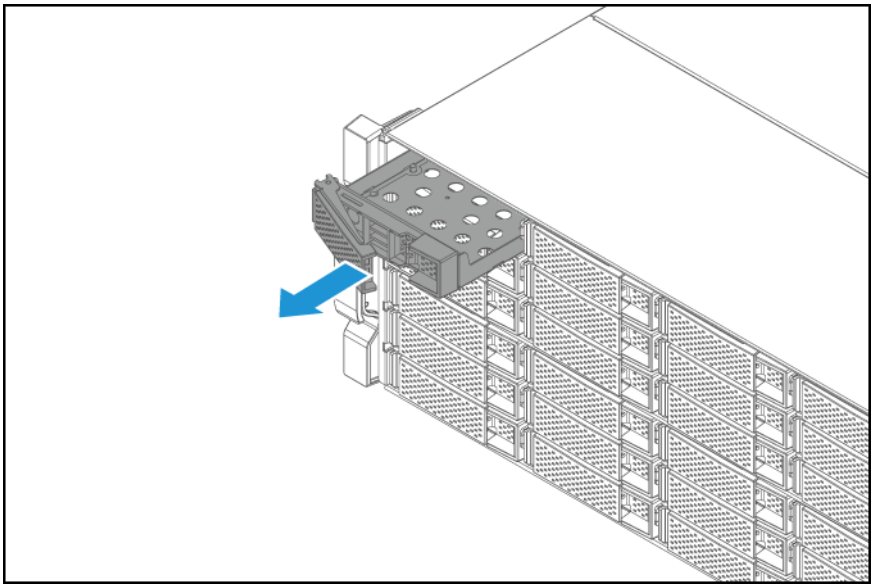
For the list of compatible drive models, go to https://www.qnap.com/compatibility.

Warning

- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the NAS.
2. Remove the drive tray.
   a. Pull the handle to release the tray.

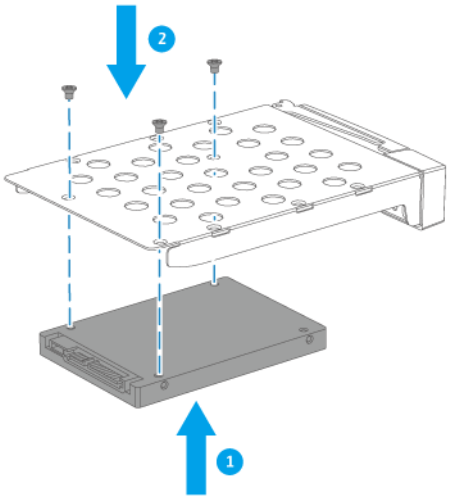
b. Pull the tray out.



3. Install a drive on the tray.

   a. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.

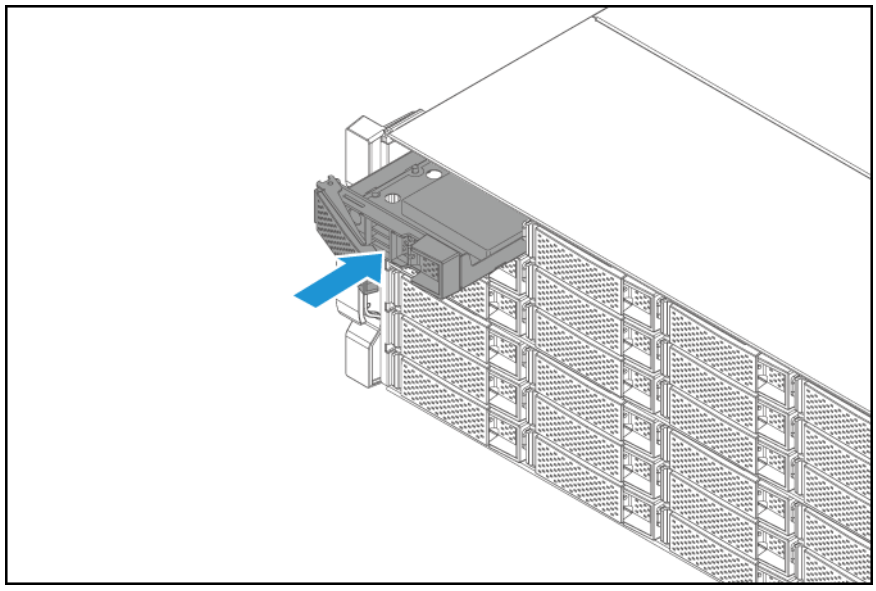
   b. Attach the screws.



4. Load the tray into the bay.

   a. Insert the tray into the bay.

b. Push the handle.



5. Power on the NAS.

Installing M.2 drives

For the list of compatible drive models, go to https://www.qnap.com/compatibility.

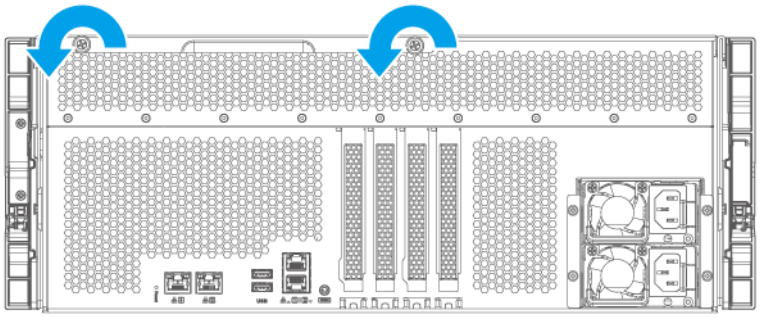
Warning

- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 
  Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cords from the electrical outlet.
3. Disconnect all cables and external attachments.

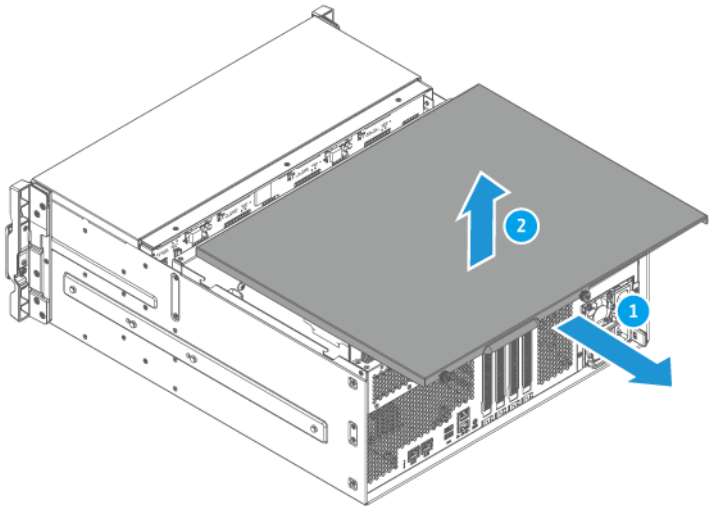
4. Remove the top cover.

   a. Loosen the screws that secure the top cover to the chassis.



   b. Slide the top cover back.

   c. Lift the top cover off the device.



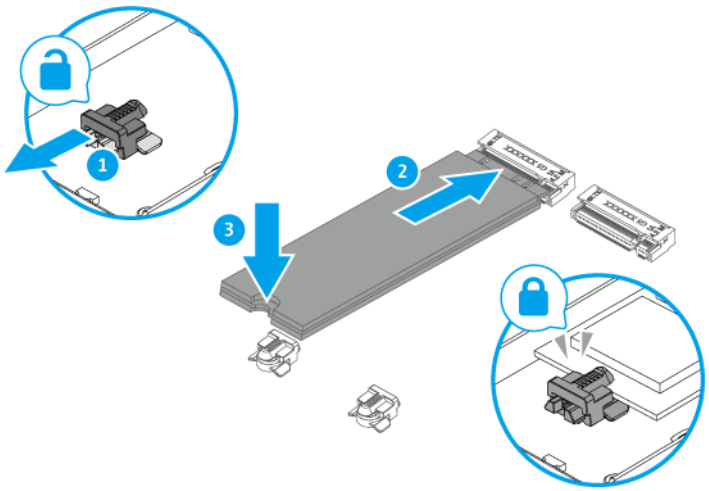
5. Install the M.2 SSD.

   a. Insert the M.2 SSD into the slot.

   b. Pull the locker and hold it in place.

   c. Carefully press down the M.2 SSD.

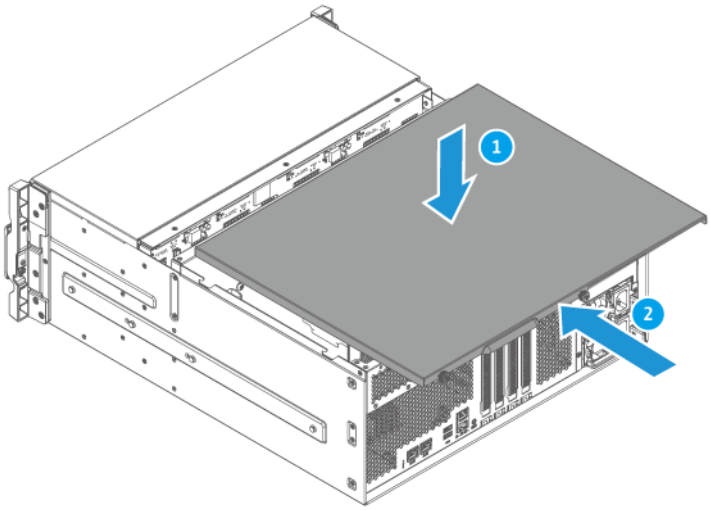
d. Release the locker to secure the M.2 SSD.



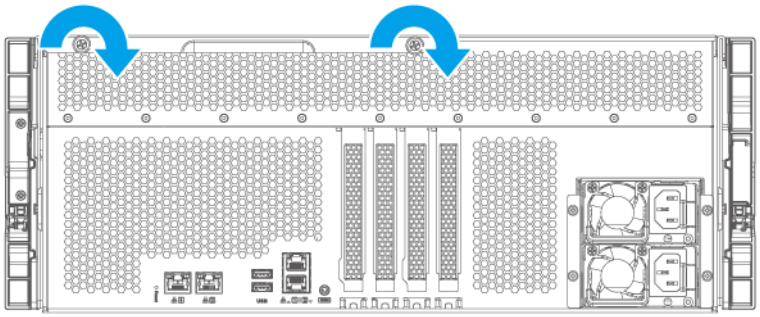
6. Attach the top cover.

a. Place the top cover on the device.

b. Slide the top cover forward.



c. Tighten the screws that secure the rear top cover to the chassis.



7. Connect all cables and external attachments.
8. Connect the power cords to the electrical outlet.
9. Power on the device.

Installing expansion cards

The device supports selected expansion cards, some of which require QNAP PCIe brackets. QNAP-branded expansion cards purchased from the company website are shipped with the brackets necessary to fit the device.

Warning

- 
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 
  Other moving components: Keep your hands and other body parts away from other moving components.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Check the expansion cards and brackets supported by your model on the QNAP website.
   a. Go to www.qnap.com/compatibility.
   b. Click **Search by NAS**.
   c. Specify the number of bays and the specific model of your NAS.

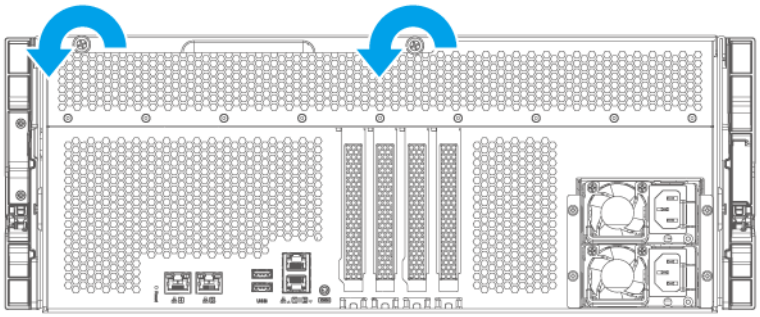
d. Under **Category**, select the component or device type.

e. Locate a specific component or device model in the list.

f. Optional: Click the corresponding **Note** icon to view more information.

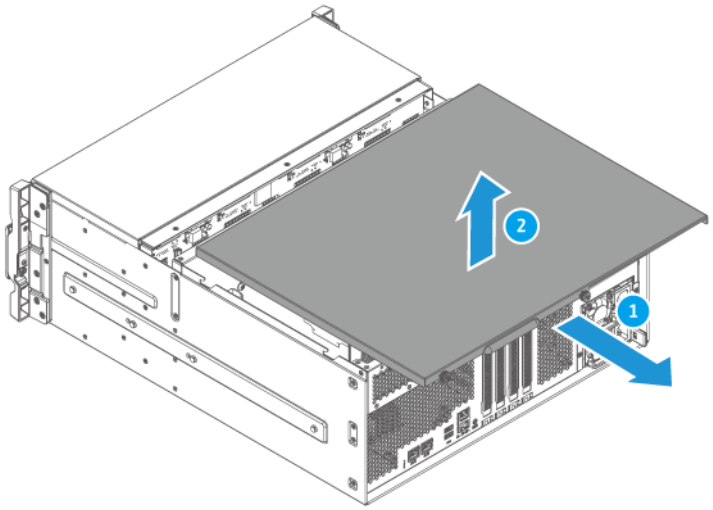
2. Power off the device.
3. Disconnect the power cords from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the top cover.

a. Loosen the screws that secure the top cover to the chassis.



b. Slide the top cover back.

c. Lift the top cover off the device.



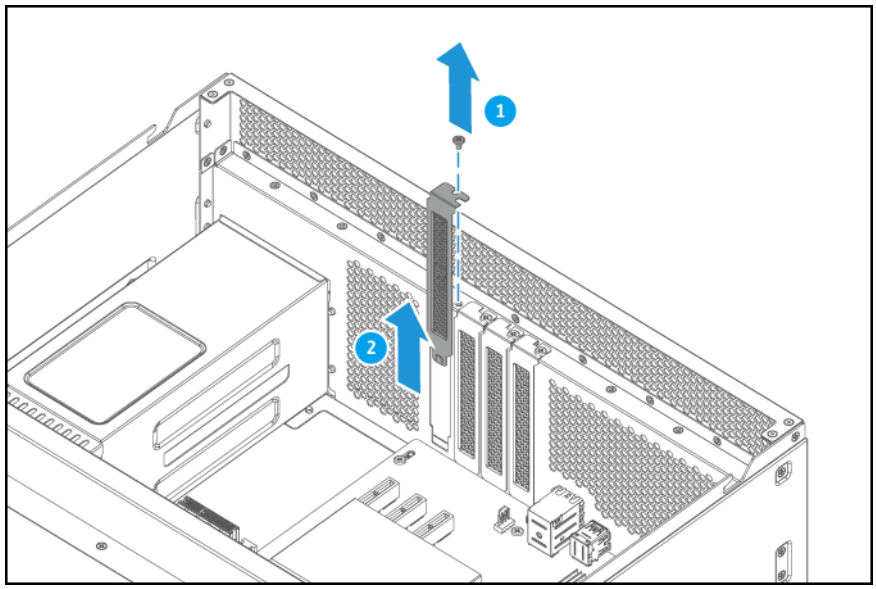
6. Remove the PCIe cover.

Warning

To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.

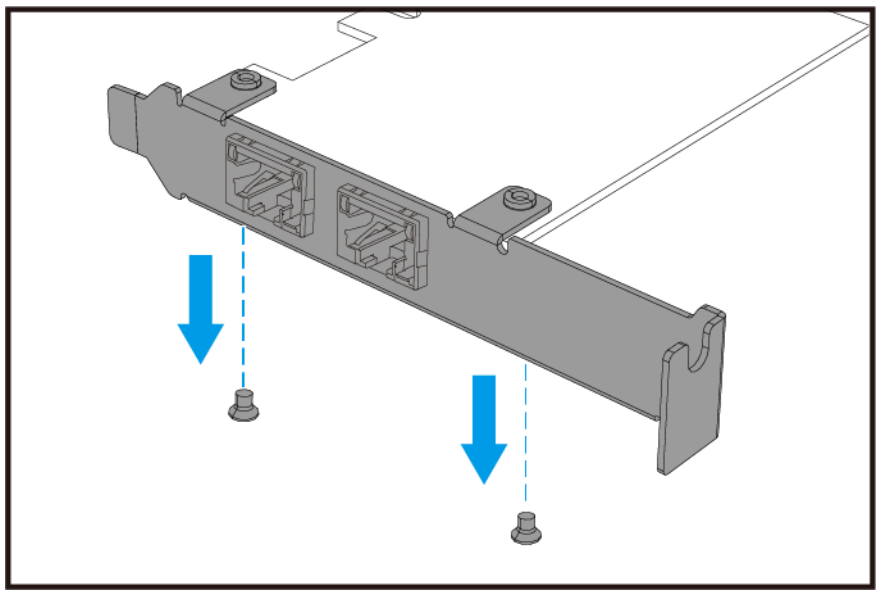
   a. Remove the screw that secures the cover to the bracket.

   b. Pull the cover away from the slot.



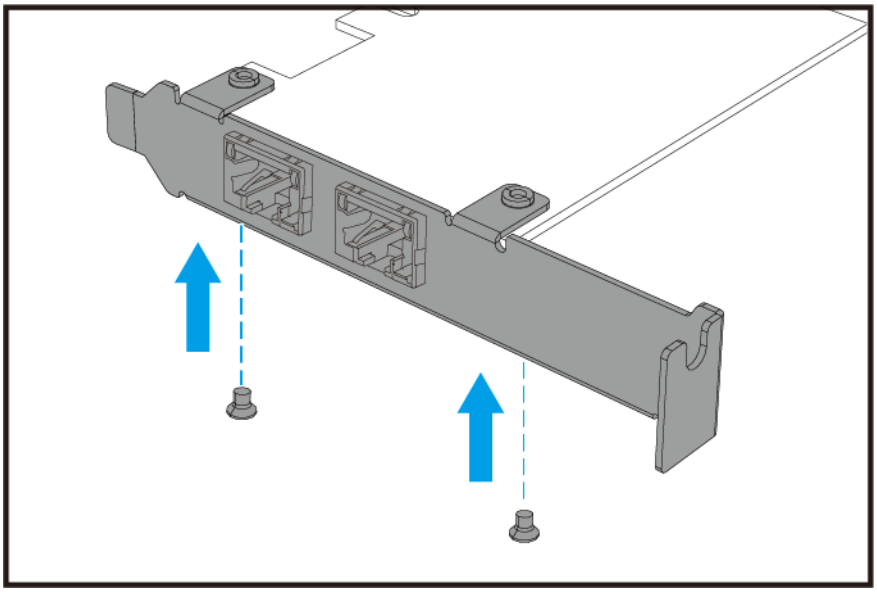
7. Optional: Attach the QNAP bracket to the expansion card.

   a. Remove all screws of the existing bracket.



   b. Carefully pull the bracket away from the card.

c. Attach the QNAP bracket to the card using the same screws.



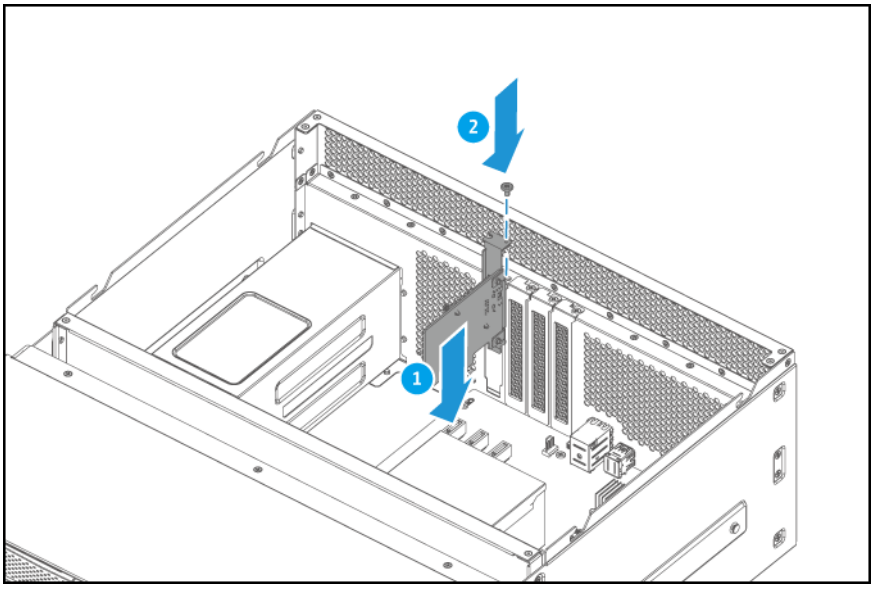
d. Verify that the bracket is secured to the card.

8. Install the expansion card.

   a. Hold the card by the edges.

   b. Insert the card into the slot.

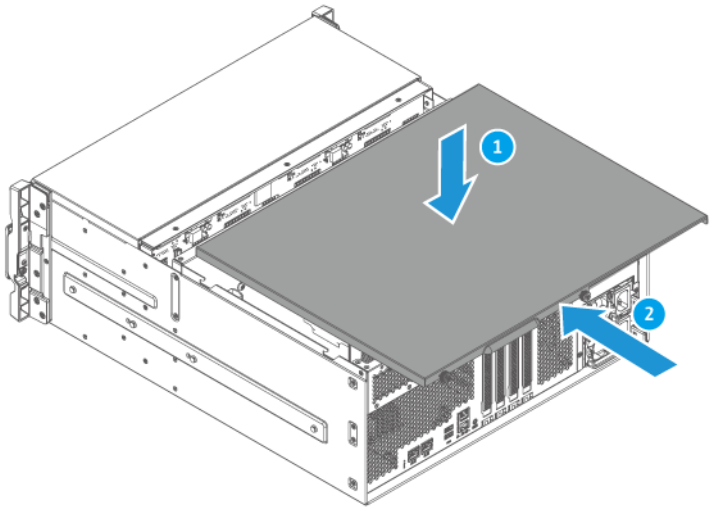
   c. Attach the screw.



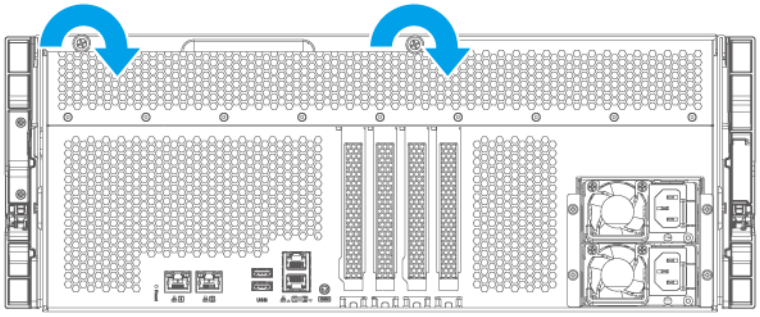
9. Attach the top cover.

   a. Place the top cover on the device.

b. Slide the top cover forward.



c. Tighten the screws that secure the rear top cover to the chassis.



10. Connect all cables and external attachments.
11. Connect the power cords to the electrical outlet.
12. Power on the device.

Replacing memory modules

Use only QNAP memory modules to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.

Important

- QNAP recommends installing modules in pairs to run dual-channel mode.
- When installing only one memory module, use slot 2. Whenever in doubt, choose the slot where the original memory module is pre-installed. Always prioritize a blue slot over a black slot. If you install a single memory module in a black slot such as slot 1, the NAS may not be able to boot up.
- When installing two memory modules, use slots 2 and 4 (blue slots). Ensure that the modules are identical.
- When installing four memory modules, use slots 1 and 2 for the first pair, and use slots 3 and 4 for the second pair. Ensure that each pair uses identical modules.

For details on slot numbering, see System board.

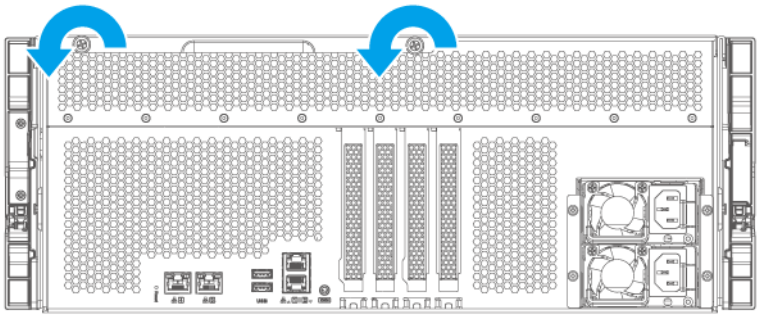
Warning

- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 
  Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cords from the electrical outlet.
3. Disconnect all cables and external attachments.

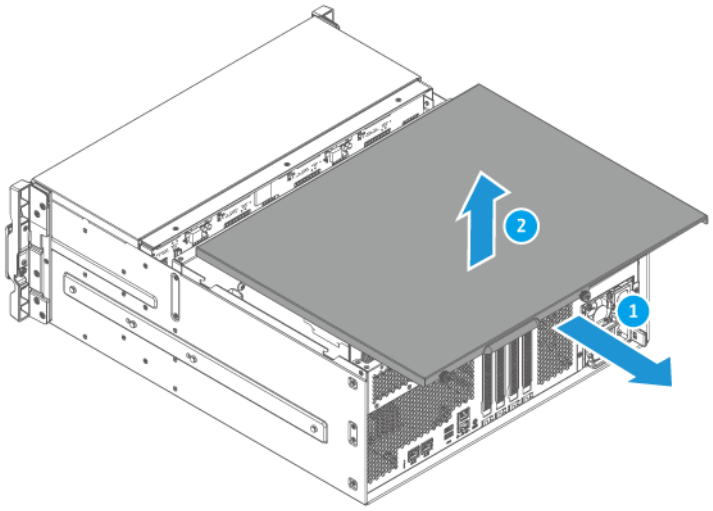
4. Remove the top cover.

   a. Loosen the screws that secure the top cover to the chassis.



   b. Slide the top cover back.

   c. Lift the top cover off the device.



5. Optional: Remove an existing module.

   a. Push the retention clips outward simultaneously to release the module.

   b. Verify that the module has tilted upward and is completely released from the slot.

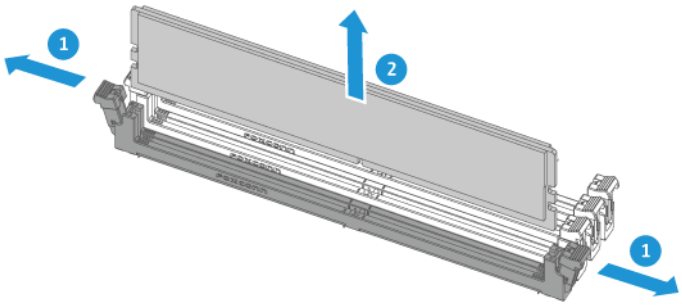
> **Warning**
> Attempting to remove a module that is not completely released may damage the module and the system board.

c. Hold the module by the edges.

d. Carefully slide the module out of the slot.

Warning

- Do not touch the internal components, particularly the metal connectors.
- Do not bend the module.



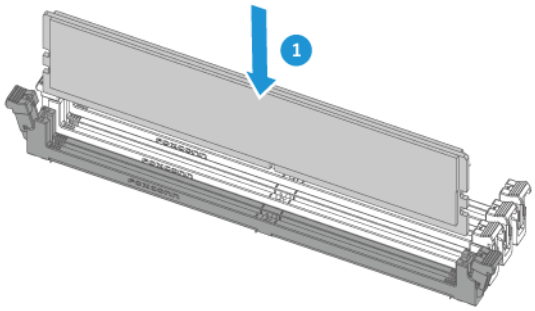
6. Install a new module.

   a. Align the notch with the ridge in the slot.

   b. Insert the module into the slot.

   c. Verify that the metal connectors are completely inserted into the slot.

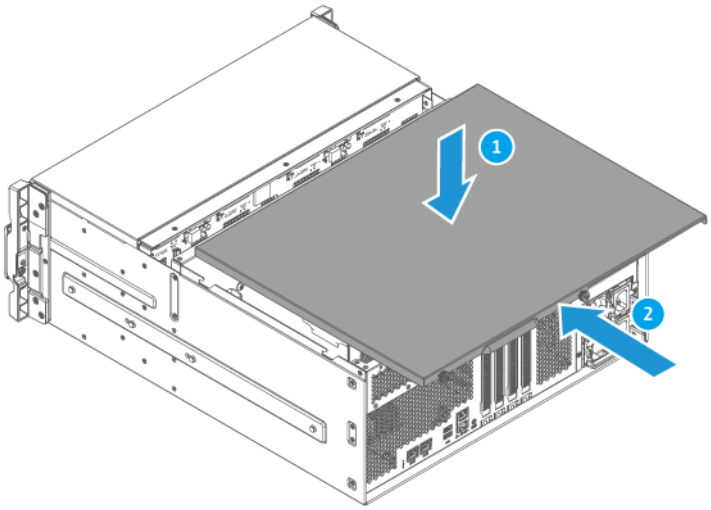
d. Carefully press down on the module until the retention clips lock the module into place.



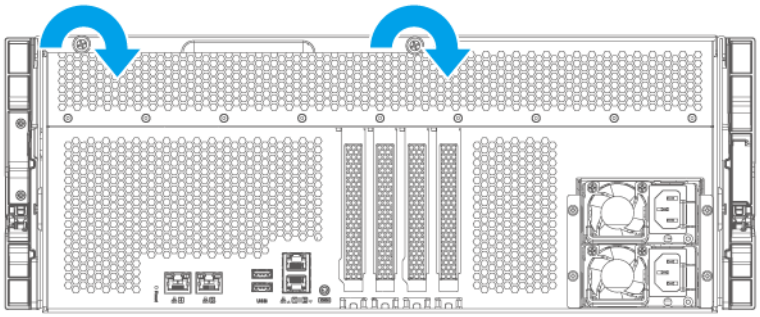
7. Attach the top cover.

a. Place the top cover on the device.

b. Slide the top cover forward.



c. Tighten the screws that secure the rear top cover to the chassis.



8. Connect all cables and external attachments.
9. Connect the power cords to the electrical outlet.
10. Power on the device.

Replacing fans

Tip

This device has transparent plastic fan ducts pre-installed on some system fans. These fan ducts help maintain ideal operating temperatures for components. QNAP does not recommend operating this device without these fan ducts installed.

Warning

- 

  Moving fan blades: Keep your hands and other body parts away from moving fan blades.

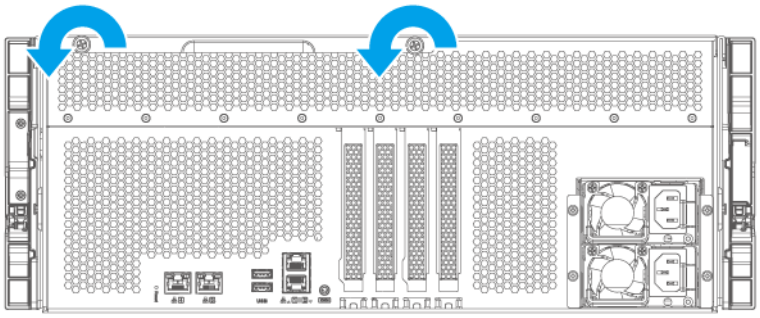
- 

  Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cords from the electrical outlet.
3. Disconnect all cables and external attachments.

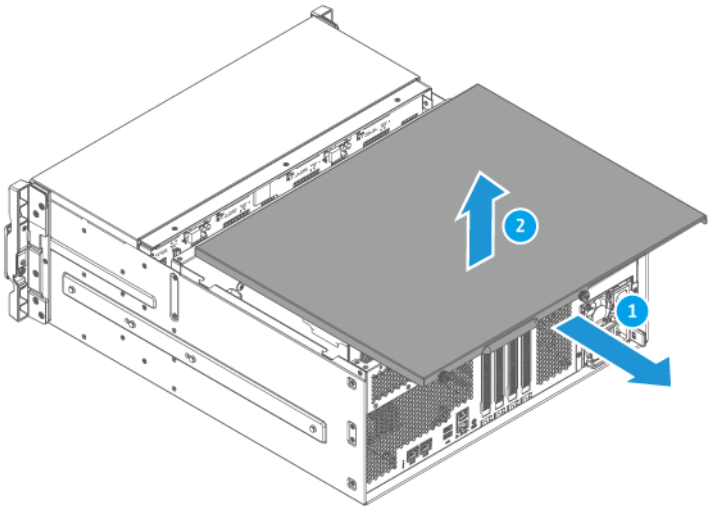
4. Remove the top cover.

   a. Loosen the screws that secure the top cover to the chassis.



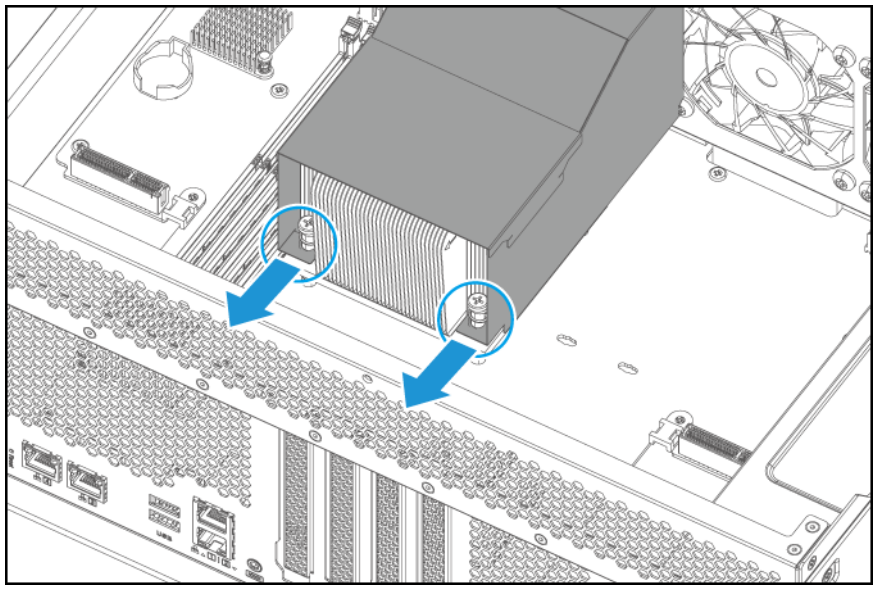
   b. Slide the top cover back.

   c. Lift the top cover off the device.

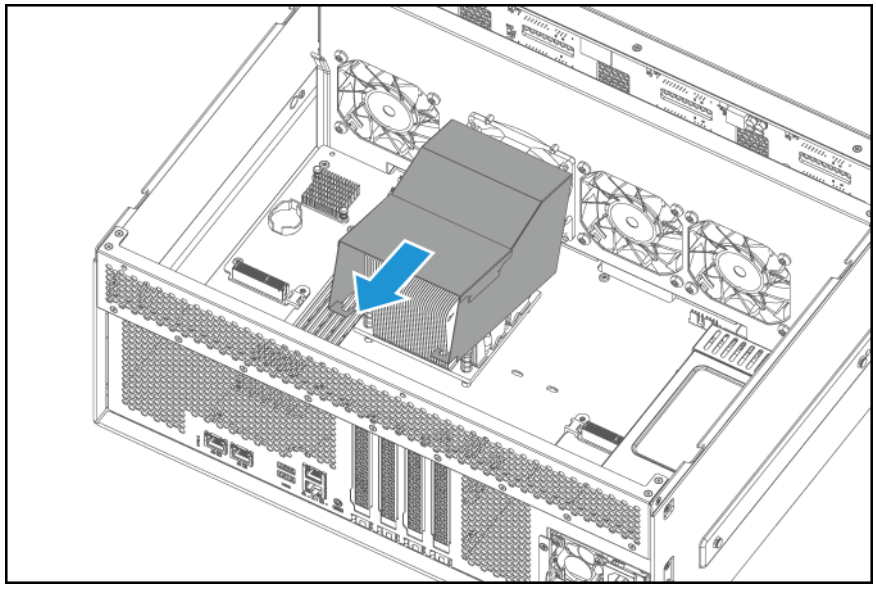


5. Remove the CPU fan duct.

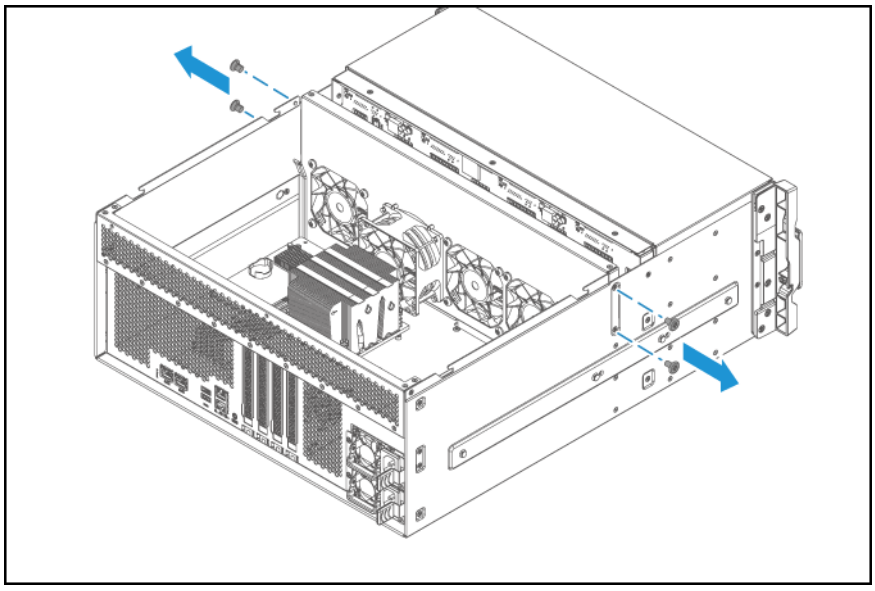
   a. Detach the bottom hooks of the CPU fan duct from the CPU heatsink screws.



   b. Pull the CPU fan duct out of the device.



6. Remove the screws that secure the fan unit to the chassis.



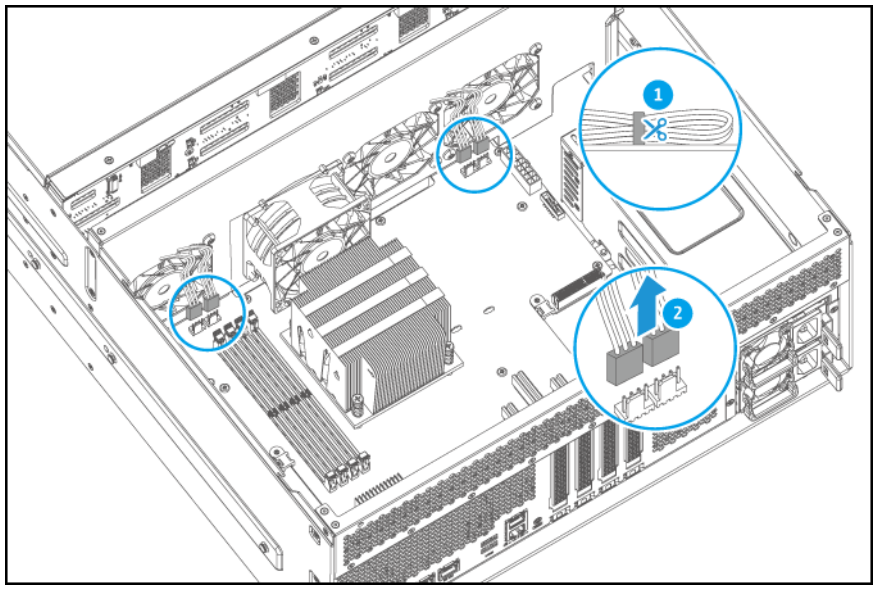
7. Remove the fan unit from the chassis.

Warning

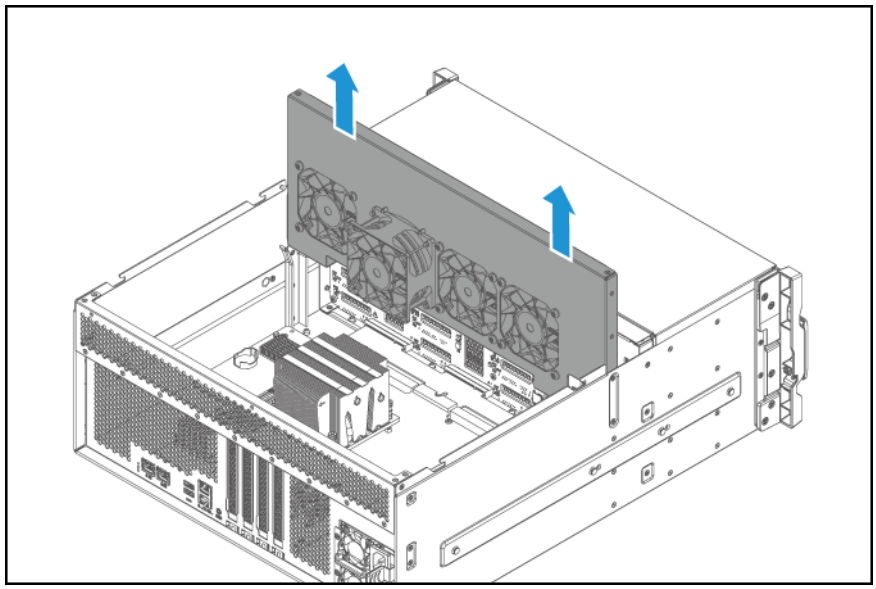
To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.

   a. If fan cables are attached to the system board by plastic cable ties, cut and remove the plastic cable ties.

   b. Disconnect the power connectors of all fans from the system board.

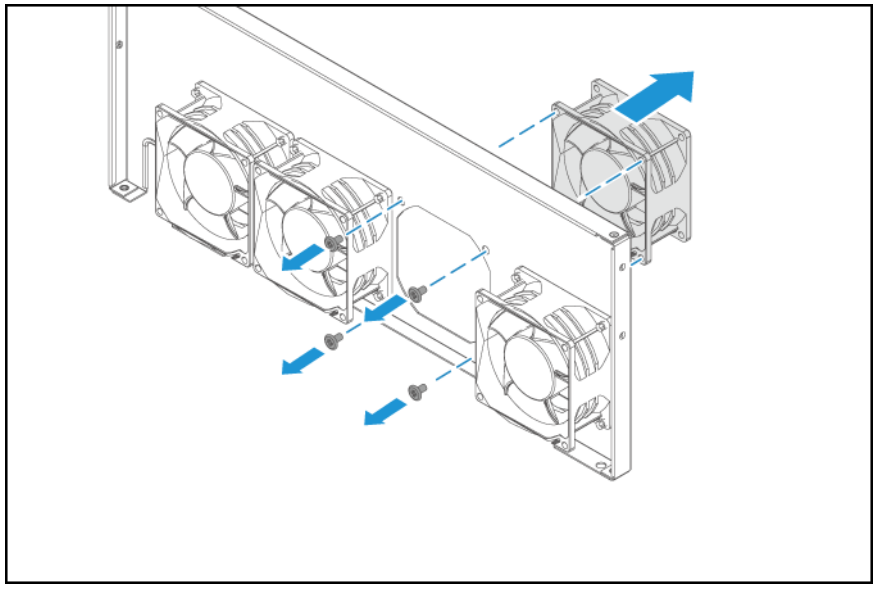


c. Lift the fan unit out of the chassis.



8. Remove the fan.

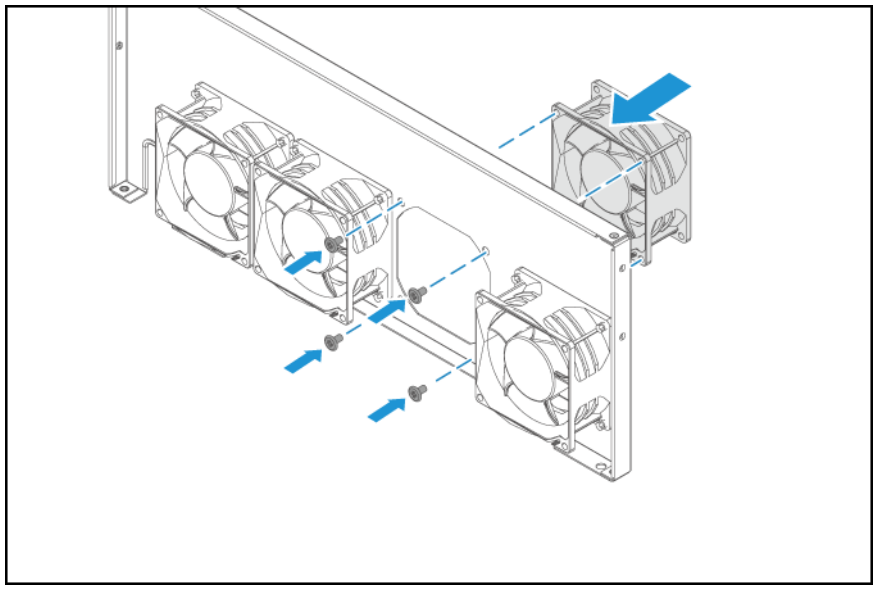
a. Remove the screws that secure the fan to the fan unit.



9. Install a new fan.

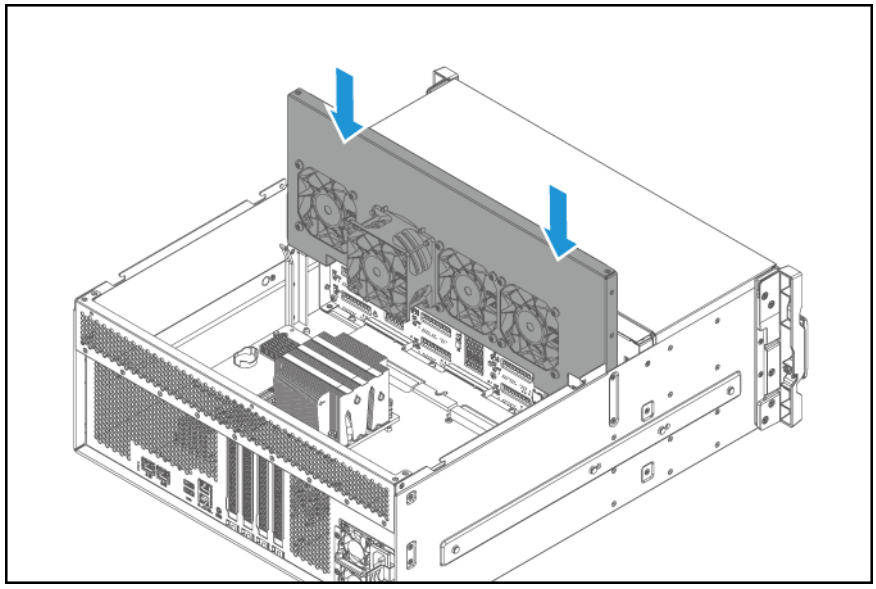
a. Align the fan to the screw holes on the fan unit.

b. Attach the screws that secure the fan to the fan unit.

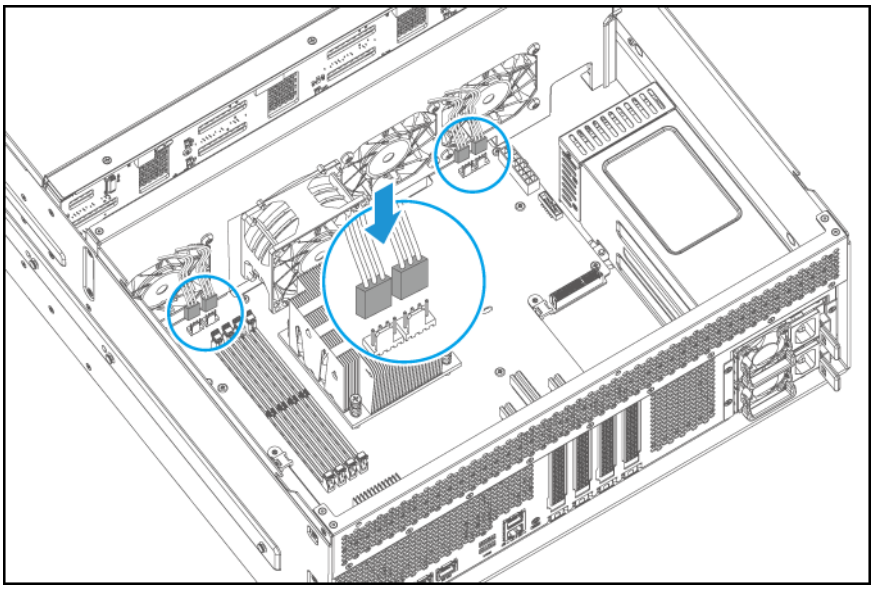


10. Install the fan unit.

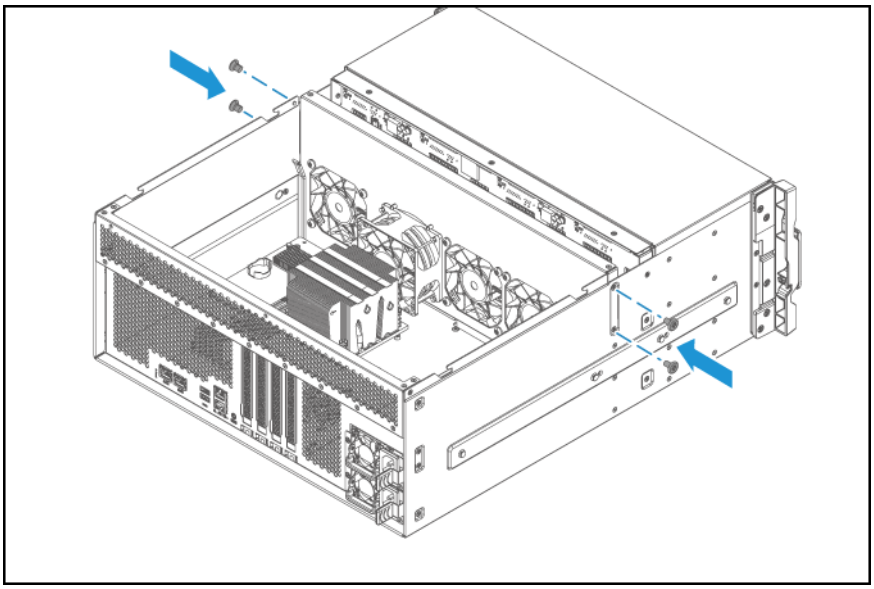
a. Insert the fan unit.



b. Connect the power connectors of all fans to the system board.

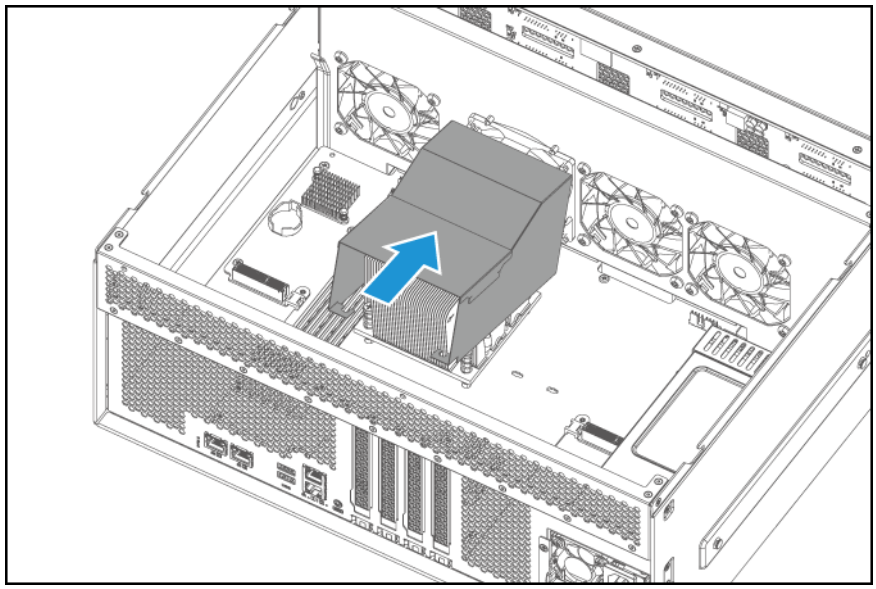


11. Attach the screws that secure the fan unit to the chassis.

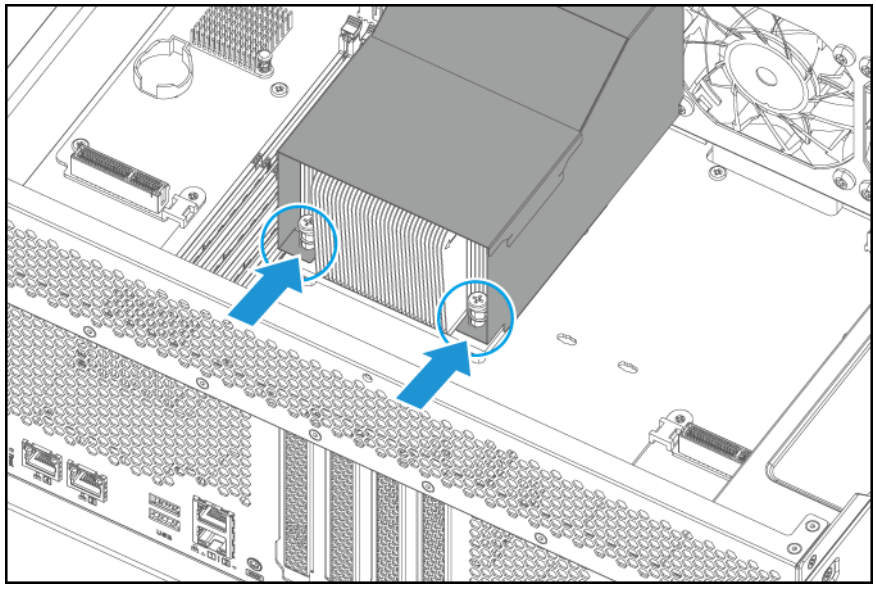


12. Attach the CPU fan duct.

    a. Attach the CPU fan duct to the CPU heatsink and CPU fan.



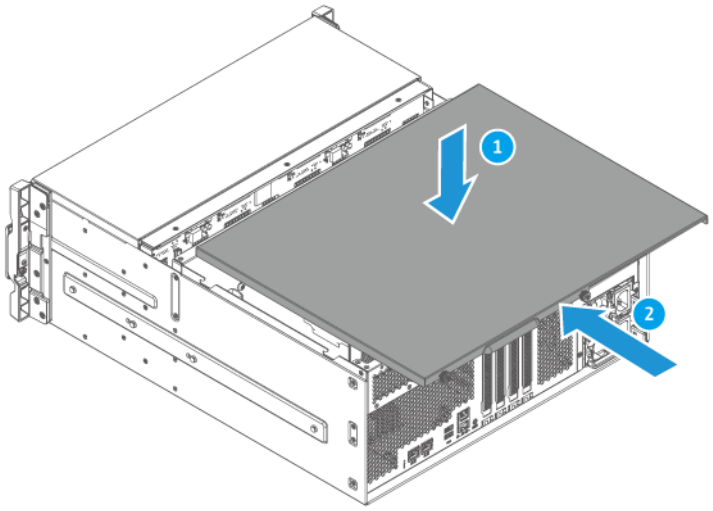
    b. Attach the bottom hooks of the CPU fan duct to the CPU heatsink screws.



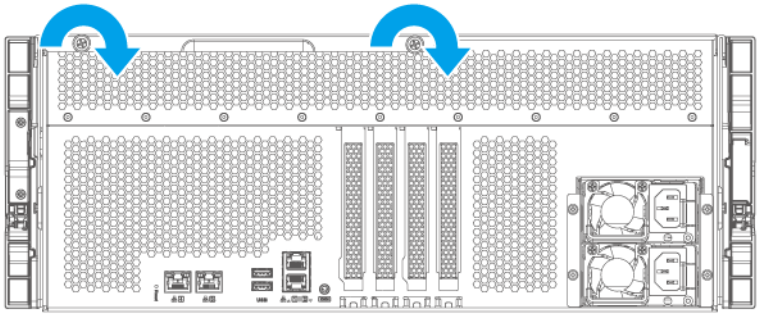
13. Attach the top cover.

    a. Place the top cover on the device.

b. Slide the top cover forward.



c. Tighten the screws that secure the rear top cover to the chassis.



14. Connect all cables and external attachments.
15. Connect the power cords to the electrical outlet.
16. Power on the device.

Hot-swapping redundant power supply units

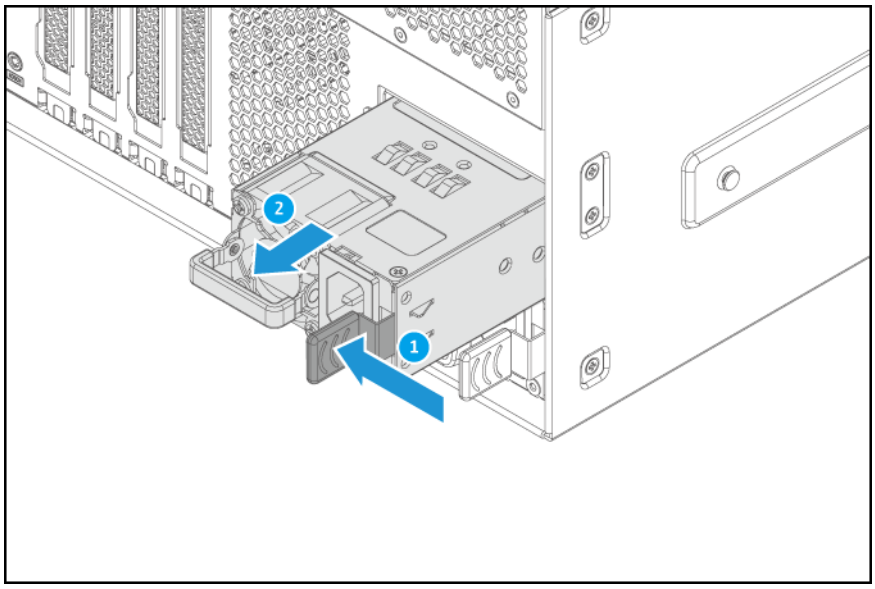
NAS devices with redundant power supply units (PSUs) support hot-swapping.

Warning
Electric shock hazard.

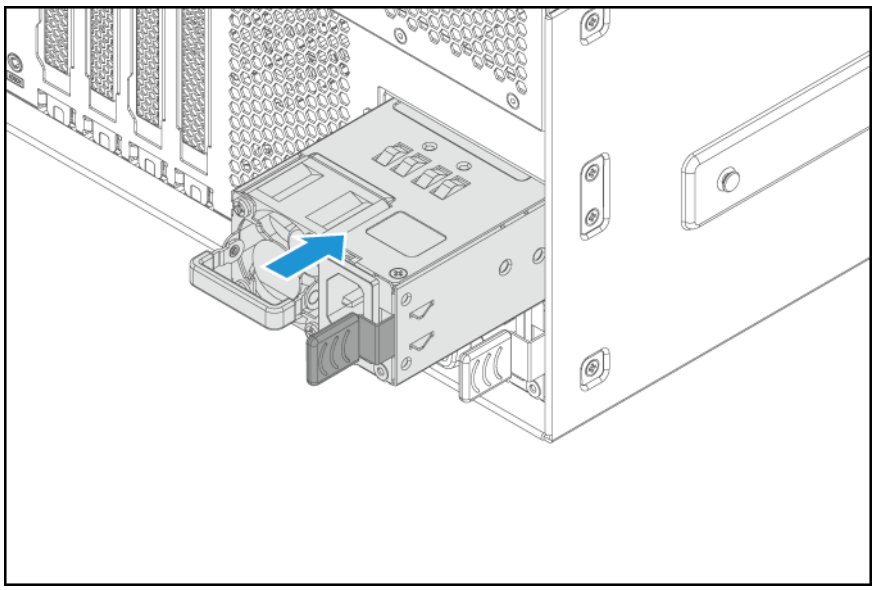
Tip

By default, the NAS issues audio alerts and desktop notifications in case of redundant PSU failures. Redundant PSU failures include when the NAS is operating on a single healthy PSU only. In this case, if you want to stop receiving redundant PSU failure alerts and notifications, go to **Control Panel** > **System** > **Hardware** > **General** and deselect **Enable redundant power supply mode**.

1. Disconnect the power cord from the electrical outlet and the power supply unit (PSU) that you are replacing.
2. Firmly press the latch toward the handle and then pull the PSU out.



3. Insert the new PSU.



4. Connect the power cord to the PSU and the electrical outlet.

Installing rail kits

Note

- Rail kits are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to https://shop.qnap.com.
- Information on rail kit installation can be found in the installation guide included in the rail kit package.

The TS-h2477AXU-RP is compatible with the following rail kit models:

- RAIL-A03

Connecting expansion units

The TS-h2477AXU-RP supports SATA, SAS, and USB expansion units. For details, please see table below.

You can purchase storage expansion accessories from QNAP or an authorized reseller.

For details, go to https://shop.qnap.com/.

For the list of compatible expansion units and the maximum number of applicable expansion units, go to https://www.qnap.com/go/compatibility-expansion.

Expansion Unit Model	Description	Required Accessories
SAS expansion units		

TL-R1620Sep-RP	• Uses a SAS 12 Gbps (SFF-8644) interface
	• Supports SAS/SATA HDD/SSD
		• One of the following storage expansion cards:
		  • QXP-820S-B3408
		  • QXP-1620S-B3616W
		• mini-SAS SFF-8644 cable
		• RAIL-B02

TL-R1220Sep-RP	• Uses a SAS 12 Gbps (SFF-8644) interface
	• Supports SAS/SATA HDD/SSD
		• One of the following storage expansion cards:
		  • QXP-820S-B3408
		  • QXP-1620S-B3616W
		• mini-SAS SFF-8644 cable
		• RAIL-B02

Expansion Unit Model	Description	Required Accessories
USB expansion units		
TR-002	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SSD	• USB 3.2 Gen 2 Type-A to Type-C cable
TR-004	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SSD	• USB 3.2 Gen 1 Type-A to Type-C cable
TR-004U	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SSD	• USB 3.2 Gen 1 Type-A to Type-C cable • RAIL-B02
TL-D800C	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SSD	• USB 3.2 Gen 2 Type-A to Type-C cable
TL-R1200C-RP	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SSD	• USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02
SATA expansion units		
TL-D400S	• Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD	• 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter
TL-D800S	• Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD	• 2 x SFF-8088 connector cables • QXP-800eS-A1164 host bus adapter
TL-D1600S	• Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD	• 4 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter

Expansion Unit Model	Description	Required Accessories
TL-R1200S-RP	• Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD	• 3 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter • RAIL-B02
TL-R400S	• Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD	• 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter • RAIL-B02

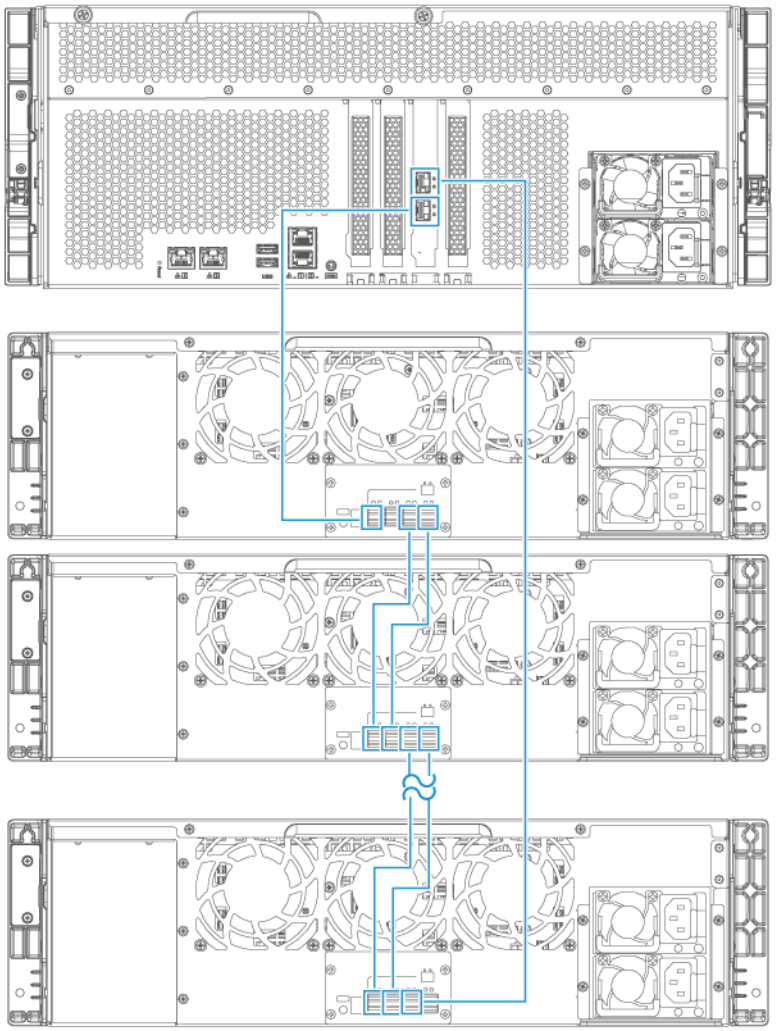
Connecting SAS expansion units

To connect the device to SAS expansion units, a storage expansion card must be installed in the device.

For required accessories details, see Connecting expansion units.

1. Install a storage expansion card on the PCIe slot.
   For details, see Installing expansion cards.

2. Connect the expansion units to the device using the following topology.



QNAP recommends always using dual-path configuration to prevent storage downtime due to expansion unit failure or cable disconnection. Single-path configuration should be used only in a situation where it is not possible to use dual-path configuration.

3. Power on the expansion units.
4. Verify that the expansion units are recognized by the device.
   a. Log on to QuTS hero as an administrator.
   b. Go to **Storage Manager** > **External Storage**.
   c. Verify that the expansion units are listed.

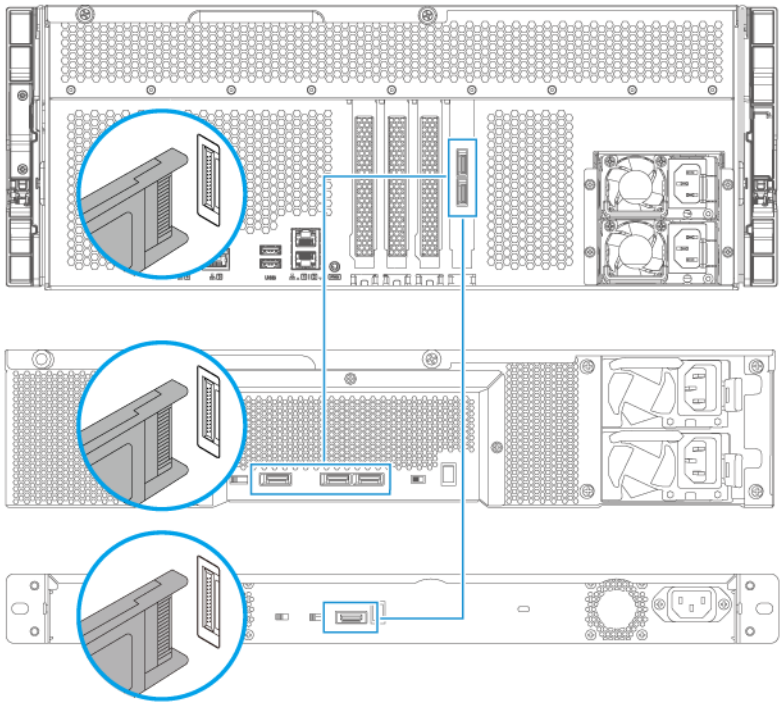
Connecting SATA expansion units

To connect SATA JBOD expansion units to the NAS, a host bus adapter must be installed on the NAS. For required accessories details, see Connecting expansion units.

1. Power off the NAS.
2. Install a host bus adapter on the PCIe slot.
   For details, see Installing expansion cards.

   Note
   A QNAP QXP host bus adapter is required for connecting SATA expansion units to a host device. Third-party host bus adapters are not compatible with QNAP expansion units.

3. Connect the expansion units to the NAS using the following topology.



4. Power on the expansion units.
5. Power on the NAS.
6. Verify that the expansion units are recognized by the NAS.
   a. Log on to QuTS hero as an administrator.

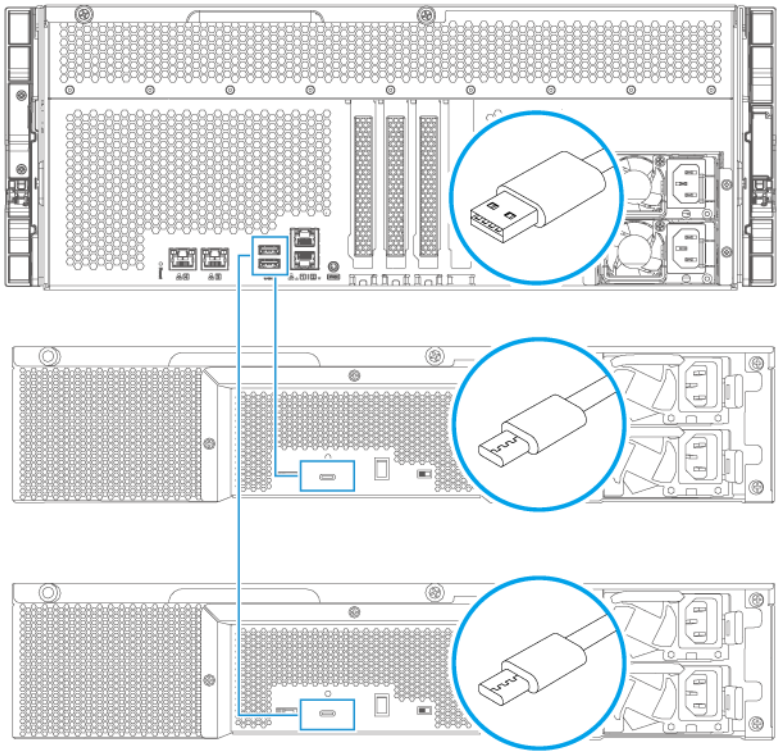
b. Go to **Storage Manager** > **External Storage**.

c. Verify that the expansion units are listed.

Connecting USB expansion units

For required accessories, see Connecting expansion units.

1. Connect the expansion unit to the NAS.
   a. Connect the USB cable to the USB Type-C port on the expansion unit.
   b. Connect the USB cable to a USB Type-A or Type-C port on the NAS.
2. Optional: Connect another expansion unit to the NAS.



3. Power on the expansion units.
4. Verify that the expansion unit is recognized by the NAS.
   a. Log on to QuTS hero as an administrator.
   b. Go to **Storage Manager** > **External Storage**.
   c. Verify that the expansion unit is listed.

QuTS hero installation

Method	Description	Requirements
Qfinder Pro installation (Recommended)	If the NAS is connected to your local area network, you can do the following: • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard.	• Computer • Network cable • Qfinder Pro installer
Cloud installation	If the NAS is connected to the internet, you can do the following: • Scan the QR code on the NAS. • Specify the Cloud Key. • Log into your myQNAPcloud account. • Use myQNAPcloud Link to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard.	• Computer or mobile device • myQNAPcloud account • Cloud Key

Initializing QuTS hero using Qfinder Pro

You can initialize QuTS hero using Qfinder Pro, which is a utility designed to help you locate and manage QNAP devices on your network.

Warning
Installing QuTS hero deletes all data on the drives. Back up your data before proceeding.

1. Power on the device.
2. Connect the device to your local area network.
3. Run Qfinder Pro on a computer that is connected to the same local area network.

   Note
   To download Qfinder Pro, go to https://www.qnap.com/utilities.

4. Locate the NAS in the list and then double-click the name or IP address.
   The **Smart Installation Guide** opens in the default web browser.

5. If the screen shows a different operating system, click **QuTS hero**.

   Note
   This step is only required if the NAS supports installing more than one operating system and the default operating system for installation is not QuTS hero.

   The NAS restarts and the smart installation screen shows QuTS hero as the operating system to install.

6. Click **Start Smart Installation Guide**.
   The **Install Firmware** window appears.

7. Install firmware using any of the following methods:

Installation methods	Steps
Automatic	Click **Start**. Automatically searches for available firmware updates and installs firmware.
Manual installation	**a.** Click **Manual Installation**. The **Install Firmware** window appears. **b.** Click **Browse**. The upload file window appears. **c.** Select file. **d.** Click **Open**. Starts firmware installation.
Skip	Click **Skip**. Skips firmware installation.

8. Specify the following information

   - **NAS name**: Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
   - **Username**: Specify an administrator username that contains 1 to 32 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.
     The username cannot contain the following special characters: grave accent (`), asterisk (*), equal sign (=), plus sign (+), square brackets ([ ]), curly brackets ({}), slash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), backslash (/), question mark (?), percent sign (%), dollar sign ($), and the space character.

Important
To protect your NAS from brute force attacks, create a new system administrator account during QuTS hero initialization to disable the default "admin" account.

- **Password**: Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

9. Click **Next**.
10. Specify the time zone, date, and time.

Tip
QNAP recommends connecting to an NTP server to ensure that the NAS follows the Coordinated Universal Time (UTC) standard.

11. Click **Next**.
    The **Configure the network settings** screen appears.
12. Select **Obtain an IP address automatically (DHCP)**.
13. Click **Next**.
14. Review the settings.
15. Click **Apply**.
    A confirmation message appears.

Warning
Clicking **Initialize** deletes all data on the drive before installing QuTS hero.

16. Click **Initialize**.
    QuTS hero initialization starts. It may take a few minutes to complete the process.
    After the initialization, you can click **Go to NAS Management** to start using QuTS hero and configuring other settings.

Initializing QuTS hero using the cloud installation website

You can initialize QuTS hero on the cloud installation website, which is designed to help you set up QNAP devices.

Warning
Initializing QuTS hero deletes all data on the drives. Back up your data before proceeding.

1. Power on the device.
2. Connect the device to the internet.

3. Go to the QNAP Cloud Installation website using one of the following methods:
   - On your computer, go to the website dedicated to your region.
     - Global: https://install.qnap.com
     - China: https://install.qnap.com.cn
   - Or scan the QR code on the NAS using a mobile device.

   The web page lists all the uninitialized QNAP NAS devices on the local network.
4. Find your NAS from the list and then click **Initialize**.

   Tip
   If your NAS is connected to the Internet, you can also go to https://install.qnap.com/set to enter the Cloud Key printed on the NAS. This allows you to initialize the NAS even if your NAS and your computer are not on the same network.

   The installation wizard opens in the default web browser.
5. Create an account or sign in to myQNAPcloud.

   Note
   You must return to this page to complete the installation after creating an account.
6. Specify the myQNAPcloud device name for the NAS.

   Note
   - The myQNAPcloud device name is used when remotely accessing the NAS.
   - For security purposes, the myQNAPcloud Link remote connection service will be disabled on your NAS after initialization. You can enable it by connecting to QuTS hero through LAN and then installing myQNAPcloud Link.
7. Click **Next**.
   The **Smart Installation Guide** opens in the default web browser.
8. Perform any of the following actions.
   - To check for the latest available version, click **Start**.
     The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the **Smart Installation Guide**.
   - To install the out-of-the-box version, click **Skip**.
   - If the screen shows a different operating system, click **QuTS hero**.
     The NAS restarts and the smart installation screen shows QuTS hero as the operating system to install.

9. Click **Start Smart Installation Guide**.
   The **Install Firmware** window appears.
10. Install firmware using any of the following methods:

Installation methods	Steps
Automatic	Click **Start**. Automatically searches for available firmware updates and installs firmware.
Manual installation	**a.** Click **Manual Installation**. The **Install Firmware** window appears. **b.** Click **Browse**. The upload file window appears. **c.** Select file. **d.** Click **Open**. Starts firmware installation.
Skip	Click **Skip**. Skips firmware installation.

11. Specify the following information

    - **NAS name**: Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
    - **Username**: Specify an administrator username that contains 1 to 32 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.
      The username cannot contain the following special characters: grave accent (`), asterisk (*), equal sign (=), plus sign (+), square brackets ([ ]), curly brackets ({}), slash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), backslash (/), question mark (?), percent sign (%), dollar sign ($), and the space character.

      Important
      To protect your NAS from brute force attacks, create a new system administrator account during QuTS hero initialization to disable the default "admin" account.

    - **Password**: Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
12. Click **Next**.

13. Specify the time zone, date, and time.

    Tip
    QNAP recommends connecting to an NTP server to ensure that the NAS follows the Coordinated Universal Time (UTC) standard.

14. Click **Next**.
    The **Configure the network settings** screen appears.

15. Select **Obtain an IP address automatically (DHCP)**.

16. Click **Next**.

17. Review the settings.

18. Click **Apply**.
    A confirmation message appears.

    Warning
    Clicking **Initialize** deletes all data on the drive before installing QuTS hero.

19. Click **Initialize**.
    QuTS hero initialization starts. It may take a few minutes to complete the process.
    After the initialization, you can click **Go to NAS Management** to start using QuTS hero and configuring other settings.

4. Basic Operations

This chapter describes basic NAS operations.

Power button

Operation	User Action	Result
Power on	Press the button once.	The device powers on.
Power off	Press and hold the button for 1.5 seconds.	The device powers off.
Force power off	Press and hold the button for 5 seconds.	The device powers off. **Important** Use this method only when the device is unresponsive.

Reset button

Important

To protect your device from brute force attacks, QNAP recommends disabling the default `admin` account after a system reset. To disable the default `admin` account, you must first create a new administrator account, log out of the `admin` account, and then log in with the new account.

Operation	User Action	Result

Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default:
		• The `admin` account is automatically enabled.
		• System administrator password: For details on the default password, see this FAQ.
		• TCP/IP configuration:
		  • Obtain IP address settings automatically via DHCP
		  • Disable jumbo frames
		  • If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".
		• System port: 8080 (system service port)
		• Security level: Low (Allow all connections)
		• VLAN: Disabled

Advanced system reset	Press and hold the button for 10 seconds.	The default factory settings are restored. • To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

LEDs

LEDs indicate the system status and related information when the device is powered on. The following LED information applies only when the drive is correctly installed and when the device is connected to the network or to a host.

For details on the location of the LEDs, see Components.

System Status LED

Status	Description
Flashes green and red alternately every 0.5 seconds	• A drive is being formatted. • The device is being initialized. • The operating system is being updated. • RAID rebuilding is in progress. • Online RAID Capacity Expansion is in progress. • Online RAID Level Migration is in progress. • The firmware is being updated. **Important** When updating the firmware, do not remove the power cord or USB cable, and do not force-exit the application.
Red	• A drive is invalid. • A shared folder has reached its full capacity. • A shared folder is about to reach its full capacity. • A system fan is not functioning. • An error occurred when accessing (read/write) the data. • A bad sector is detected on a drive. • The device is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read). • A hardware self-test error occurred.
Flashes red every 0.5 seconds	The device is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
Green	The device is ready.
Flashes green every 0.5 seconds	• The device is not configured. • A drive is not formatted.
Off	• All drives are in standby mode. • The device is powered off.

Drive LED

Status	Description
Flashes red	Data is being accessed, and during the process a drive read/write error occurred.
Red	A drive read/write error occurred.
Flashes green	Data is being accessed.
Green	The drive is ready.
Off	No drive was detected.

LAN LED

Status	Description
Orange	The network connection is operating.
Flashes orange	The device is being accessed from the network.
Off	The device is not connected to a network.

2.5 Gigabit Ethernet Speed LED

Status	Description
Green	The network connection is operating at 2.5 Gbps.
Orange	The network connection is operating at 1 Gbps or 100 Mbps.
Off	• The network connection is operating at 10 Mbps. • There is no network connection.

2.5 Gigabit Ethernet Activity LED

Status	Description
Orange	A network connection has been established.
Flashes orange	The device is being accessed from the network.

Status	Description
Off	There is no network connection.

10GBASE-T Ethernet Speed LED

Status	Description
Green	The network connection is operating at 10 Gbps.
Orange	The network connection is operating at 5 Gbps, 2.5 Gbps, 1 Gbps, 100 Mbps, or 10 Mbps.
Off	There is no network connection.

10GBASE-T Ethernet Activity LED

Status	Description
Orange	A network connection has been established.
Flashes orange	Data is being transmitted.
Off	There is no network connection.

Expansion LED

Status	Description
Blue	• A USB JBOD expansion unit has been detected. • A SAS JBOD expansion unit has been detected. • An expansion unit is connected.
Off	• No JBOD expansion unit has been detected. • No expansion unit has been detected.

Audio alerts

Duration	Frequency	Description
Short beep (0.5 seconds)	1	• The NAS is starting up. • When the reset button is pressed for 3 seconds, the NAS resets configurations. • When the reset button is pressed for 10 seconds, the NAS resets configurations and reboots. • The operating system was updated.
	3	Cannot detect installed disk.
Long beep (1.5 seconds)	3 (every 5 minutes)	• A power error occurred. • A system fan is not functioning. • A fan module has been removed.
	2	• A storage pool is about to reach full capacity. • A storage pool has reached full capacity. • A storage pool status error occurred. • A shared folder is about to reach its full capacity. • A shared folder has reached its full capacity. • A shared folder status error occurred. • A drive is plugged in or out. • An iSCSI LUN is about to reach full capacity.
	1	• The NAS was powered off by force shutdown (hardware shutdown). • The NAS was powered on successfully and is ready.

5. Troubleshooting

This chapter describes basic troubleshooting information.

Forcing Qfinder Pro or myQNAPcloud to locate the NAS

If Qfinder Pro or myQNAPcloud is unable to locate the NAS during QuTS hero installation, the drives or data may be faulty.

1. Power off the NAS.
2. Remove all drives.
3. Power on the NAS.
4. Locate the NAS using Qfinder Pro or myQNAPcloud.
5. Reinsert the drives.
6. Continue with the QuTS hero installation.

Hot-swapping failed drives

The NAS supports hot-swapping of drives in the following situations:

RAID Type	Number of Disks	Situation
RAID 1	2	One member drive fails.
RAID 5	≥ 3	
RAID 6	≥ 4	One or two member drives fail.
RAID 10	≥ 4 (Must be an even number)	One or two member drives in two different pairs fail.
RAID 50	≥ 6	One disk per subgroup fails.
RAID 60	≥ 8	Two disks per subgroup fail.
Triple Mirror	Multiple of 3. (For example, 3, 6, 9, 12 disks and so forth.)	One or two member drives fail.
RAID-TP	≥ 5	One, two, or three member drives fail.

1. Log on to QuTS hero.
2. Go to **Main Menu** > **Storage Manager** > **Disks**.
3. Locate the failed drive.

4. Prepare a new drive with a capacity that is the same as or larger than the failed drive.
5. Remove the failed drive from the device.
6. Wait for 20 seconds or until the device beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.
   The NAS beeps twice.
10. Go to **Main Menu** > **Storage Manager** > **Storage Space**.
11. Locate the storage pool that contains the new drive and then verify that the status is `Rebuilding`.

Recovering unintentionally removed healthy drives

The NAS supports exclusive RAID recovery technology to recover failed RAID groups from unintentional disconnection or removal of drives. Users can recover an inactive RAID 1, RAID 5, RAID 6, RAID 10, RAID 50, RAID 60, Triple Mirror, or RAID-TP group from degraded mode.

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
RAID 0	Yes	≥ 2	N/A
RAID 1	Yes	2	1
RAID 5	Yes	≥ 3	1
RAID 6	Yes	≥ 4	2
RAID 10	Yes	≥ 4 (Must be an even number)	One disk per subgroup fails.
RAID 50	Yes	≥ 6	One disk per subgroup fails.
RAID 60	Yes	≥ 8	Two disks per subgroup fail.
Triple Mirror	Yes	Multiple of 3. (For example, 3, 6, 9, 12 disks and so forth.)	2
RAID-TP	Yes	≥ 5	3

Support and other resources

QNAP provides the following resources:

Resource	URL
Documentation	https://download.qnap.com
Compatibility List	https://www.qnap.com/compatibility
NAS Migration Compatibility	https://www.qnap.com/go/nas-migration
Expansion Unit Compatibility	https://www.qnap.com/go/compatibility-expansion
Service Portal	https://service.qnap.com
Product Support Status	https://www.qnap.com/go/product/eol.php
Downloads	https://download.qnap.com
QNAP Community	https://community.qnap.com
QNAP Accessories Store	https://shop.qnap.com

6. NAS Migration

You can migrate data and settings from your current NAS to another NAS model with minimal disruptions by installing all the hard drives from the source NAS to the destination NAS. RAID configuration and other settings are retained on the destination NAS after migration.

QTS NAS migration

NAS migration requirements

You can only migrate drives to specific NAS models, depending on your source NAS. For the list of NAS models compatible with direct NAS migration, see https://www.qnap.com/go/nas-migration.

Your device must meet the following requirements:

- QTS NAS supports several types of NAS migration:
  - ARM NAS to an ARM NAS
  - x86 NAS to an x86 NAS
  - ARM NAS to an x86 NAS

  Note
  You cannot migrate from an x86 NAS to an ARM NAS.
- The destination NAS must run on the same QTS version as the source NAS (or later).

  Important
  Due to incompatibilities in file system, system migration between QTS NAS and QuTS hero NAS is not supported.

  Warning
  Migrating drives between QTS NAS and QuTS hero NAS can cause data corruption.
- The destination NAS must have sufficient free drive bays to accommodate all the drives that you are migrating from the source NAS.

For NAS models that do not support NAS migration, you can migrate existing data using HBS 3. For details, see Migrating NAS data using HBS 3.

Status and setting changes after NAS migration

The status of NAS data and settings varies after migration.

Data and Settings	After NAS Migration
Registered myQNAPcloud name	Your registered myQNAPcloud name is not migrated.
Encrypted disk volumes	If the NAS does not support file system encryption, encrypted disk volumes are not migrated. **Warning** To prevent data loss, back up and save the encryption keys of encrypted disk volumes in a safe place. You can also choose to decrypt disk volumes before migration.
Shared folders	All shared folders and the downloaded files stored in them are retained. **Warning** To prevent data loss, back up and save encryption keys or passwords of encrypted shared folders in a safe place before migration. **Important** Folder permissions on the destination NAS must be reconfigured after migration.
Network	• If the number of network ports or network port specifications on the destination NAS is different from the source NAS, the following network and virtual settings may change and require reconfiguration: port trunking, virtual machines, Thunderbolt, USB QuickAccess, and more. • You must reconfigure network settings when the source NAS is running on QTS 4.3.5 or earlier versions.
Windows AD configuration	Windows AD configurations must be reconfigured.
Licenses	Licenses are not migrated. **Warning** To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.

Data and Settings	After NAS Migration
Applications	If the destination NAS has less RAM than the source NAS, the following features and applications might not function: Virtualization Station, Qsirch, and Snapshots.
Services	Only services supported by the destination NAS are available.
Multimedia features	Some multimedia features are disabled by default.

Migrating a NAS

Important
Before performing NAS migration, ensure that you understand all requirements and possible changes after migration.
For details see the following topics:

- NAS migration requirements
- Status and setting changes after NAS migration

1. Power off the source NAS and the destination NAS.
2. Remove the drives.

   Important
   QNAP recommends following the source NAS drive order when installing the drives. Take note of the drive tray order when removing the drives.

   a. Remove the drives from the source NAS.
   b. Remove the drive trays from the destination NAS.
3. Install the drives.
   a. Install source NAS drives onto the destination NAS drive trays.
   b. Insert the drive trays into the destination NAS.
4. Power on the destination NAS.
5. Log on to QTS as an administrator on the destination NAS.
   The destination NAS automatically checks for the latest firmware update.

Migrating NAS data using HBS 3

For NAS models that do not support direct migration, you can initialize the destination NAS then copy data from the source NAS to the destination NAS using HBS 3.

Preparing the destination NAS

1. Log on to QTS.
2. Create one or more storage pools.
   For details, see the Creating a Storage Pool topic in the QTS user guide.
3. Create one or more volumes.
   For details, see the Volume Creation topic in the QTS user guide.
4. Create shared folders on the destination NAS.
   For details, see the Creating a Shared Folder topic in the QTS user guide.
5. Install HBS 3 onto the destination NAS.
   a. Go to **App Center**.
   b. Search for HBS 3.
   c. Click **Install**.
      HBS 3 is installed on the destination NAS.
6. Enable the remote server settings on the destination NAS.
   a. Go to **App Center** > **HBS 3** > **Services** > **RTRR Server**.
   b. Click **Enable RTRR Server**.
      The RTRR server settings window appears.
   c. Specify the **RTRR Server** settings.

Setting	Description
Password	Specify a password that contains 1 to 16 characters from any of the following groups: • Letters: A to Z, a to z • Numbers: 0 to 9 • Special characters: . - _ ~ ! @ # $ % ^ & ( ) { } • Does not start or end with a space.
Port	Specify a port number to access the RTRR server.

7. Click **Apply**.
   A confirmation window appears.
8. Click **OK**.
   The remote server settings are completed.

Creating a one-way sync job

1. On the source NAS, go to **App Center** > **HBS 3** > **Sync**.

2. Click **Sync Now**.
3. Select **One-way Sync Job**.
   The **Create a Sync Job** window appears.
4. Click **Remote NAS**.
5. Click **Add New Account**.
   The **Create a Storage Space** window appears.
6. Select the destination NAS as the destination storage space and specify the following:

Setting	Description
Name	The name used to identify the storage space.
IP address / Host name	The IP address or hostname used to access the storage space. **Tip** Click to scan for available devices.
Port	The port number used to access the storage space. This value must be between 1 to 65535.
Password	The password used to access the storage space.
Use SSL connection	Requires SSL connection when accessing the remote NAS.

7. Optional: Test the connection.

Test	Description
Detect Server	Tests the accessibility of the selected storage space.
Speed Test	Tests the network connection speed of the selected storage space.

8. Click **Create**.
9. Click **Select**.
10. Select the paired folders.

Important

- All subfolders and files in the selected folder are selected.
- You can only sync up to 16 paired folders per job.

   a. Under the source, click +.
      A dialog box opens.

b. Select a folder.

c. Click **OK**.
The dialog box closes.

d. Under the destination, click +.
A dialog box opens.

e. Select a folder.

f. Click **OK**.

g. Optional: Add more paired folders if necessary.

11. Click **Next**.
The **Schedule** screen appears.

12. Select **Sync now**.

13. Click **Next**.
The **Rules** screen appears.

14. Optional: Configure job rules.

15. Click **Next**.
The **Summary** screen appears.

16. Review the job summary.

17. Click **Create**.
The source NAS runs the created one-way sync job.

> **Note**
> It may take several minutes to migrate shared folders from the source NAS to the destination NAS.

Importing local users or group settings to the destination NAS

1. Power on the source NAS.

2. Back up the users or group settings from the source NAS.

a. Log on to QTS.

b. Go to **Control Panel** > **Privilege** > **Users**.

c. Click **Create**, and then click **Import/Export Users**.
The **Import/Export Users** window appears.

d. Select **Export user and user group settings**.

e. Click **Next**.
The NAS user and user group settings are exported as a file and downloaded onto your computer.

3. Import user settings on the source NAS to the destination NAS.

a. On the destination NAS, log on to QTS.

b. Go to **Control Panel** > **Privilege** > **Users**.

c. Click **Create**, and then click **Import/Export Users**.

d. Select **Import user and user group settings**.

> **Note**
> You can select whether to send a notification mail to newly created users or overwrite duplicate users.

e. On your computer, select the user settings file exported from the source NAS.
The source NAS user settings file is imported to the destination NAS.

QuTS hero NAS migration

NAS migration requirements

You can only migrate drives and system settings to specific NAS models, depending on your source NAS. For the list of NAS models compatible with direct NAS migration, see https://www.qnap.com/en/nas-migration.

Your device must meet the following requirements:

- The destination NAS must run on the same QuTS hero version as the source NAS (or later).

> **Important**
> Due to incompatibilities in file system, system migration between QTS NAS and QuTS hero NAS is not supported.

> **Warning**
> Migrating drives between QTS NAS and QuTS hero NAS can cause data corruption.

- The destination NAS must have sufficient free drive bays to accommodate all the drives that you are migrating from the source NAS.

For NAS models that do not support NAS migration, see How to Migrate Data and Folder Permissions between QTS and QuTS hero with HBS3.

Status and setting changes after NAS migration

The status of NAS data and settings varies after migration.

Data and Settings	After NAS Migration
Registered myQNAPcloud name	Your registered myQNAPcloud name is not migrated.
Encrypted shared folders	If the NAS does not support file system encryption, encrypted shared folders are not migrated. **Warning** To prevent data loss, back up and save the encryption keys of encrypted shared folders in a safe place. You can also choose to decrypt shared folders before migration.
Shared folders	All shared folders and the downloaded files stored in them are retained. **Warning** To prevent data loss, back up and save encryption keys or passwords of encrypted shared folders in a safe place before migration. **Important** Folder permissions on the destination NAS must be reconfigured after migration.
Network	If the number of network ports or network port specifications on the destination NAS is different from the source NAS, the following network and virtual settings may change and require reconfiguration: port trunking, virtual machines, Thunderbolt, and more.
Windows AD configuration	Windows AD configurations must be reconfigured.
Licenses	Licenses are not migrated. **Warning** To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.
Applications	If the destination NAS has less RAM than the source NAS, the following features and applications might not function: Virtualization Station, Qsirch, and Snapshots.

Data and Settings	After NAS Migration
Services	Only services supported by the destination NAS are available.
Multimedia features	Some multimedia features are disabled by default.

Migrating a NAS

Important
Before performing NAS migration, ensure that you understand all requirements and possible changes after migration.
For details see the following topics:

- NAS migration requirements
- Status and setting changes after NAS migration

1. Power off the source NAS and the destination NAS.
2. Remove the drives.

   Important
   QNAP recommends following the source NAS drive order when installing the drives. Take note of the drive tray order when removing the drives.

   a. Remove the drives from the source NAS.
   b. Remove the drive trays from the destination NAS.
3. Install the drives.
   a. Install source NAS drives onto the destination NAS drive trays.
   b. Insert the drive trays into the destination NAS.
4. Power on the destination NAS.
5. Log on to QuTS hero as an administrator on the destination NAS.
   The destination NAS automatically checks for the latest firmware update.

7. Glossary

Cloud Key

Unique 8-digit code assigned to each NAS device

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

myQNAPcloud Link

Enables you to access QNAP devices over the internet without configuring complex port forwarding settings

QuTS hero

QNAP NAS operating system featuring ZFS file system

QNAP ID

User account that enables you to use myQNAPcloud remote access and other QNAP services

Qfinder Pro

QNAP utility that lets you locate and access QNAP devices in your local area network

8. Notices

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Back up the system periodically to avoid any potential data loss is recommended. QNAP disclaims any responsibility of all sorts of data loss or recovery.

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Version 3, 29 June 2007

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