


The QNAP logo is displayed in white, bold, uppercase letters within a blue rounded rectangular box in the top-left corner of the page.

QNAP

TS-1655

User Guide

A decorative graphic at the bottom of the page features a network of interconnected nodes and lines, transitioning from light blue to dark blue, with some nodes highlighted in white and others in various shades of blue and red.

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08/05/2024

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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.



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.



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-1655

The TS-1655 is powered by an 8-core Intel® Atom® processor and up to 128 GB of DDR4 memory, delivering high performance within a compact chassis. The NAS features enhanced connectivity through two 2.5 Gigabit Ethernet ports. Designed for scalability, the TS-1655 also has two M.2 PCIe NVMe SSD slots and three PCIe Gen 3 x4 slots to accommodate expansion cards.

Hardware specifications

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>.


Ordering P/N	Drive bays	Memory
TS-1655-8G	16	8 GB

Component	TS-1655
Processor	
CPU	Intel® Atom® Processor C5125
Frequency	8-core/8-thread 2.8 GHz
Architecture	x86 64-bit
Encryption engine	AES-NI

Component	TS-1655
Memory	
Pre-installed memory	8 GB RAM: 1 x 8 GB DDR4 UDIMM
Memory slots	<p>4 x DDR4 UDIMM</p> <div style="background-color: #fff9e6; padding: 10px; border-radius: 5px;"> <p>Important</p> <ul style="list-style-type: none"> <li>• 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. <li>• Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting. </div> <div style="background-color: #e6f2ff; padding: 10px; border-radius: 5px; margin-top: 10px;"> <p>Note</p> <p>This device supports ECC memory modules.</p> </div>
Maximum memory	128 GB RAM: 4 x 32 GB
Flash memory	5 GB (dual-boot OS protection)
Storage	
Drive bays	<ul style="list-style-type: none"> <li>• 12 x 3.5-inch SATA 6 Gbps <li>• 4 x 2.5-inch SATA 6 Gbps <div style="background-color: #fff9e6; padding: 10px; border-radius: 5px; margin-top: 10px;"> <p>Tip</p> <p>The drive bays are backward compatible with SATA 3 Gbps drives.</p> </div>
Drive compatibility	<p>3.5-inch bays:</p> <ul style="list-style-type: none"> <li>• 3.5-inch SATA hard disk drives <li>• 2.5-inch SATA solid-state drives <p>2.5-inch bays:</p> <ul style="list-style-type: none"> <li>• 2.5-inch SATA solid-state drives
M.2 SSD slots	2 x PCIe Gen 3 x2
M.2 SSD form factor	2280

Component	TS-1655
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	
2.5 Gigabit network interface	2 x 2.5 GbE RJ45 <div style="background-color: #e6f2ff; padding: 10px;"> <p>Note</p> <p>The 2.5 Gigabit Ethernet ports provide 4 network connection speeds: 2.5 Gbps, 1 Gbps, 100 Mbps, and 10 Mbps.</p> </div>
Wake-on-LAN	Yes (2.5 GbE RJ45)
Management interfaces	1 x 3.5 mm console port
External I/O Ports & Expansion Slots	
PCIe slots	3 x PCIe Gen 3 x4 <div style="background-color: #fff9c4; padding: 10px;"> <p>Tip</p> <p>You can install a graphics card in the PCIe slot.</p> </div>
USB ports	Front: 1 x USB 3.2 Gen 1 Type-A <div style="background-color: #e6f2ff; padding: 10px;"> <p>Note</p> <p>This USB port supports One Touch Copy.</p> </div> Rear: 3 x USB 3.2 Gen 1 Type-A
Interface	
Display panel	Monochrome backlit LCD display

Component	TS-1655
Buttons	<ul style="list-style-type: none"> • Power • Reset • LCD enter • LCD select • USB One Touch Copy
Switches	Power supply unit
LEDs	
System	<ul style="list-style-type: none"> • LCD panel • Drive LEDs
Ports	<ul style="list-style-type: none"> • Speed • Activity
Dimensions	
Form factor	Tower
Dimensions (H x W x D)	294.3 x 369.9 x 319.8 mm (11.59 x 14.56 x 12.59 in)
Net weight	13.16 kg (29.01 lbs)
Others	
Power supply unit	550W, 100-240V AC, 50/60 Hz

Component	TS-1655
System battery	<p>CR2032 lithium battery (3V, 225 mAh)</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p>Warning</p> <ul style="list-style-type: none"> • 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. </div> <div style="background-color: #ffe6cc; padding: 10px;"> <p>Important</p> <p>Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.</p> </div>
Fans	<ul style="list-style-type: none"> • System: 3 x 92 mm, 12V DC • System board: 2 x 97 mm, 12V DC <div style="background-color: #ffe6e6; padding: 10px;"> <p>Warning</p> <div style="text-align: center;">  </div> <p>To avoid potential injury or damage to components, do not touch the fans while the NAS is connected to a power source.</p> </div>
Operating temperature	0°C to 40°C (32°F to 104°F)
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F)
Security slot	Kensington security slot

Tip

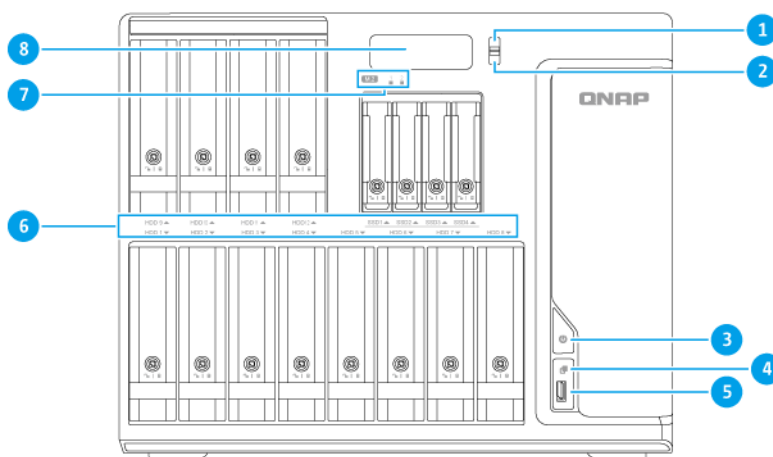
For the list of compatible drive models and expansion cards, go to <https://www.qnap.com/compatibility>.

Package contents

Item	Quantity
TS-1655 NAS	1
Power cord	1
Ethernet cable	1 x Cat5e (RJ45)
	<p>Note</p> <p>The Cat5e Ethernet cable supports transfer speeds of up to 2.5 Gbps.</p>
Drive trays	<ul style="list-style-type: none"> • 12 x 3.5-inch trays • 4 x 2.5-inch trays
Drive tray keys	2
Screws for 3.5-inch drives	64
Screws for 2.5-inch drives	36
Quick Installation Guide (QIG)	1

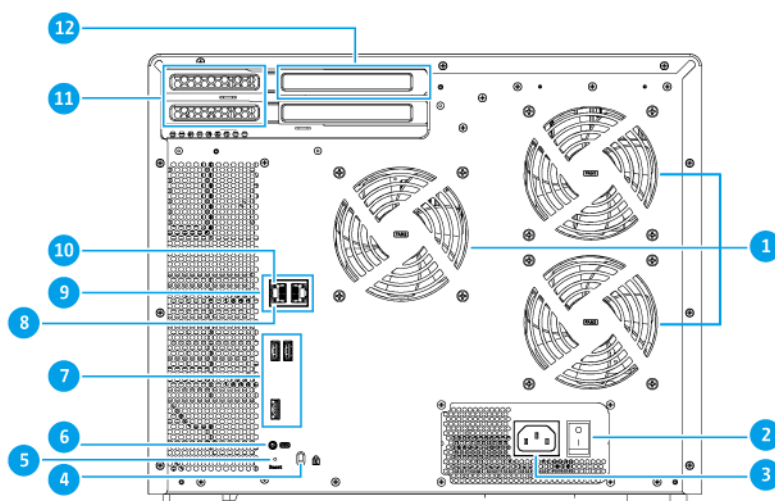
Components

Front panel



No.	Component	No.	Component
1	LCD enter button	5	USB 3.2 Gen 1 One Touch Copy Type-A port
2	LCD select button	6	Drive LEDs
3	Power button	7	M.2 SSD LEDs
4	USB One Touch Copy button	8	LCD panel

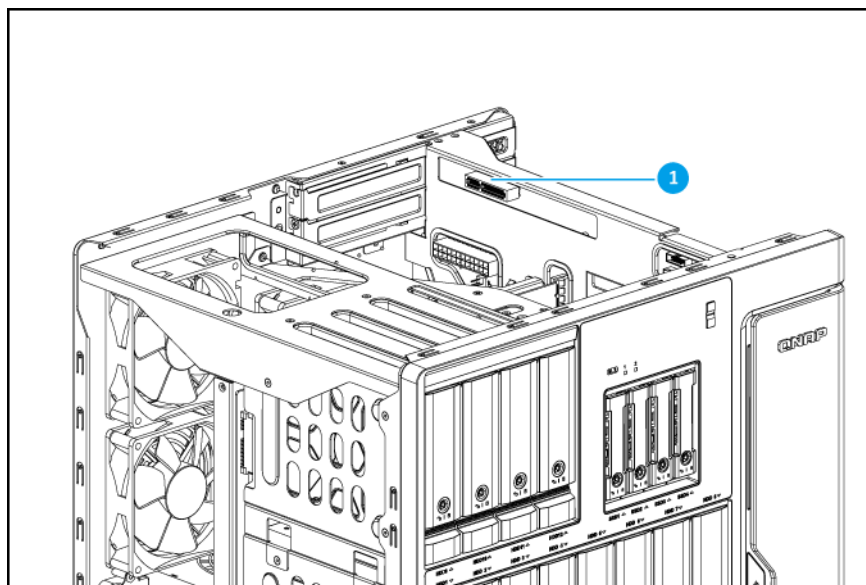
Rear panel



No.	Component	No.	Component
1	System fans	7	USB 3.2 Gen 1 Type-A ports
2	Power supply unit switch	8	2.5 Gigabit Ethernet speed LED
3	Power input	9	2.5 Gigabit Ethernet ports (RJ45)
4	Kensington security slot	10	2.5 Gigabit Ethernet activity LED
5	Reset button	11	PCIe low-profile covers

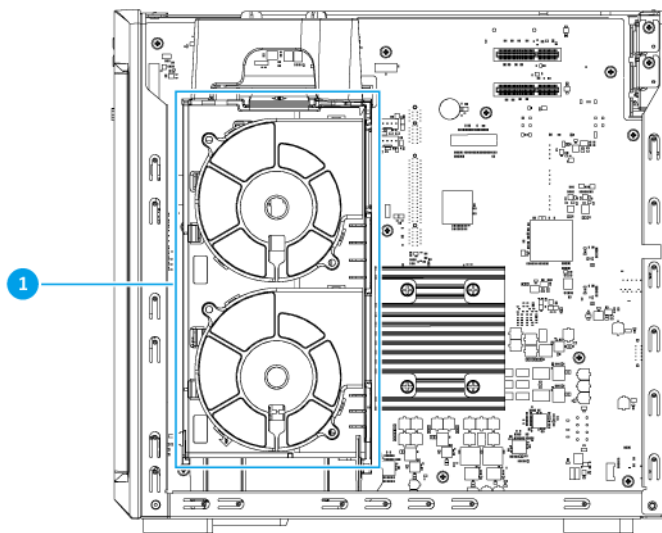
No.	Component	No.	Component
6	Console port	12	PCIe full-height cover
<p>Note This port is only for engineering purposes.</p>			

Left panel

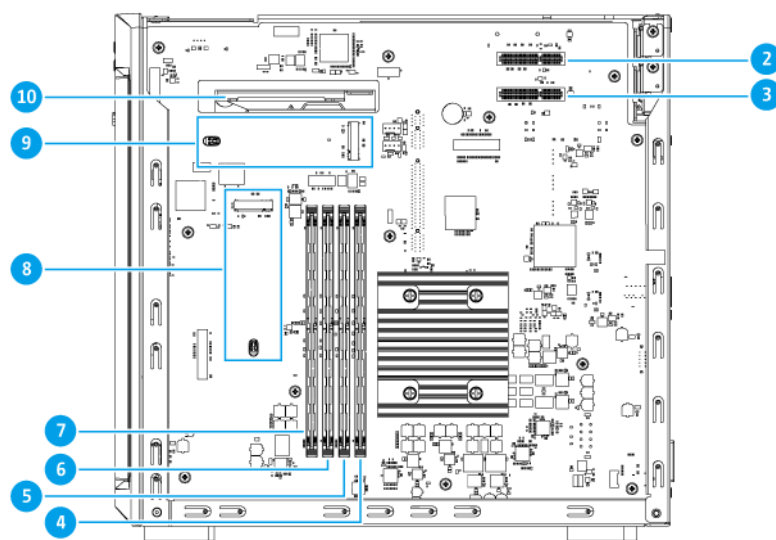


No.	Component	No.	Component
1	PCIe Gen 3 x4 slot 1	-	-

Right panel



Fan module attached

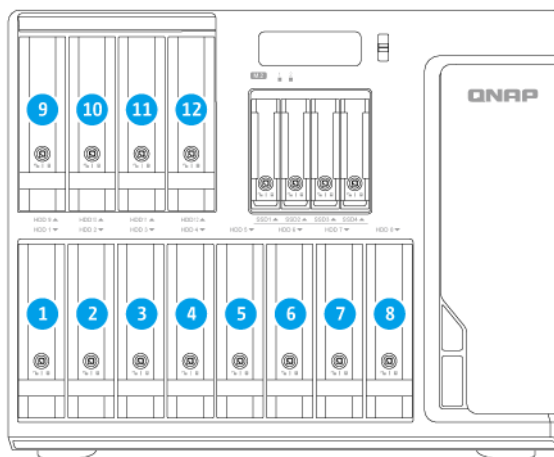


Fan module removed

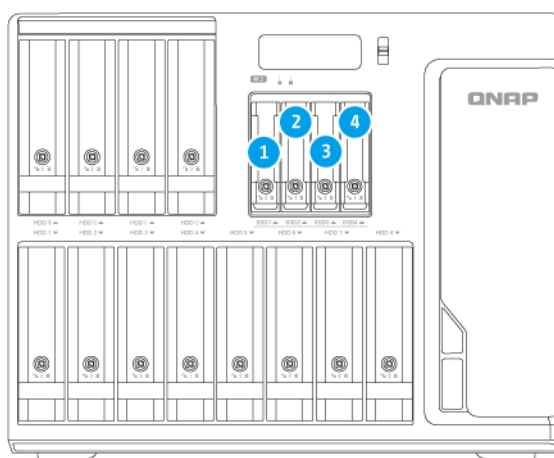
No.	Component	No.	Component
1	Fan module	6	Memory slot 2 (Channel B, DIMM 2, black)
2	PCIe Gen 3 x4 slot 2	7	Memory slot 1 (Channel B, DIMM 1, blue)

No.	Component	No.	Component
3	PCIe Gen 3 x4 slot 3	8	M.2 SSD slot 2
4	Memory slot 4 (Channel A, DIMM 2, black)	9	M.2 SSD slot 1
5	Memory slot 3 (Channel A, DIMM 1, blue)	10	Fan module latch holder

Front drive numbering

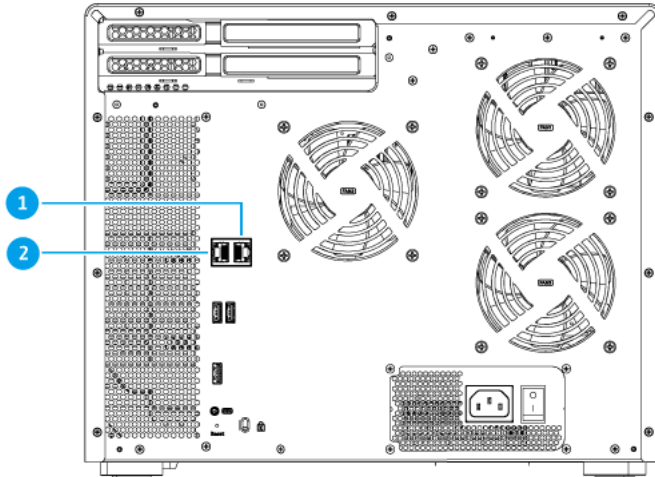


3.5-inch drive bays

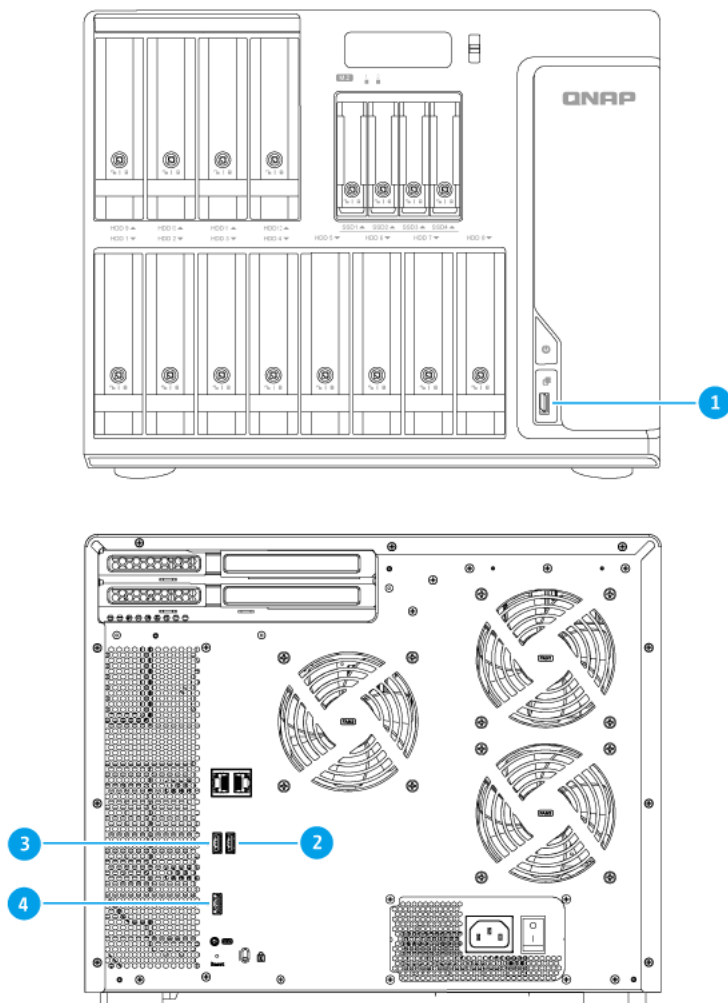


2.5-inch drive bays

Network port numbering



USB port numbering



Installation requirements

Category	Item
Environment	<ul style="list-style-type: none"> • 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

Category	Item
Hardware and peripherals	<ul style="list-style-type: none"> Storage drives For details on compatible drives, go to https://www.qnap.com/compatibility/. Network cable
Tools	<ul style="list-style-type: none"> 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.

- Place your NAS device in an environment that meets the requirements.
For details, see [Installation requirements](#).
- Install drives.
For details, see the following topics:
 - [Installing 3.5-inch hard drives on 3.5-inch trays](#)
 - [Installing 2.5-inch solid-state drives on 3.5-inch trays](#)
 - [Installing 2.5-inch solid-state drives on 2.5-inch trays](#)
 - [Installing M.2 solid-state drives](#)
- Optional: Replace or install additional memory modules.
For details, see [Replacing memory modules](#).
- Optional: Install expansion cards.
For details, see [Installing expansion cards](#).
- Optional: Connect expansion units.
For details, see the following topics:
 - [Connecting SATA JBOD expansion units](#)
 - [Connecting USB expansion units](#)
- Connect the power cord and all applicable cables.
- Power on the NAS.
- Install QTS.
For details, see [QTS installation](#).
- Log on to QTS.

3. Installation and Configuration

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

Hardware installation

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

Removing the case cover

Warning

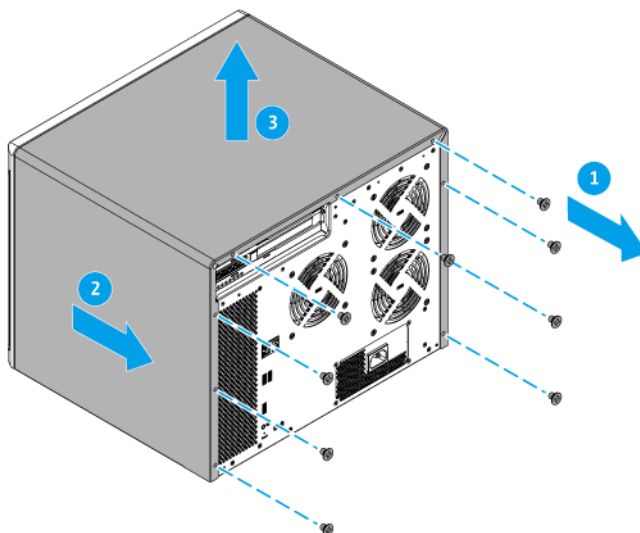
- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.



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

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
 - a. Remove the screws on the rear panel.
 - b. Slide the cover back.

- c. Lift the cover off the device.



Attaching the case cover

Warning



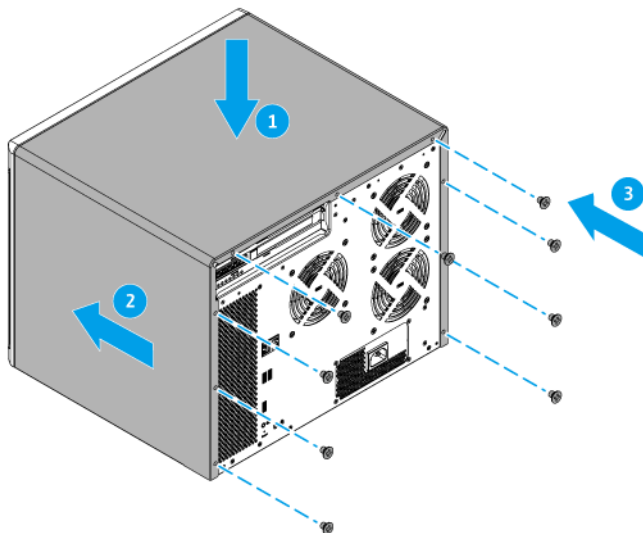
Moving fan blades: Keep your hands and other body parts away from moving fan blades.



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

1. Place the cover on the device.
2. Slide the cover forward.

3. Attach the screws on the rear panel.



4. Connect all cables and external attachments.
5. Connect the power cord to the electrical outlet.
6. Power on the device.

Drive installation

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

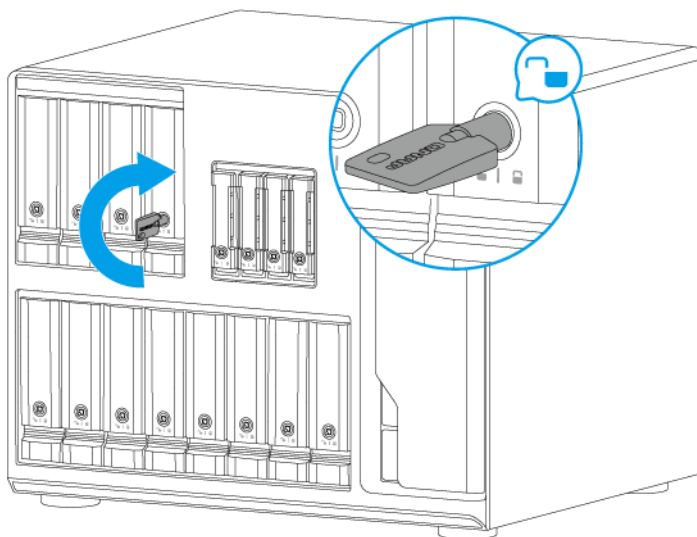
Installing 3.5-inch hard drives on 3.5-inch trays

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. Optional: Unlock the tray.

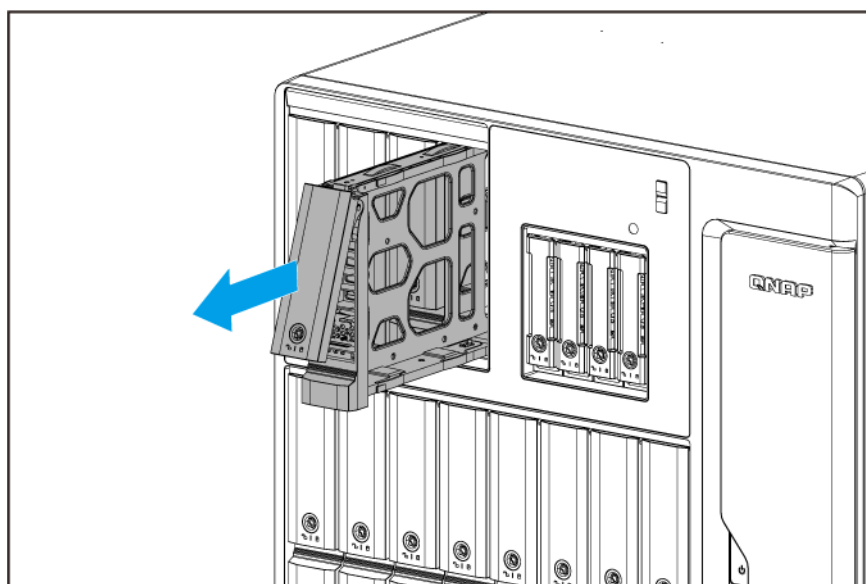
**Note**

The preinstalled drive trays come unlocked.

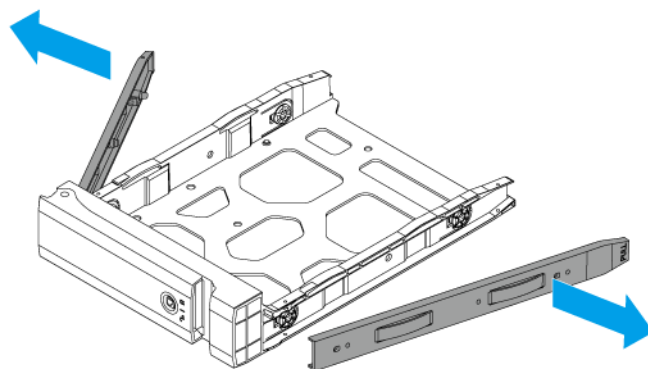
Important

Ensure the drive tray keys are stored in a safe place.

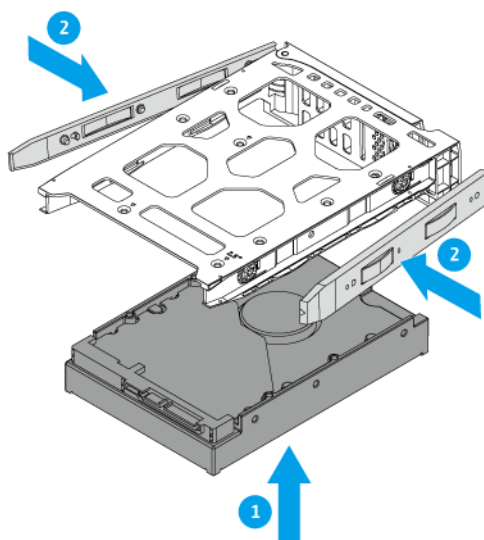
- b. Pull the tray handle outward.
 - c. Pull the tray out.



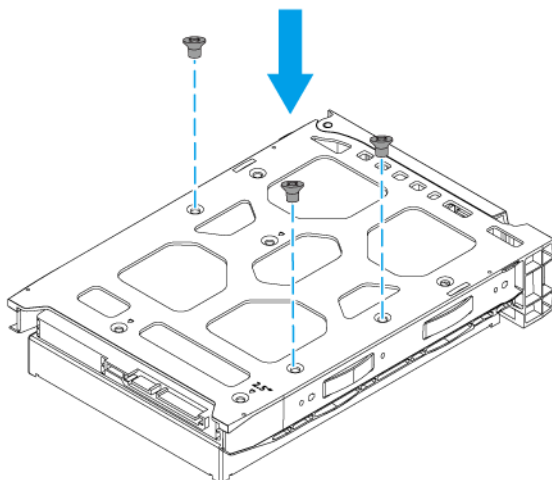
3. Install a drive on the tray.
 - a. Remove the fastening panels from the sides of the drive tray.



- b. Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
 - c. Attach the fastening panels to lock the drive to the tray.

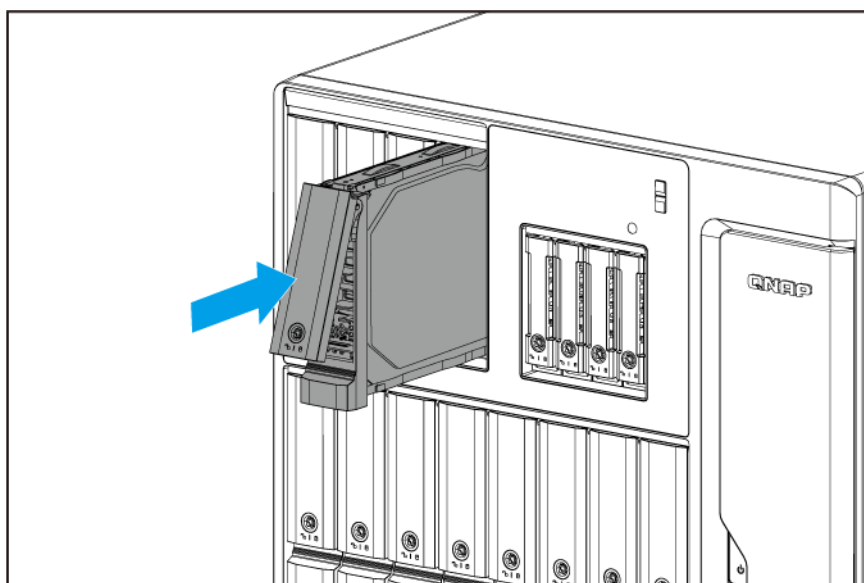


- d.** Optional: Attach the screws to further secure the drive.

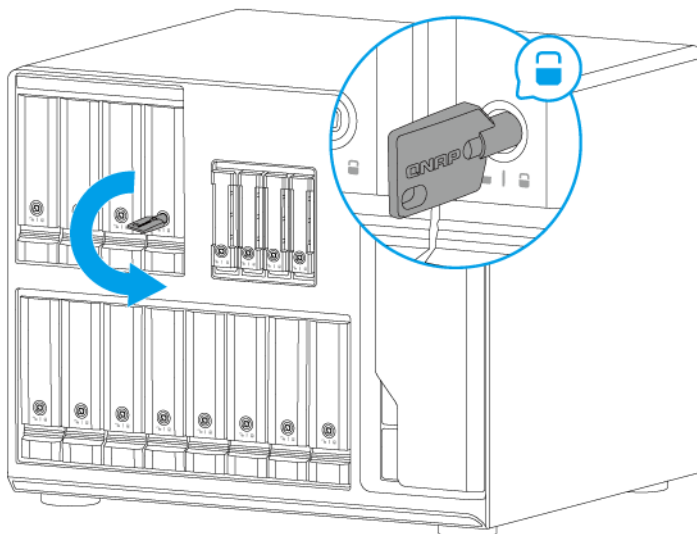


- 4.** Load the tray into the bay.

- a.** Insert the tray into the bay.
b. Push the handle.



- c. Lock the tray.



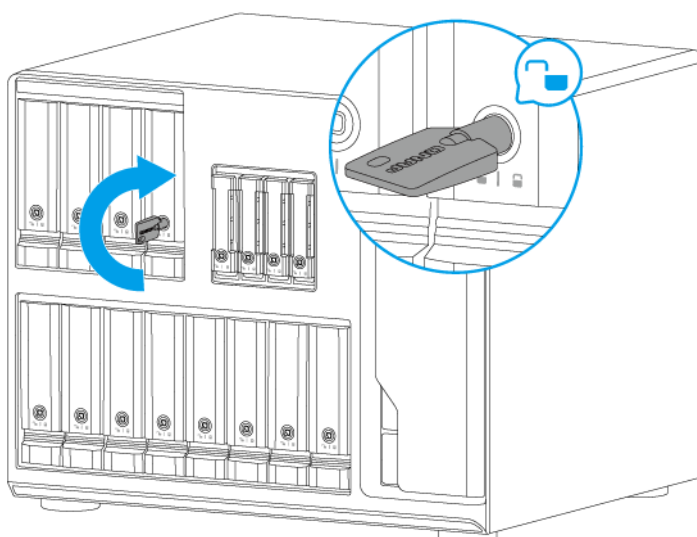
5. Power on the NAS.

Installing 2.5-inch solid-state drives on 3.5-inch trays

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. Optional: Unlock the tray.



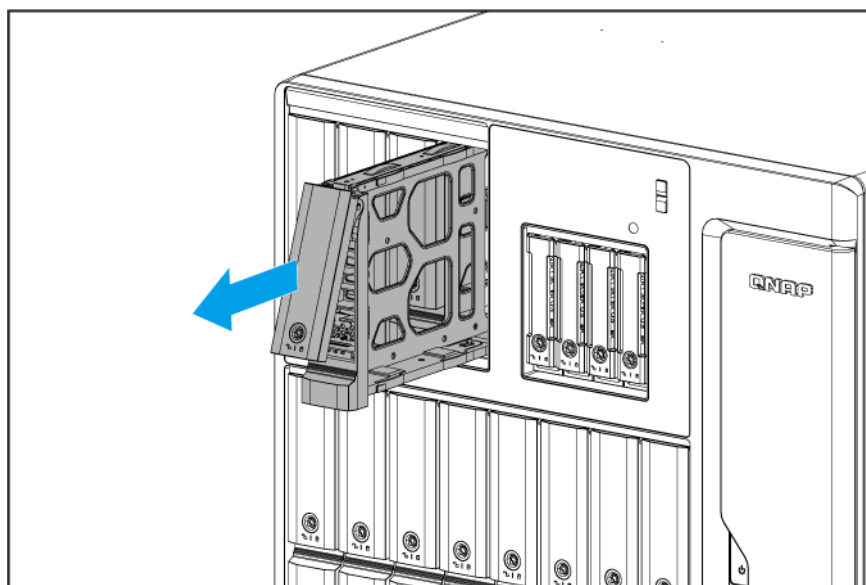
Note

The preinstalled drive trays come unlocked.

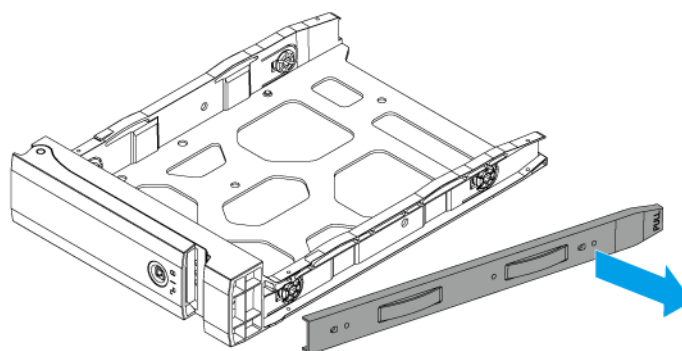
Important

Ensure the drive tray keys are stored in a safe place.

- b. Pull the tray handle outward.
- c. Pull the tray out.

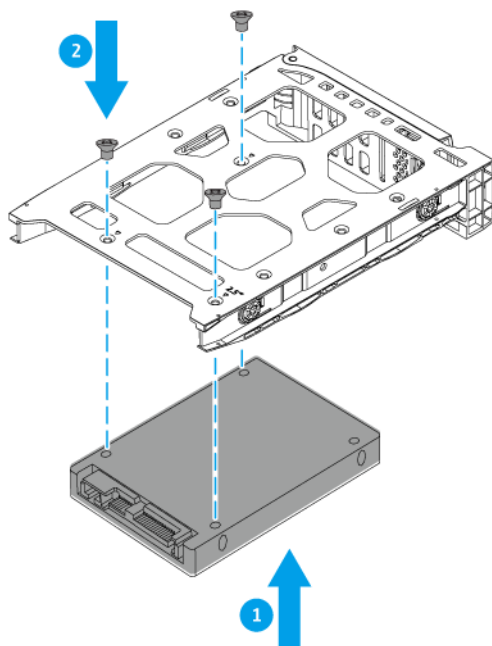
**3. Install a drive on the tray.**

- a. Remove the right fastening panel from the drive tray.



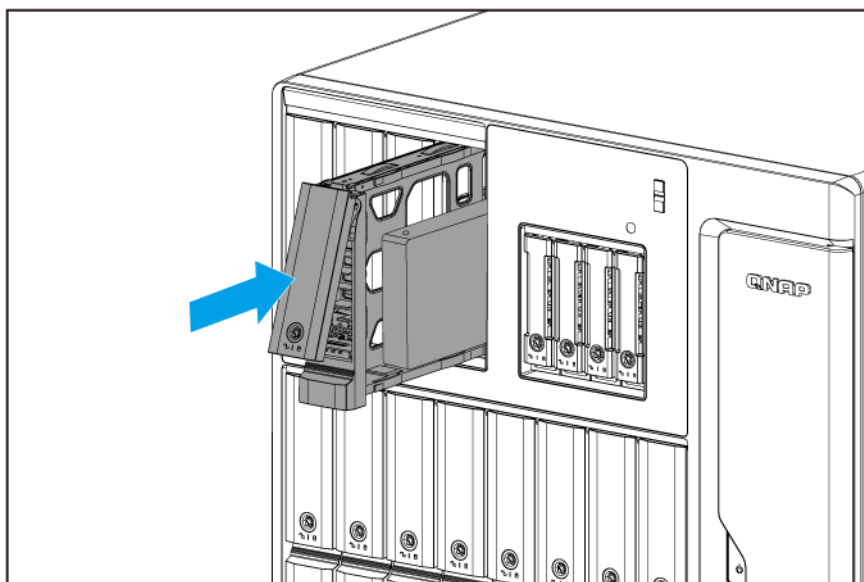
- b. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.

c. Attach the screws.

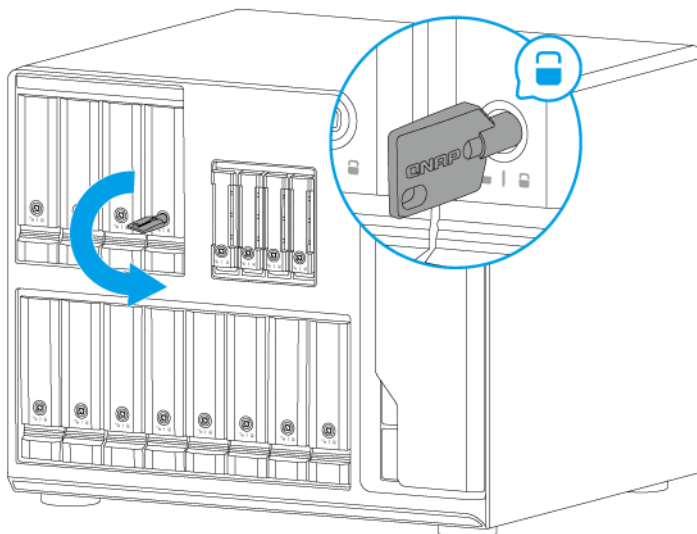


4. Load the tray into the bay.

- a. Insert the tray into the bay.
- b. Push the handle.



- c. Lock the tray.



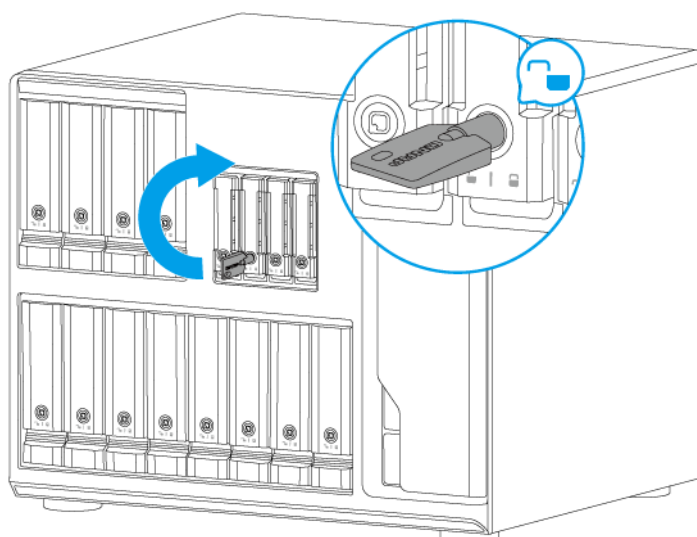
5. Power on the NAS.

Installing 2.5-inch solid-state drives on 2.5-inch trays

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. Optional: Unlock the tray.



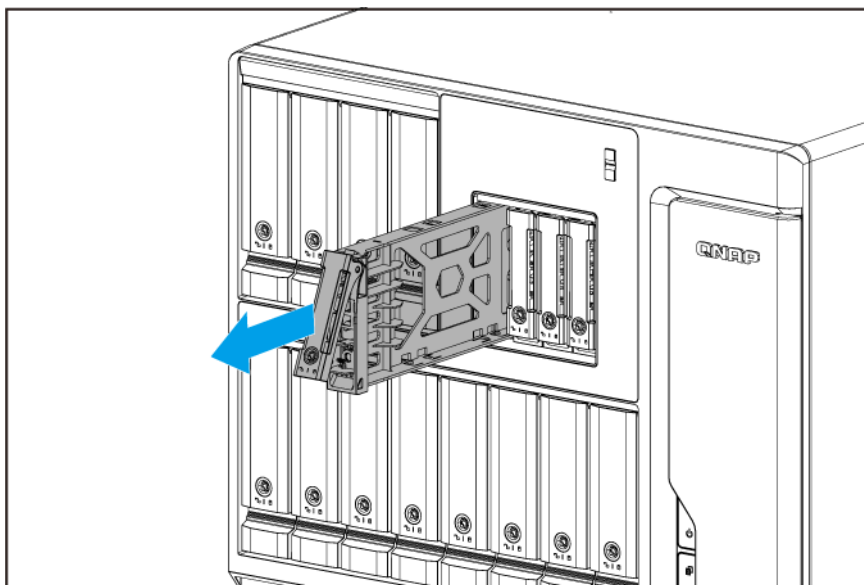
Note

The preinstalled drive trays come unlocked.

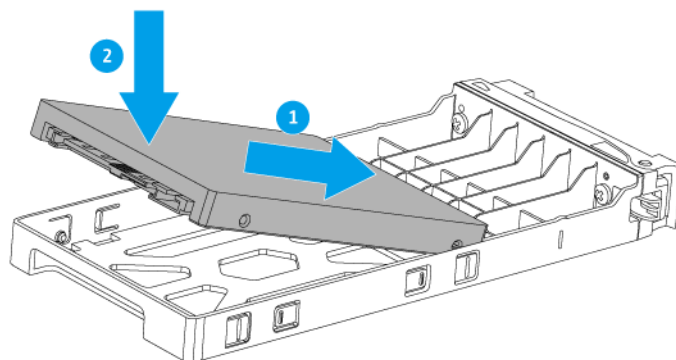
Important

Ensure the drive tray keys are stored in a safe place.

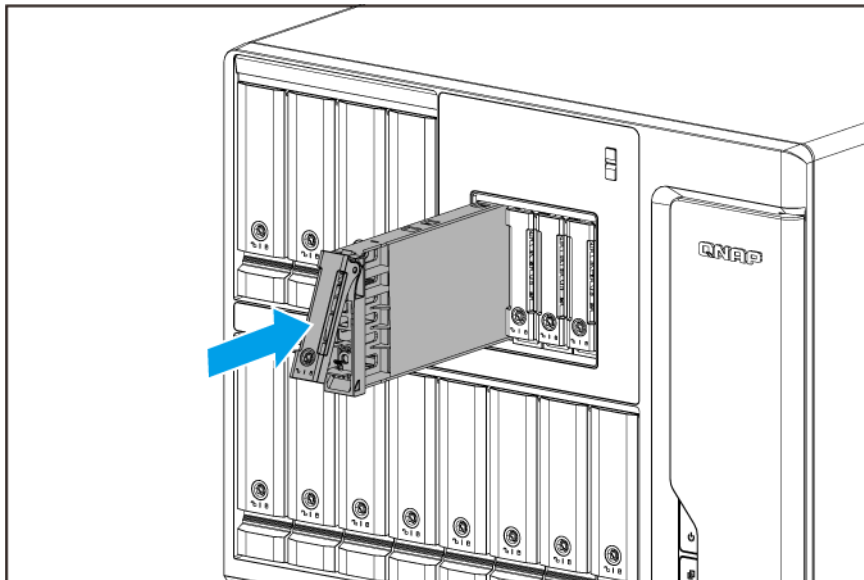
- b. Pull the tray handle outward.
- c. Pull the tray out.



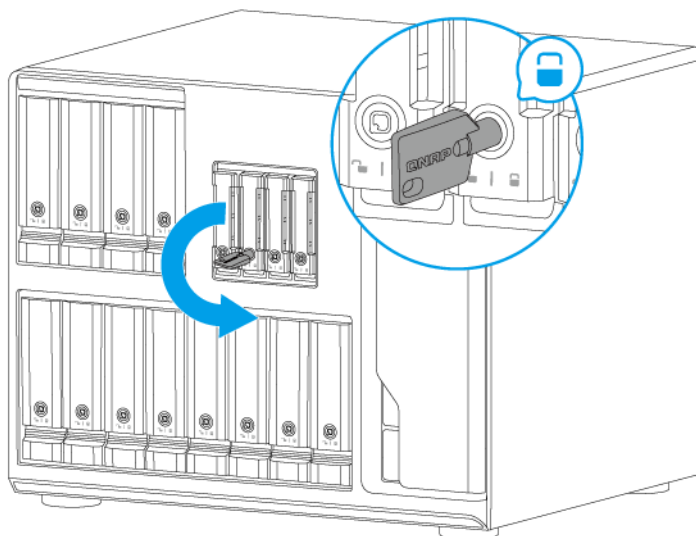
- 3. Install a drive on the tray.
 - a. Align the connector on the drive with the opening at the end of the tray.
 - b. Place the drive on the tray.



4. Load the tray into the bay.
 - a. Insert the tray into the bay.
 - b. Push the handle.



- c. Lock the tray.



5. Power on the NAS.

Installing M.2 solid-state drives

The device has two M.2 SSD slots on the right panel.

For details, see [Right panel](#).

For a list of compatible M.2 SSDs, go to <https://www.qnap.com/compatibility>.

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- 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.

Note

- QNAP recommends installing heatsinks on the M.2 SSD controllers to enhance cooling efficiency and to ensure consistent performance.
- Before installing non-QNAP heatsinks, ensure that they are of the appropriate size and shape.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the case cover](#).
5. Remove the fan module.
For details, see [Removing the fan module](#).
6. Prepare the M.2 SSD.
 - a. Remove the protective film from both sides of the thermal pad.
 - b. Install the thermal pad on the SSD controller.
 - c. Remove the protective film from the black rubber pad.
 - d. Turn the SSD over.
 - e. Install the rubber pads on the bottom of the SSD.

Note

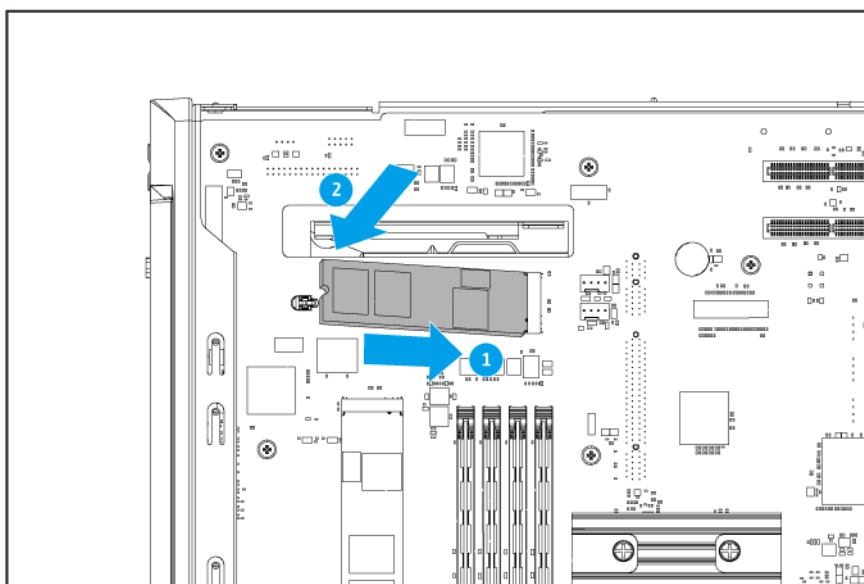
The thermal and rubber pads work together to transfer heat from the SSD controller to the cooling module.

7. Install a heatsink on the M.2 SSD.
 - a. Locate the controller on the M.2 SSD.

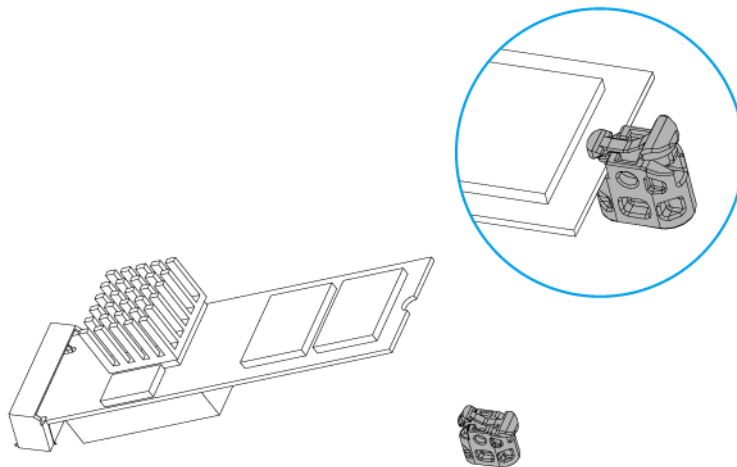
Note

The controller location varies depending on the model and manufacturer of the M.2 SSD. For details, refer to the documentation or contact the manufacturer.

- b. Remove the protective film from the heatsink.
 - c. Install the heatsink on the controller.
8. Install the M.2 SSD.
 - a. Unlock the M.2 spacer by pushing down on its edge.
 - b. Insert the M.2 SSD into the slot.
 - c. Carefully press the M.2 SSD down until the spacer locks the drive into place.



- d. Verify that the M.2 spacer is firmly locking the M.2 SSD into place.



- 9. Optional: Install an additional M.2 SSD.
- 10. Attach the fan module.
For details, see [Attaching the fan module](#).
- 11. Attach the case cover.
For details, see [Attaching the case cover](#).
- 12. Connect all cables and external attachments.
- 13. Connect the power cord to the electrical outlet.
- 14. Power on the device.

Replacing memory modules

The NAS has four memory slots. You can increase the memory capacity of the NAS by upgrading memory modules. For optimal dual-channel performance, replace memory modules in pairs.

This NAS also comes preinstalled with one non-ECC memory module. To provide extra protection from undetected data corruption, you can upgrade to ECC 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.
 - Ensure that each pair uses identical modules.
Ensure that each memory channel uses identical modules. See table below for details:

Channel name	Slot numbering
Channel A	Slots 3, 4
Channel B	Slots 1, 2

- Install the pairs in sequence and follow the assigned slots for each pair.

For details on slot numbering, see [Right panel](#).

- Use only all ECC memory modules, or all non-ECC memory modules. Installing both types of memory modules will cause the ECC modules to perform as non-ECC modules.

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- 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.



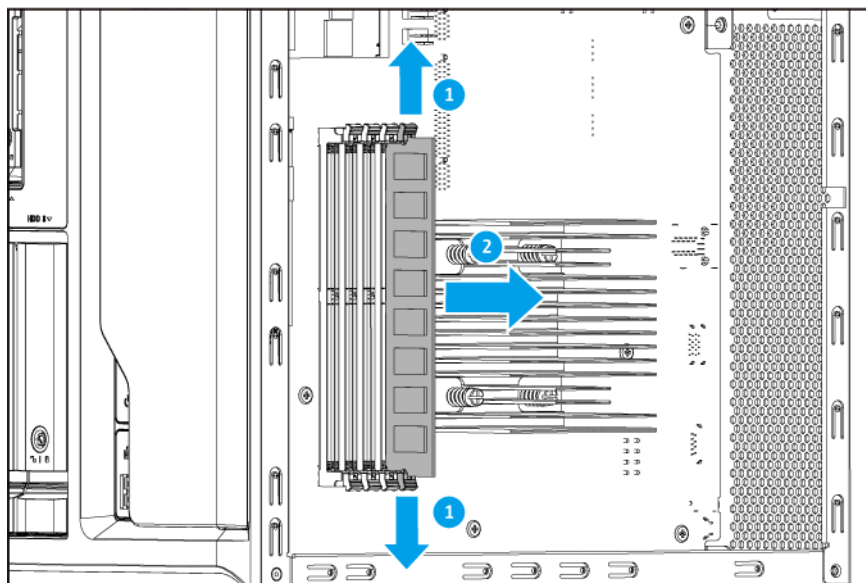
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the case cover](#).
5. Remove the fan module.
For details, see [Removing the fan module](#).

6. Remove an existing module.
 - a. Push the retention clips outward simultaneously to release the module.
 - b. Hold the module by the edges.

Warning

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



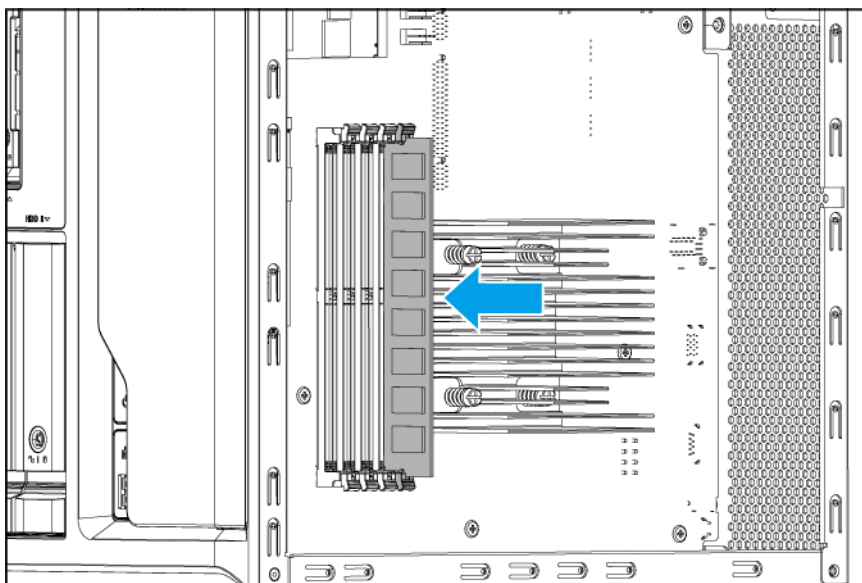
7. Install a new module.

Warning

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



8. Attach the fan module.
For details, see [Attaching the fan module](#).
9. Attach the case cover.
For details, see [Attaching the case cover](#).
10. Connect the power cords to the electrical outlet.
11. Connect all cables and external attachments.
12. Power on the device.
13. Verify that the module is recognized by the device.
 - a. Log on to QTS as administrator.
 - b. Go to **Control Panel > System > System Status > Hardware Information**.
 - c. Check the value for **Total memory**.

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.

For details on supported expansion cards and brackets, go to www.qnap.com/compatibility.

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.



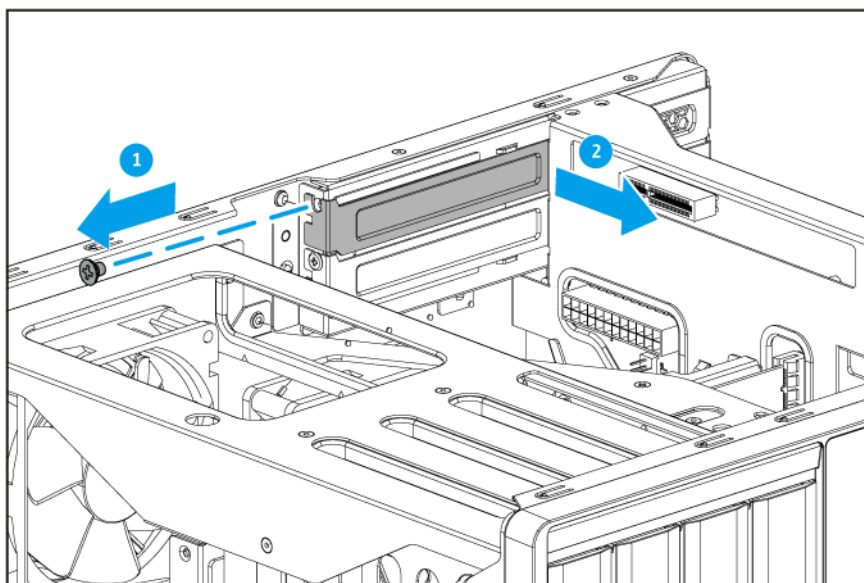
Moving fan blades: Keep your hands and other body parts away from moving fan blades.



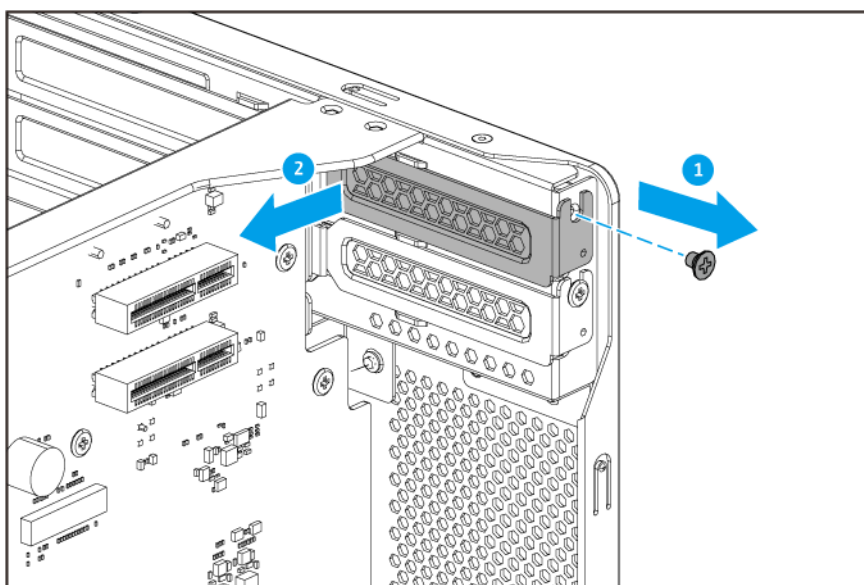
Other moving components: Keep your hands and other body parts away from other moving components.

1. 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 cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the case cover.
For details, see [Removing the case cover](#).
6. Remove the PCIe cover.
 - a. Remove the screw that secures the cover to the chassis.

- b. Pull the cover away from the slot.



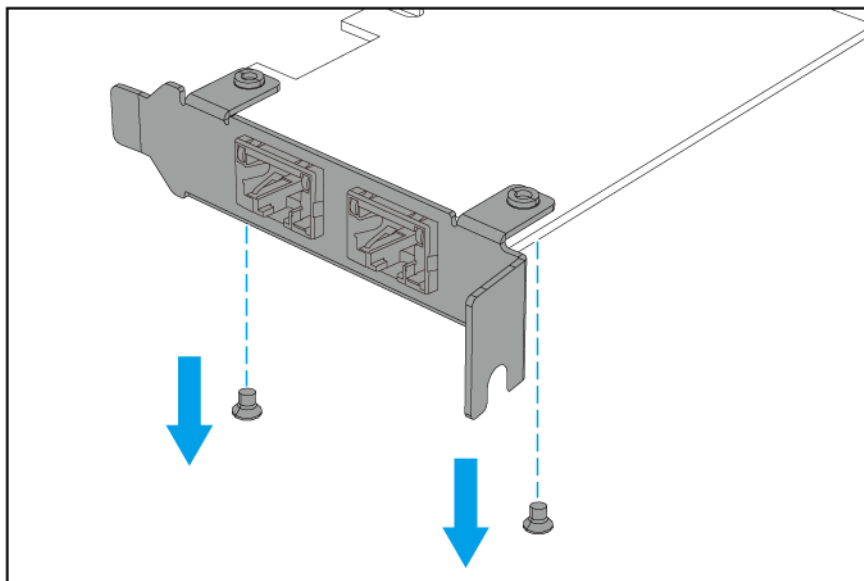
PCIe full-height cover



PCIe low-profile cover

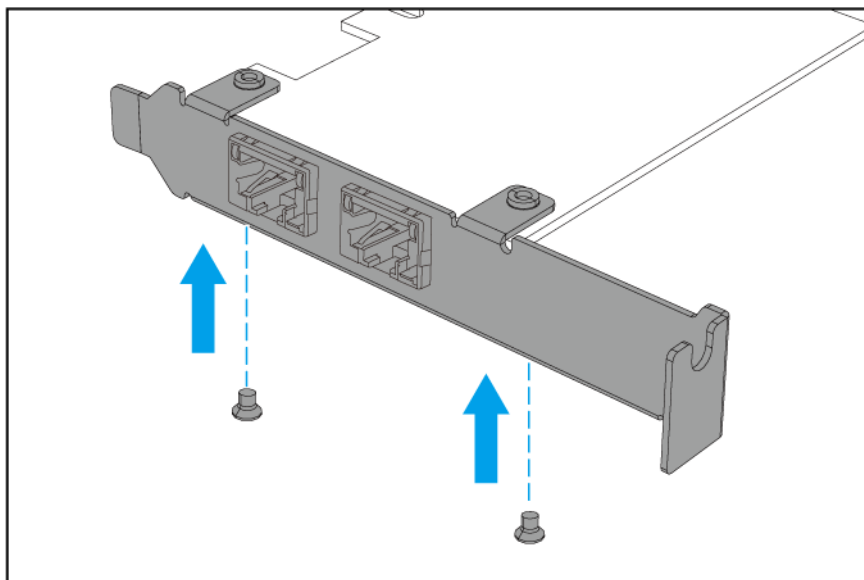
7. Optional: Attach the QNAP bracket to the expansion card.

- 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.

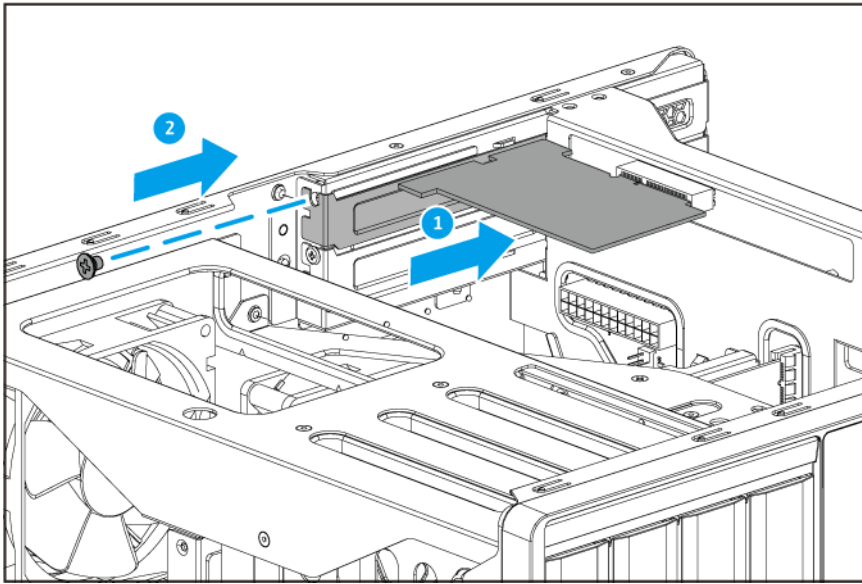


- d.** Verify that the bracket does not move.

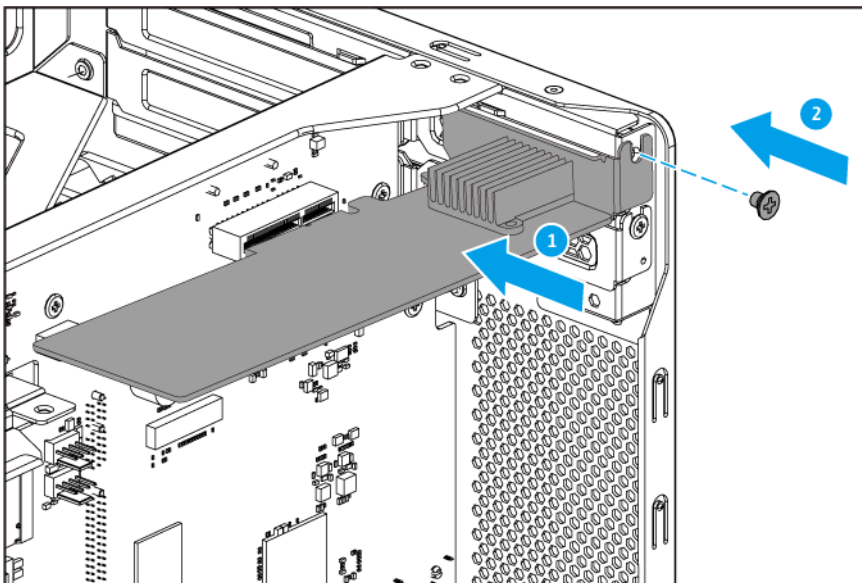
8. Install the expansion card.

- a.** Hold the card by the edges.
b. Insert the card into the slot.

c. Attach the screw.

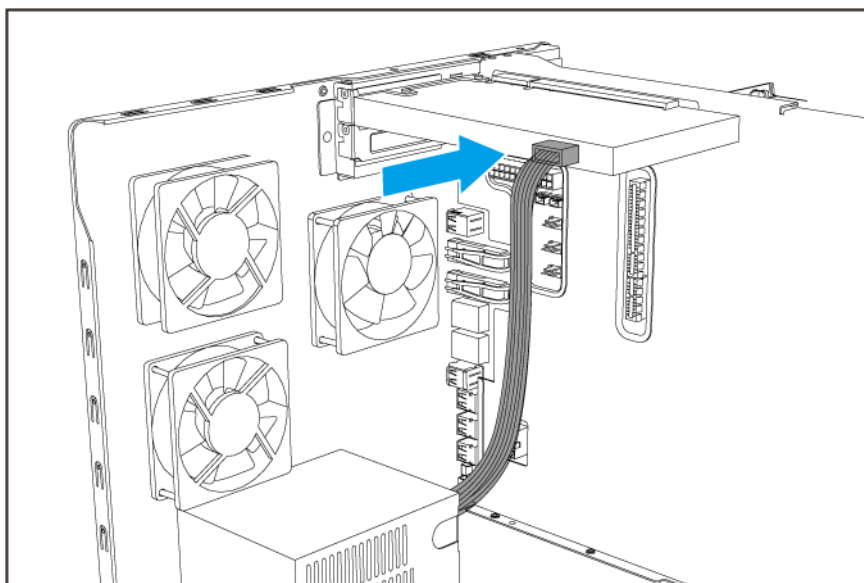


PCIe full-height port



PCIe low-profile port

- d. Optional: Attach the PCIe power connector to the expansion card.



Tip

Larger expansion cards may require you to attach the PCIe power connector before inserting the card into the slot.

9. Attach the case cover.
For details, see [Attaching the case cover](#).
10. Connect all cables and external attachments.
11. Connect the power cord to the electrical outlet.
12. Power on the device.

Fan installation

To ensure adequate cooling, the NAS contains a fan module with two fans on the right panel, and three system fans on the chassis behind the rear panel.

For details, see the following:

- [Right panel](#)
- [Rear panel](#)

Removing the fan module

The fan module contains two fans and is located on the right panel.

For details, see [Right panel](#).

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

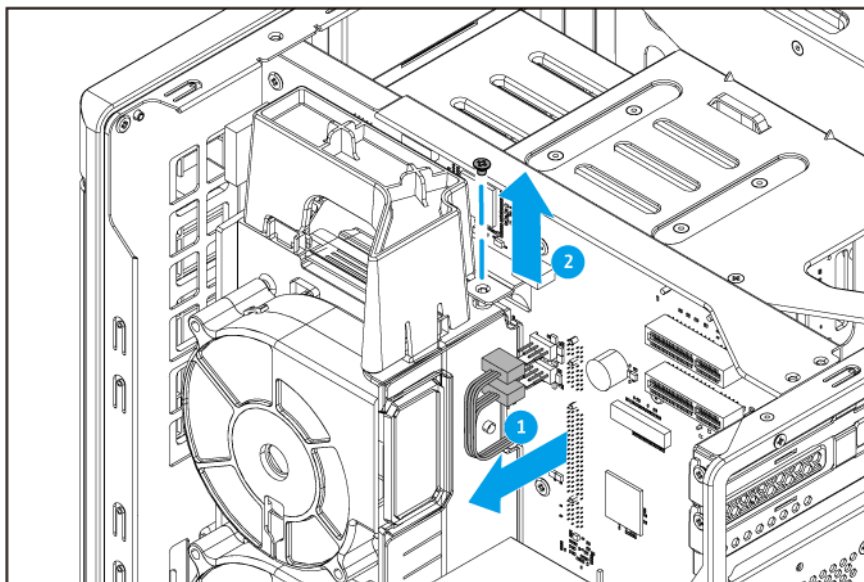


Moving fan blades: Keep your hands and other body parts away from moving fan blades.



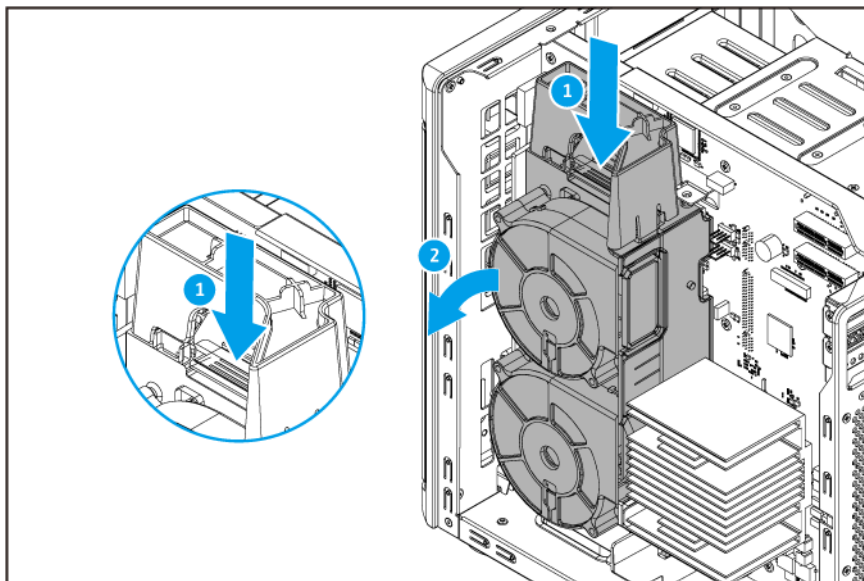
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the case cover](#).
5. Remove the fan module.
 - a. Disconnect the power connectors of all fans from the system board.
 - b. Remove the screw that secures the fan module to the system board.

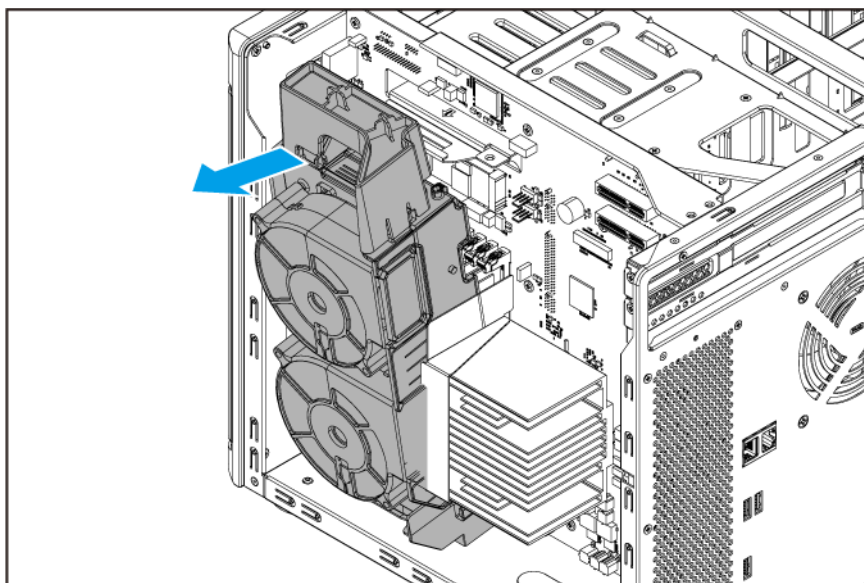


- c. Push down on the fan module latch to release the fan module.

- d. Let the fan module tilt away from the system board.



- e. Carefully pull out the fan module horizontally as much as possible.



Warning

Do not pull the fan module out by force. Doing so can damage the memory modules on the system board.

Attaching the fan module

The fan module contains two fans and is located on the right panel.

For details, see [Right panel](#).

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- 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.



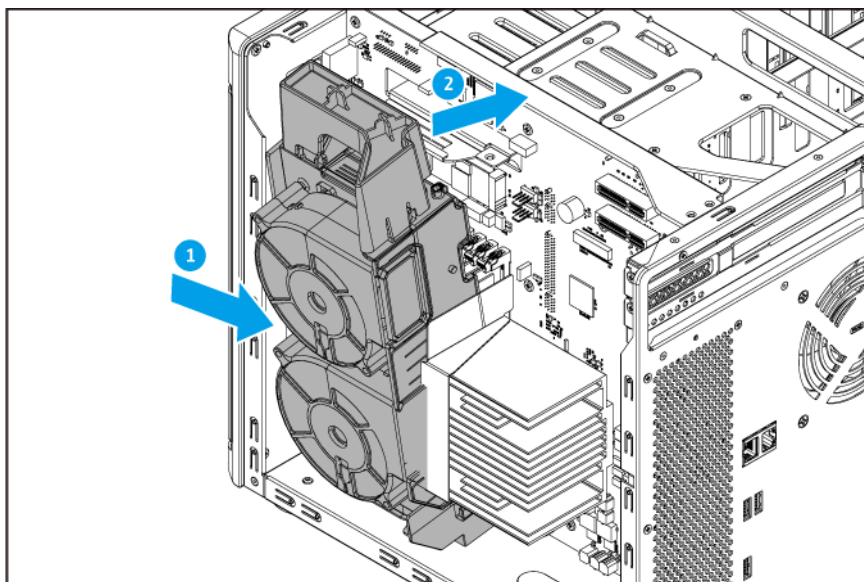
Other moving components: Keep your hands and other body parts away from other moving components.

1. Attach the fan module.
 - a. Carefully insert the fan module at an angle into the slot at the bottom of the chassis.

Warning

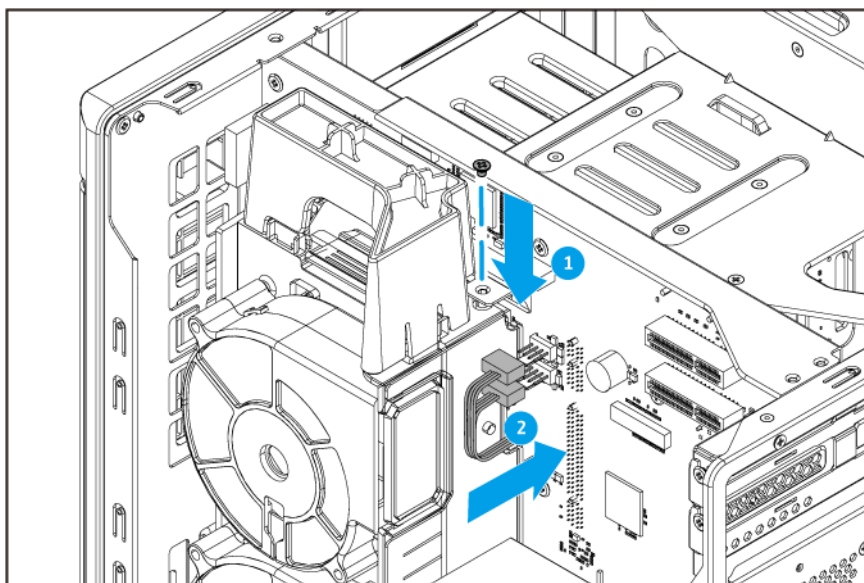
Do not push the fan module into the slot by force. Doing so can damage the memory modules on the system board.

- b. Tilt the top of the fan module toward the system board to latch the fan module to the system board.



- c. Attach the screw that secures the fan module to the system board.

- d. Connect the power connectors of all fans to the system board.



2. Attach the case cover.
For details, see [Attaching the case cover](#).
3. Connect all cables and external attachments.
4. Connect the power cord to the electrical outlet.
5. Power on the device.

Replacing fans on the fan module

The fan module contains two fans and is located on the right panel.

For details, see [Right panel](#).

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.



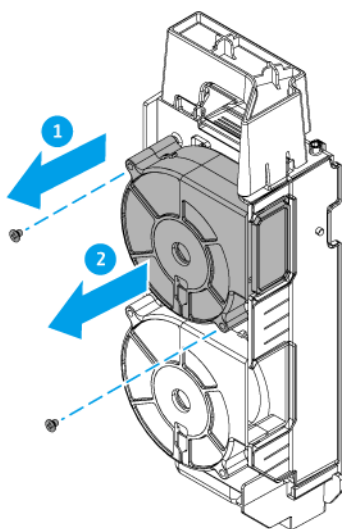
Moving fan blades: Keep your hands and other body parts away from moving fan blades.



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

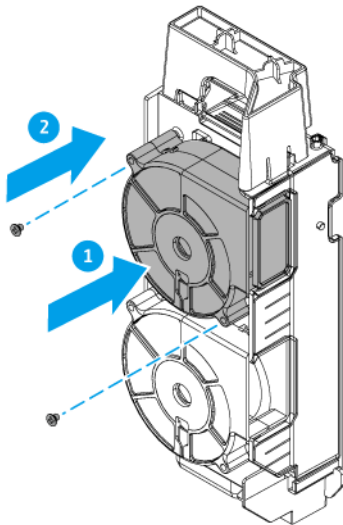
1. Power off the device.

2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the case cover](#).
5. Remove the fan module.
For details, see [Removing the fan module](#)
6. Remove the fan.
 - a. Remove the screws that secure the fan to the fan unit.
 - b. Remove the fan from the fan module.



7. 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.



- 8.** Optional: Replace another fan.
- 9.** Attach the fan module.
For details, see [Attaching the fan module](#)
- 10.** Attach the case cover.
For details, see [Attaching the case cover](#).
- 11.** Connect all cables and external attachments.
- 12.** Connect the power cord to the electrical outlet.
- 13.** Power on the device.

Replacing fans on the chassis

There are three fans on the chassis, behind the rear panel.

For details, see [Rear panel](#).

Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

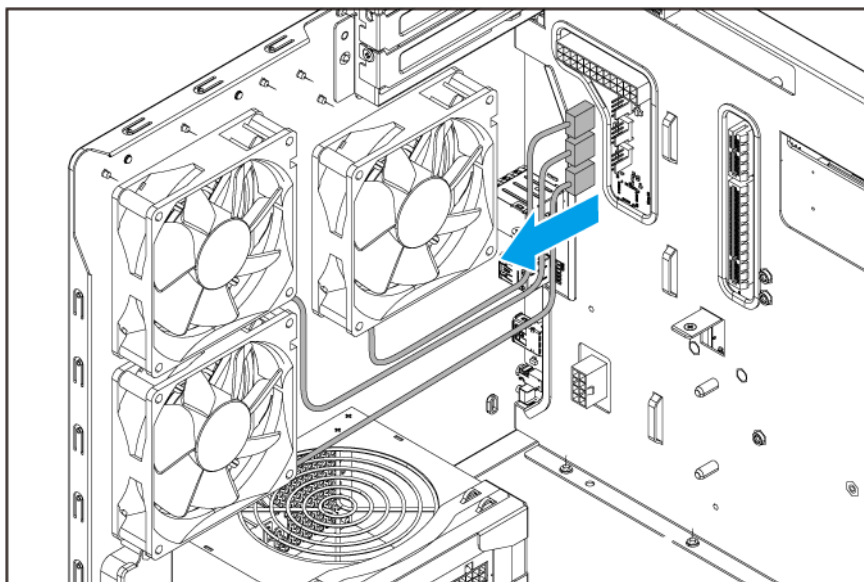


Moving fan blades: Keep your hands and other body parts away from moving fan blades.



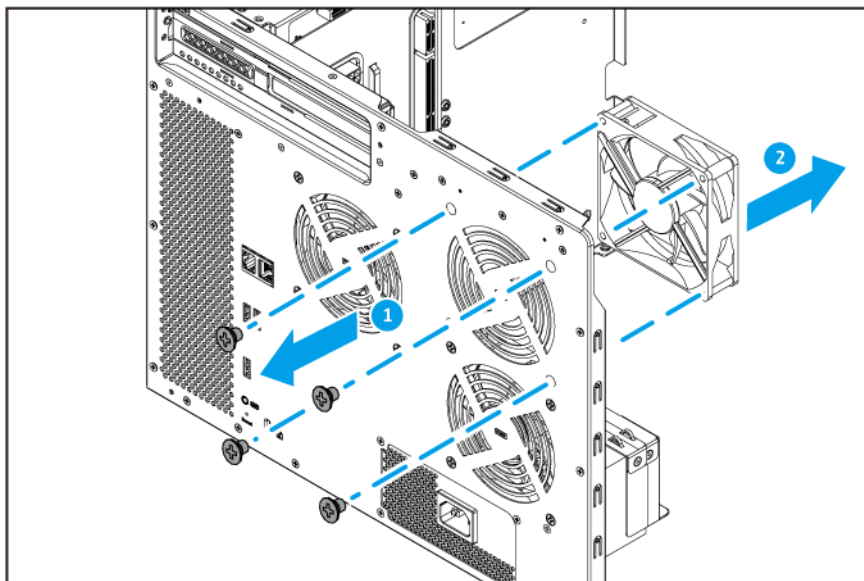
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the case cover](#).
5. Remove the fan.
 - a. Detach the fan's power connector from the system board.

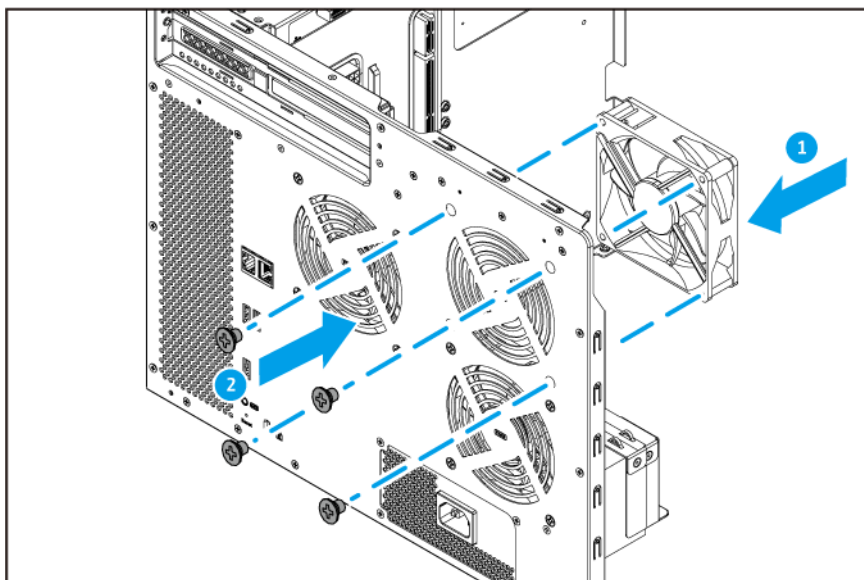


- b. Remove the screws that secure the fan to the chassis.

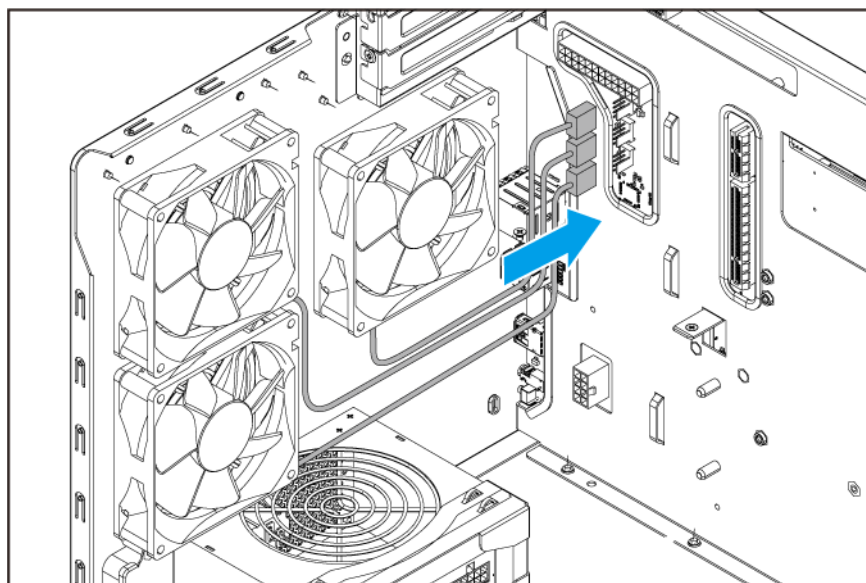
- c. Remove the fan from the chassis.



- 6. Install a new fan.
 - a. Align the fan to the screw holes on the chassis.
 - b. Attach the screws that secure the fan to the chassis.



- c. Attach the fan's power connector to the system board.



7. Optional: Replace another fan.
8. Attach the case cover.
For details, see [Attaching the case cover](#).
9. Connect all cables and external attachments.
10. Connect the power cord to the electrical outlet.
11. Power on the device.

Expansion unit installation

The NAS supports SATA JBOD expansion units and USB expansion units. For details, please see the 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
TL-D400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter

Expansion Unit Model	Description	Required Accessories
TL-D800S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 2 x SFF-8088 connector cables • QXP-800eS-A1164 host bus adapter
TL-D1600S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 4 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter
TL-R400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter • RAIL-B02
TL-R1200S-RP	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 3 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter • RAIL-B02
TR-002	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TR-004	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TR-004U	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 1 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable • RAIL-B02
TL-D800C	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TL-R1200C-RP	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable • RAIL-B02

Connecting SATA JBOD expansion units

To connect the NAS to SATA JBOD expansion units, a host bus adapter must be installed on the NAS.

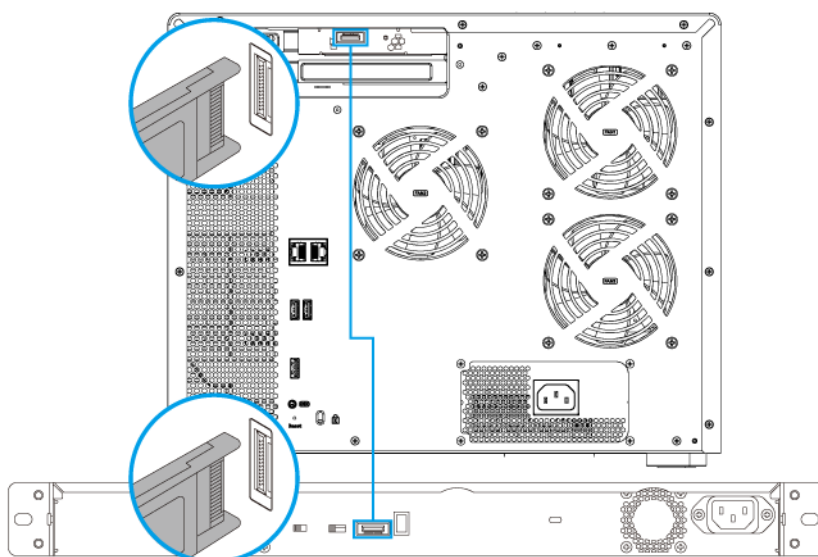
For required accessory details, see [Expansion unit installation](#).

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

Important

The QNAP QXP host bus adapter is required for connecting the SATA JBOD enclosure to a host device. Third-party host bus adapters are not compatible with QNAP JBOD enclosures.

3. Connect the expansion unit to the NAS.



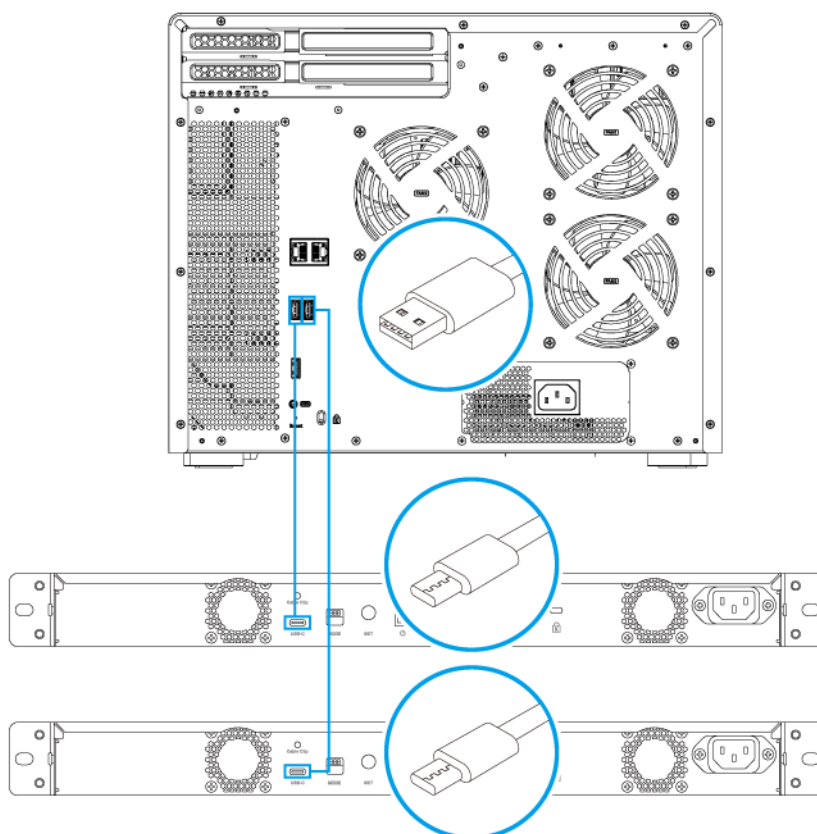
4. Power on the SATA JBOD expansion unit.
5. Power on the NAS.
6. Verify that the expansion unit is recognized by the NAS.
 - a. Log on to QTS as administrator.
 - b. Go to **Main Menu > Storage & Snapshots > Overview > System**.
 - c. Verify that the expansion unit is listed.

Connecting USB expansion units

To connect the device to a USB expansion unit, a USB Type-A to USB Type-C cable is required.

For required accessory details, see [Expansion unit installation](#).

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 3.2 Gen 1 Type-A port on the NAS.



2. Power on the expansion units.
3. Verify that the expansion units are recognized by the NAS.
 - a. Log on to QTS as administrator.
 - b. Go to **Main Menu > Storage & Snapshots > Overview > System**.
 - c. Verify that the expansion units are listed.

QTS installation

The TS-1655 is shipped with the QNAP QTS operating system. You can install QTS using any of the following methods.

You can also install the QNAP QuTS hero operating system. If your NAS is connected to the internet, the option to install QuTS hero will appear in the Smart Installation Guide wizard using any of the methods in the table. You can also manually download the QuTS hero firmware from <https://download.qnap.com>.

Warning

QTS and QuTS hero use different file systems. Switching operating systems will reset the NAS and delete all data.

Method	Description	Requirements
Qfinder Pro installation (Recommended)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QTS using Qfinder Pro.</p>	<ul style="list-style-type: none"> • Computer • Network cable • Qfinder Pro installer
Cloud installation	<p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> • Scan the QR code on the NAS. • Log into your myQNAPcloud account. • Use myQNAPcloud Link to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QTS using the cloud installation website.</p>	<ul style="list-style-type: none"> • Computer or mobile device • Network cable • myQNAPcloud account • Cloud Key

Initializing QTS using Qfinder Pro

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

Warning

Initializing QTS deletes all data on the drives. Back up your data before proceeding.

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

Tip

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

4. Click **Next**.
The **QNAP Warranty Service** page opens in the default web browser.
5. Click **Check warranty**.
The **QNAP Warranty Service** window opens in a new web page.

Important

You can check your device warranty policy or purchase an extended warranty plan at [QNAP Warranty Service](#).

6. Close the warranty page.
The **Smart Installation Guide** opens in the default web browser.
7. If the screen shows a different operating system, click **QTS**.

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 QTS.

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

8. Click **Start Smart Installation**.
9. Specify a firmware version using any of the following methods.

Methods	User Actions
Current version	Select Current version .
Latest available version	<ol style="list-style-type: none"> a. Select Latest available version. b. Click Check for Update The system checks for the latest firmware update available for your device. If a newer version is available, the system downloads the firmware update and restarts the NAS.
Uploaded version	<ol style="list-style-type: none"> a. Select Uploaded version. b. Click Browse. The file upload window appears. c. Select a firmware file.

10. Click **Next**.
The **Enter the NAS name and administrator's password** screen appears.
11. Specify the following information.
 - **NAS Name:** Specify a name with 1 to 14 characters. The name can contain 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 QTS initialization to disable the default "admin" account.

- **Password:** Specify an administrator password with 1 to 64 characters. The password can contain any ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

12. Click **Next**.

The **Set the date and time** screen appears.

13. Specify the time zone, date, and time using any of the following methods:

Tip

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

Methods	User Actions
Synchronize with computer or mobile device time	Select Same as the computer/device time The NAS synchronizes with the date and time of the computer or mobile device used to complete the initialization.
Enter manually	a. Select Input Manually . b. Specify the date and time. The NAS uses the specified date and time.
Synchronize with a time server automatically	Click Synchronize with an Internet time server automatically . The NAS synchronizes with the NTP server.

14. Click **Next**.

The **Configure the network settings** screen appears.

15. Configure the network settings using any of the following methods.

Methods	User Actions
Obtain an IP address automatically (DHCP)	Select Obtain an IP address automatically (DHCP) The system automatically detects and configures the IP address settings.
Use static IP address	<p>a. Select Use static IP address. The IP address configuration page appears.</p> <p>b. Specify the following IP address configurations:</p> <ul style="list-style-type: none"> • Interface • IP Address • Subnet Mask • Default Gateway • Primary DNS server • Secondary DNS server

16. Click **Next**.
The **Thunderbolt Connection** page appears.

Note

This page only appears if your device supports Thunderbolt. You will need to connect your device to a computer using a Thunderbolt cable.

17. Click **Next**.
The **Summary** screen appears.
18. Review the settings.
19. Click **Apply**.
A confirmation message appears.

Warning

Clicking **Initialize** deletes all data on the drive before installing QTS.

20. Click **Initialize**.

Important

The initialization may take several minutes to complete. Do not power off the device during the process.

QTS is initialized.

Initializing QTS using the cloud installation website

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

Warning

Initializing QTS deletes all data on the drives. Back up your data before proceeding.

1. Power on the NAS.
2. Connect the NAS 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 QTS through LAN and then installing myQNAPcloud Link.

7. Click **Next**.

The **QNAP Warranty Service** page opens in the default web browser.

8. Click **Check warranty.**

The **QNAP Warranty Service** window opens in a new web page.

Important

You can check your device warranty policy or purchase an extended warranty plan at [QNAP Warranty Service](#).

9. Close the warranty page.

The **Smart Installation Guide** opens in the default web browser.

10. If the screen shows a different operating system, click **QTS.****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 QTS.
- If the screen shows QuTS hero, you may need to click **Skip** first.

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

11. Click **Start Smart Installation.****12. Specify a firmware version using any of the following methods.**

Methods	User Actions
Current version	Select Current version .
Latest available version	<ol style="list-style-type: none"> Select Latest available version. Click Check for Update The system checks for the latest firmware update available for your device. If a newer version is available, the system downloads the firmware update and restarts the NAS.
Uploaded version	<ol style="list-style-type: none"> Select Uploaded version. Click Browse. The file upload window appears. Select a firmware file.

13. Click **Next.**

The **Enter the NAS name and administrator's password** screen appears.

14. Specify the following information.

- **NAS Name:** Specify a name with 1 to 14 characters. The name can contain 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 QTS installation to disable the default "admin" account.

- **Password:** Specify an administrator password with 1 to 64 characters. The password can contain any ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

15. Click **Next**.

The **Set the date and time** screen appears.

16. Specify the time zone, date, and time using any of the following methods:

Tip

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

Methods	User Actions
Synchronize with computer or mobile device time	Select Same as the computer/device time The NAS synchronizes with the date and time of the computer or mobile device used to complete the initialization.
Enter manually	<p>a. Select Input Manually.</p> <p>b. Specify the date and time. The NAS uses the specified date and time.</p>
Synchronize with a time server automatically	Click Synchronize with an Internet time server automatically . The NAS synchronizes with the NTP server.

17. Click **Next**.

The **Configure the network settings** screen appears.

18. Configure the network settings using any of the following methods.

Methods	User Actions
Obtain an IP address automatically (DHCP)	Select Obtain an IP address automatically (DHCP) The system automatically detects and configures the IP address settings.
Use static IP address	<p>a. Select Use static IP address. The IP address configuration page appears.</p> <p>b. Specify the following IP address configurations:</p> <ul style="list-style-type: none"> • Interface • IP Address • Subnet Mask • Default Gateway • Primary DNS server • Secondary DNS server

19. Click **Next**.
The **Thunderbolt Connection** page appears.

Note

This page only appears if your device supports Thunderbolt. You will need to connect your device to a computer using a Thunderbolt cable.

20. Click **Next**.
The **Summary** screen appears.
21. Review the settings.
22. Click **Apply**.
A confirmation message appears.

Warning

Clicking **Initialize** deletes all data on the drive before installing QTS.

23. Click **Initialize**.

Important

The initialization may take several minutes to complete. Do not power off the device during the process.

QTS is initialized.

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 10 seconds.	The device powers off. <div style="background-color: #fff9c4; padding: 10px; border-radius: 5px;"> <p>Important Use this method only when the device is unresponsive.</p> </div>

Reset button

Important

- The default `admin` account is automatically enabled after the system reset.
- 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.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> • System administrator password: For details on the default password, see this FAQ. • TCP/IP configuration: <ul style="list-style-type: none"> • 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) • LCD panel password: (blank) • VLAN: Disabled
Advanced system reset	Press and hold the button for 10 seconds.	<p>The default factory settings are restored. To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</p>

USB One Touch Copy button

The USB One Touch Copy button allows you to copy data backups from a USB device to the NAS or from the NAS to a USB device.

This feature supports incremental backups. The NAS only copies files that were modified or added after the last backup.

To configure the behavior of the button when an external device is connected to the button's USB port, install and use Hybrid Backup Sync on your QNAP operating system. For details, see the [Hybrid Backup Sync](#) documentation.

LCD panel

The LCD panel allows you to perform the following operations:

- Restart and power off the device
- Configure or change the LCD panel password
- View and configure network settings
- View information on the system, physical disks, and volumes

Viewing TCP/IP settings

You can view the following settings for each network adapter on the NAS.

- IP address
- Subnet mask
- Default gateway
- Primary DNS
- Secondary DNS

1. Press **Enter or **Select**.**

The panel displays the NAS name and QTS version.

2. Press and hold **Enter for two seconds.**

The panel displays `Main Menu 1. TCP/IP`.

3. Press and hold **Enter.**

The panel displays the IP address of the first network adapter.

4. Press and hold **Select to view the next TCP/IP screen.**

Repeat this step as necessary.

Configuring TCP/IP settings

You can configure the following settings for each network adapter on the device:

- IP address
- Subnet mask
- Default gateway
- Primary DNS
- Secondary DNS

1. Press **Enter or **Select**.**

The panel displays the NAS name and QTS version.

2. Press and hold **Enter for two seconds.**

The panel displays `Main Menu 1. TCP/IP`.

3. Press and hold **Enter.**

The panel displays the IP address of the first network adapter.

4. Press **Select repeatedly until the panel displays `Enter Network Settings`.**

5. Press and hold **Enter.**

The panel displays the configurable network settings.

6. Press **Select** and then **Enter** to configure the settings.

Button	Usage
Enter	<ul style="list-style-type: none"> • Display a configuration screen. • Move to the next item on a configuration screen.
Select	<ul style="list-style-type: none"> • Move to the next item on a menu. • Modify a value on a configuration screen.

7. After configuring the settings, press **Select** repeatedly until the panel displays `Network Restart`.

Important

If you do not see `Network Restart`, the system will not save the configured settings.

The system saves the settings.

Viewing drive information

The LCD panel can display the temperature and capacity of each drive installed in the NAS.

1. Press **Enter** or **Select**.
The panel displays the NAS name and the QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 2. Physical disk`.
4. Press and hold **Enter**.
The panel displays the temperature and capacity of the drive in bay 1.
5. Press and hold **Select**.
Repeat this step as necessary.
The panel displays the temperature and capacity of the next drive.

Viewing volume information

The LCD panel can display the name and capacity of each volume.

1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 3. Volume`.

4. Press and hold **Enter**.
The panel displays the name and capacity of the first volume.
5. Press and hold **Select**.
Repeat this step as necessary.
The panel displays the name and capacity of the next volume.

Viewing system information

The LCD panel can display the CPU temperature, system temperature, and system fan speed.

1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 4. System`.
4. Press and hold **Enter**.
The panel displays the CPU and system temperature.
5. Press and hold **Select**.
The panel displays the system fan speed.

Powering off the NAS

1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 5. Shut down`.
4. Press and hold **Enter**.

The NAS powers off.

Restarting the NAS

1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 6. Reboot`.
4. Press and hold **Enter**.

The NAS restarts.

Changing the LCD password

Specifying a password for the LCD panel prevents unauthorized access.

1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Select** repeatedly until the panel displays `Main Menu 7. Password`.
4. Press and hold **Enter**.
The `Change Password` screen appears.
5. Select **Yes** by pressing and holding **Enter**.
The `New Password` screen appears.
6. Press **Select** and **Enter** to specify a new password.
 - Specify a password.
 - Length: 1-8 characters
 - Valid characters: 0-9
 - To delete a password, leave the password field blank.
 - Move the cursor to `OK`.

Button	Usage
Enter	Move to the next item in the <code>New Password</code> screen.
Select	Change a character in the <code>New Password</code> and <code>Verify Password</code> screens.

7. Press **Enter**.

The NAS saves the password.

LCD error messages

System Message	Description
Sys. Fan Failed	System fan has failed.
Sys. Overheat	System has overheated.
HDD Overheat	Drive has overheated.

System Message	Description
CPU Overheat	CPU has overheated.
Network Lost	LAN 1 and LAN 2 disconnected in failover or load-balancing mode.
LAN [number] Lost	LAN [number] has disconnected.
HDD Failure	Drive has failed.
Vol [number] Full	Volume [number] is full.
HDD Ejected	Drive has ejected.
Vol [number] Degraded	Volume [number] is in degrade mode.
Vol [number] Unmounted	Volume [number] has unmounted.
Vol [number] Inactive	Volume [number] is inactive.

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](#) .

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.

M.2 SSD 1 LED, M.2 SSD 2 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.

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	<ul style="list-style-type: none"> 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.
Off	There is no network connection.

Audio alert

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> The NAS is starting up. The NAS is shutting down. 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.
	3	<ul style="list-style-type: none"> The NAS data cannot be copied to the external storage device connected to the USB One Touch Copy port. The firmware was updated.
Long beep (1.5 seconds)	3 (every 5 minutes)	A system fan is not functioning.
	2	<ul style="list-style-type: none"> A disk volume is about to reach its full capacity. A disk volume has reached its full capacity. The drives are in degraded mode. A drive is rebuilding. A drive is plugged in or out.
	1	<ul style="list-style-type: none"> The NAS was powered off by force shutdown (hardware shutdown). The NAS was powered on successfully and is ready.

5. 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.

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	<p>If the NAS does not support file system encryption, encrypted disk volumes are not migrated.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p>Warning</p> <p>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.</p> </div>
Shared folders	<p>All shared folders and the downloaded files stored in them are retained.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p>Warning</p> <p>To prevent data loss, back up and save encryption keys or passwords of encrypted shared folders in a safe place before migration.</p> </div> <div style="background-color: #ffe6d9; padding: 10px;"> <p>Important</p> <p>Folder permissions on the destination NAS must be reconfigured after migration.</p> </div>
Network	<ul style="list-style-type: none"> • 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	<p>Licenses are not migrated.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p>Warning</p> <p>To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.</p> </div>

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: <ul style="list-style-type: none"> • 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. <div style="background-color: #fff9c4; padding: 5px; border: 1px solid #ccc;"> <p>Tip Click  to scan for available devices.</p> </div>
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.

6. 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 QTS 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 QTS 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	One member drive fails.
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.

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD**.
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard 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 & Snapshots > Storage > Storage/Snapshots**.
11. Locate the volume 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, or RAID 60 group from degraded mode.

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
Single	No	1	N/A
JBOD	No	≥ 2	N/A
RAID 0	No	≥ 2	N/A
RAID 1	Yes	2	1
RAID 5	Yes	≥ 3	1
RAID 6	Yes	≥ 4	2
RAID 10	No	≥ 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.

Support and other resources

QNAP provides the following resources:

Resource	URL
Documentation	https://download.qnap.com

Resource	URL
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
Community Forum	https://forum.qnap.com
QNAP Accessories Store	https://shop.qnap.com

7. Glossary

Cloud Key

Unique 8-digit code assigned to each NAS device

myQNAPcloud Link

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

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

Qfinder Pro

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

QNAP ID

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

QTS

QNAP NAS operating system

QuTS hero

QNAP NAS operating system featuring ZFS file system

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Version 3, 29 June 2007

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FCC Class B Notice



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2. This device must accept any interference received, including interference that may cause undesired operation.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

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VCCI notice

VCCI-B

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SJ/T 11364-2006



本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	0	0	0	0	0	0
显示	0	0	0	0	0	0
印刷电路板	0	0	0	0	0	0
金属螺帽	0	0	0	0	0	0
电缆组装	0	0	0	0	0	0
风扇组装	0	0	0	0	0	0
电力供应组 装	0	0	0	0	0	0
电池	0	0	0	0	0	0
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						