

TVS-hx74

TVS-h474

TVS-h674

TVS-h874

User Guide

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1. Product Overview

This chapter provides basic information about the QNAP TVS-hx74 NAS.

About the TVS-hx74

The TVS-hx74 series is powered by an Intel® Pentium® Gold G7400, Intel® Core™ i3, Intel® Core™ i5, Intel® Core™ i7, or Intel® Core™ i9 processor. The NAS supports SATA 6 Gbps drives (backward compatible with SATA 3 Gbps), and is equipped with two 2.5 Gigabit Ethernet ports, two PCIe Gen 4 slots, two USB 3.2 Gen 2 Type-A ports, and one USB 3.2 Gen 2 Type-C port for various applications and expansion options.

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	Power supply
TVS-h474-PT-8G	4	8 GB	Single
TVS-h674-i3-16G	6	16 GB	Single
TVS-h674-i5-32G	6	32 GB	Single
TVS-h874-i5-32G	8	32 GB	Single
TVS-h874-i7-32G	8	32 GB	Single
TVS-h874X-i9-64G	8	64 GB	Single

Component	TVS-h474-PT-8G	TVS-h674-i3-16G TVS-h674-i5-32G	TVS-h874-i5-32G TVS-h874-i7-32G TVS-h874X-i9-64G
Processor			
CPU	Intel® Pentium® Gold G7400	• TVS-h674-i3-16G: Intel® Core™ i3-12100 • TVS-h674-i5-32G: Intel® Core™ i5-12400	• TVS-h874-i5-32G: Intel® Core™ i5-12400 • TVS-h874-i7-32G: Intel® Core™ i5-12400 • TVS-h874X-i9-64G: Intel® Core™ i9-12900

Component	TVS-h474-PT-8G	TVS-h674-i3-16G TVS-h674-i5-32G	TVS-h874-i5-32G TVS-h874-i7-32G TVS-h874X-i9-64G
Frequency	2-core/4-thread 3.7 GHz burst	- TVS-h674-i3-16G: 4-core/8-thread 4.3 GHz burst - TVS-h674-i5-32G: 6-core/12-thread 4.4 GHz burst	- TVS-h874-i5-32G: 6-core/12-thread 4.4 GHz burst - TVS-h874-i7-32G: 12-core/20-thread 4.9 GHz burst - TVS-h874X-i9-64G: 16-core/24-thread 5.1 GHz burst
Architecture	x86 64-bit		
Encryption engine	AES-NI		
Graphics	Intel® UHD Graphics 710	- TVS-h674-i3-16G: Intel® UHD Graphics 730 - TVS-h674-i5-32G: Intel® UHD Graphics 770	- TVS-h874-i5-32G: Intel® UHD Graphics 770 - TVS-h874-i7-32G: Intel® UHD Graphics 770 - TVS-h874X-i9-64G: Intel® UHD Graphics 770
Memory			
Pre-installed memory	8 GB RAM: 1 x 8 DDR4 SODIMM	- TVS-h674-i3-16G: 16 GB RAM: 1 x 16 DDR4 SODIMM - TVS-h674-i5-32G: 32 GB RAM: 2 x 16 DDR4 SODIMM	- TVS-h874-i5-32G: 32 GB RAM: 2 x 16 DDR4 SODIMM - TVS-h874-i7-32G: 32 GB RAM: 2 x 16 DDR4 SODIMM - TVS-h874X-i9-64G: 64 GB RAM: 2 x 32 DDR4 SODIMM
Memory slots	 Important - 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. 2 x SODIMM DDR4		
Maximum memory	64 GB (2 x 32 GB)		
Flash memory	5 GB (dual-boot OS protection)		
Storage			

Component	TVS-h474-PT-8G	TVS-h674-i3-16G TVS-h674-i5-32G	TVS-h874-i5-32G TVS-h874-i7-32G TVS-h874X-i9-64G
Drive bays	4 x 3.5-inch SATA 6 Gbps	6 x 3.5-inch SATA 6 Gbps	8 x 3.5-inch SATA 6 Gbps
	 Tip The drive 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 hard disk drives • 2.5-inch SATA solid-state drives  Note For the list of compatible drive models and expansion cards, go to https://www.qnap.com/compatibility.		
M.2 SSD slots	2 x PCIe Gen 3 x2 NVMe	2 x PCIe Gen 4 x4 NVMe	2 x PCIe Gen 4 x4 NVMe
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  Note These ports provide 2.5 Gbps, 1 Gbps, 100 Mbps, and 10 Mbps network connection speeds.		
10 Gigabit network interface	-	-	TVS-h874X-i9-64G: 2 x 10GBASE-T
External I/O Ports & Expansion Slots			
PCIe slots	• Slot 1: PCIe Gen 4 x16 (CPU) • Slot 2: PCIe Gen 3 x2 (PCH)	• Slot 1: PCIe Gen 4 x16 (CPU) • Slot 2: PCIe Gen 4 x4 (PCH)	• Slot 1: PCIe Gen 4 x16 (CPU) • Slot 2: PCIe Gen 4 x4 (PCH)
	 Tip For the list of compatible drive models and expansion cards, go to https://www.qnap.com/compatibility.		
USB ports	• 1 x USB 3.2 Gen 2 Type-C • 2 x USB 3.2 Gen 2 Type-A		
HDMI ports	1 x HDMI 1.4b		
Interface			
Display panel	Monochrome backlit LCD display		

Component	TVS-h474-PT-8G	TVS-h674-i3-16G TVS-h674-i5-32G	TVS-h874-i5-32G TVS-h874-i7-32G TVS-h874X-i9-64G
Buttons	• Power • Reset • LCD enter • LCD select • USB One Touch Copy		
Dimensions			
Form factor	Tower	Tower	Tower
Dimensions (H x W x D)	188.2 x 199.3 x 279.6 mm (7.41 x 7.85 x 11.01 in)	188.2 x 264.3 x 279.6 mm (7.41 x 10.41 x 11.01 in)	188.2 x 329.3 x 279.6 mm (7.41 x 12.96 x 11.01 in)
Net weight	6.60 kg (14.55 lbs)	6.55 kg (17.90 lbs)	7.06 kg (20.79 lbs)
Others			
Power supply unit	1 x 250W, 100-240V AC, 50/60Hz	1 x 250W, 100-240V AC, 50/60Hz	1 x 350W, 100-240V AC, 50/60Hz
System battery	CR2032 lithium battery (3V, 225 mAh)  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: 1 x 120 mm, 12V DC fans • CPU: 1 x 60 mm, 12V DC fan	• System: 2 x 92 mm, 12V DC fans • CPU: 1 x 60 mm, 12V DC fan	• System: 2 x 120 mm, 12V DC fans • CPU: 1 x 60 mm, 12V DC fan
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)		

**Tip**

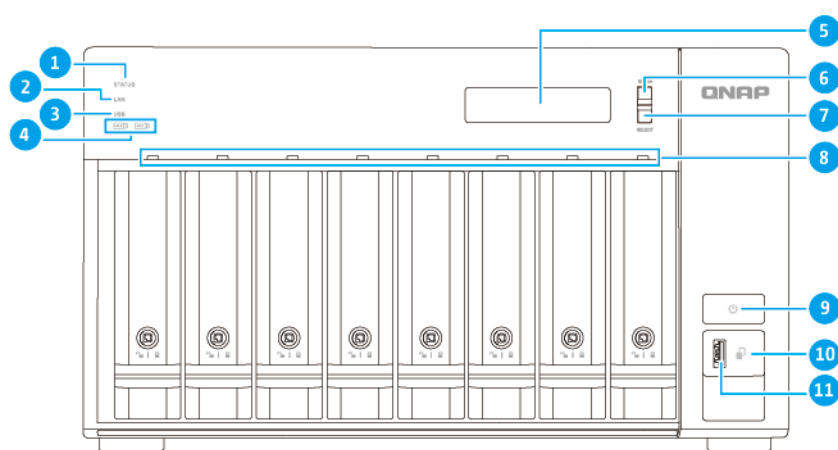
For the list of compatible drive models and expansion cards, go to <https://www.qnap.com/compatibility>.

Package Contents

Item	Quantity
TVS-hx74 NAS	1
Power cords	1
Ethernet cable	1 x Cat5e (RJ45)
Screws for 3.5-inch drives	• TVS-h474-PT-8G: 16 • TVS-h674-i3-16G: 24 • TVS-h674-i5-32G: 24 • TVS-h874-i5-32G: 32
Screws for 2.5-inch drives	• TVS-h474-PT-8G: 12 • TVS-h674-i3-16G: 18 • TVS-h674-i5-32G: 18 • TVS-h874-i5-32G: 24
Heatsinks for M.2 SSDs	2
Drive tray keys	2
Quick Installation Guide (QIG)	1

Components

Front Panel

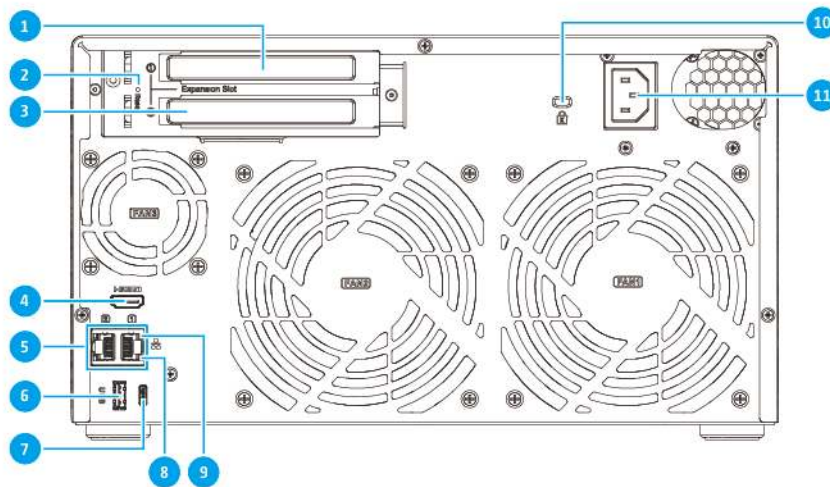


Note

This image shows the TVS-h874.

No.	Component	No.	Component
1	Status LED	7	LCD select button
2	LAN LED	8	Drive LEDs
3	USB LED	9	Power button
4	M.2 SSD LEDs	10	USB One Touch Copy button
5	LCD panel	11	USB 3.2 Gen 2 Type-A port
6	LCD enter button	-	-

Rear Panel



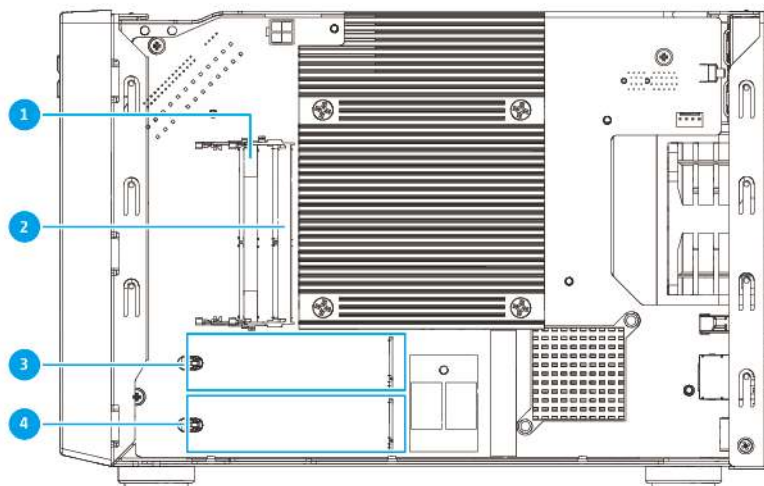
Note

This image shows the TVS-h874.

No.	Component	No.	Component
1	PCIe full-height cover  Note This is a full-height cover on the TVS-h674 and TVS-h874, and a low-profile cover on the TVS-h474.	7	USB 3.2 Gen 2 Type-C port
2	Reset button	8	2.5 Gigabit Ethernet speed LED
3	PCIe full-height cover  Note This is a full-height cover on the TVS-h674 and TVS-h874, and a low-profile cover on the TVS-h474.	9	2.5 Gigabit Ethernet activity LED
4	HDMI port	10	Kensington security slot
5	2.5 Gigabit Ethernet ports (RJ45)	11	Power input

No.	Component	No.	Component
6	USB 3.2 Gen 2 Type-A port	-	-

Right Panel

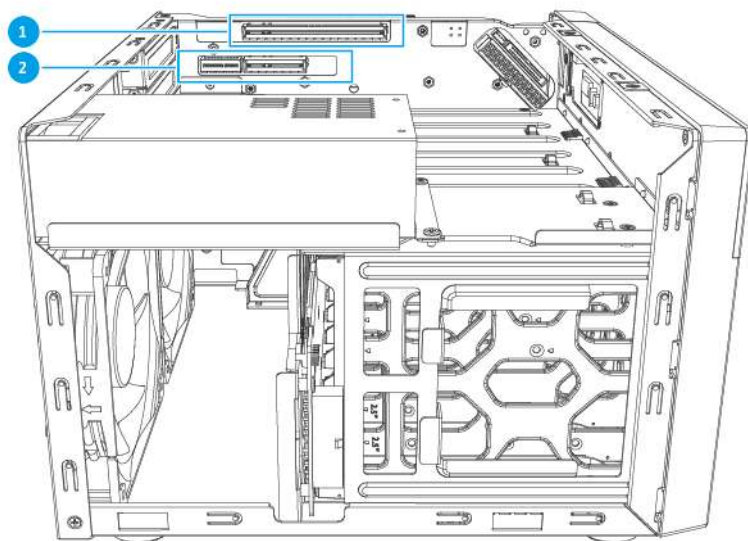


Note

This image shows the TVS-h874.

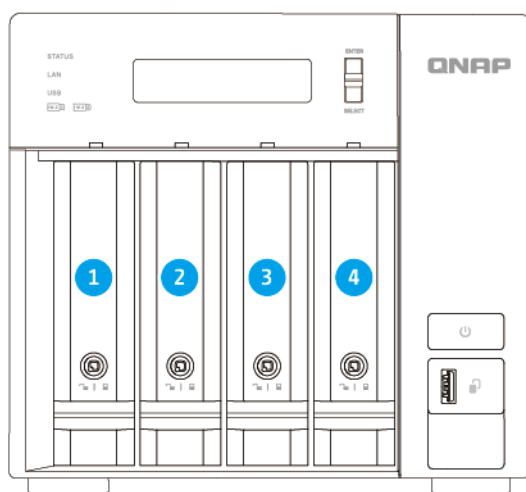
No.	Component	No.	Component
1	Memory slot 1	3	M.2 SSD slot 1
2	Memory slot 2	4	M.2 SSD slot 2

Left Panel

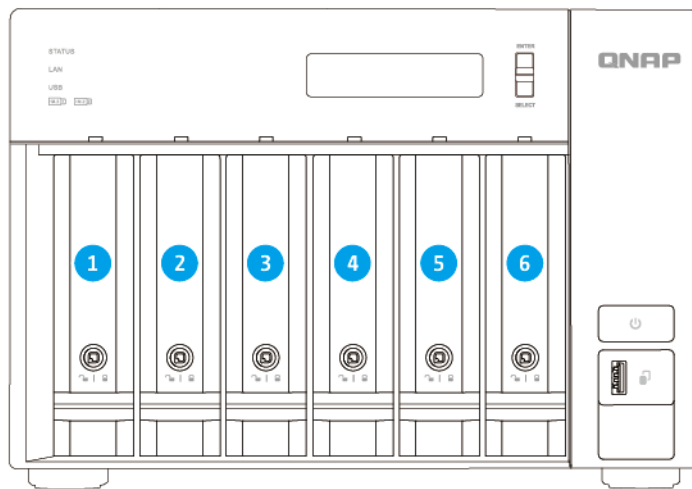


No.	Component	No.	Component
1	PCIe slot 1 (PCIe 4.0 x16)	2	PCIe slot 2 (PCIe 4.0 x4)
			 Note This PCIe slot is a Gen 3.0 x2 on the TVS-h474-PT-8G.

Drive Numbering



TVS-h474-PT-8G



TVS-h674-i3-16G, TVS-h674-i5-32G



TVS-h874-i5-32G

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.

- 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

- 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.

System Battery

- This product contains 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.
- 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.

Moving Parts

-



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

-



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

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

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

Category	Item
Hardware and peripherals	- Storage drives 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 on 3.5-inch Trays](#)
 - [Installing 2.5-inch Hard Drives or Solid-State Drives on 3.5-inch Trays](#)
 - [Installing M.2 Solid-State Drives](#)
3. Optional: Replace or install additional memory modules.
For details, see [Replacing Memory Modules](#).
4. Optional: Install expansion cards.
For details, see the following topics:
 - [Installing Expansion Cards on the TVS-h474](#)
 - [Installing Expansion Cards on the TVS-h674 and TVS-h874](#)
5. Optional: Connect expansion units.
For details, see the following topics:
 - [Connecting SATA JBOD Expansion Units](#)
 - [Connecting USB Expansion Units](#)
6. Connect the power cord and all applicable cables.
7. Power on the NAS.
8. Install QuTS hero.
For details, see [QuTS hero Installation](#).
9. Log on to QuTS hero.

2. 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, and expansion units.

Drive Installation

The TVS-hx74 series 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.

•



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. Optional: Unlock the tray.



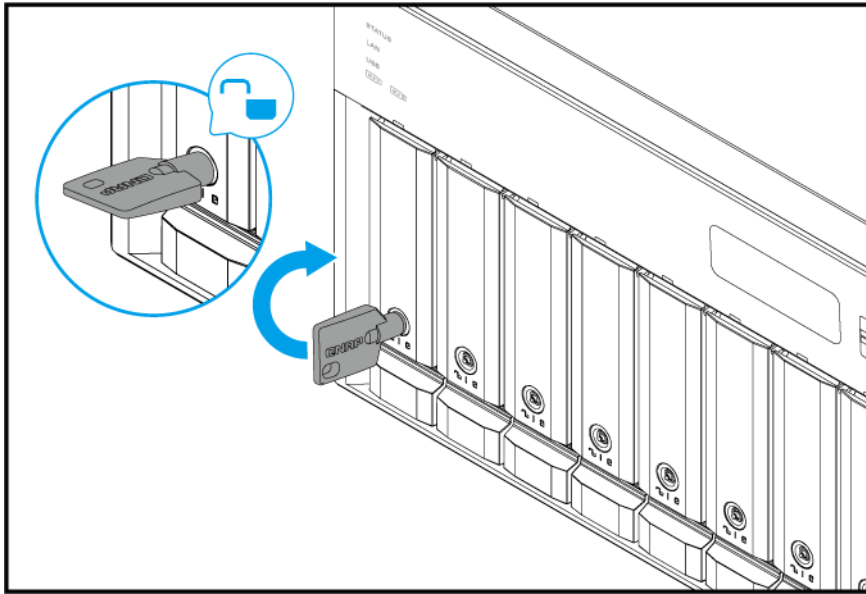
Note

The preinstalled drive trays come unlocked.

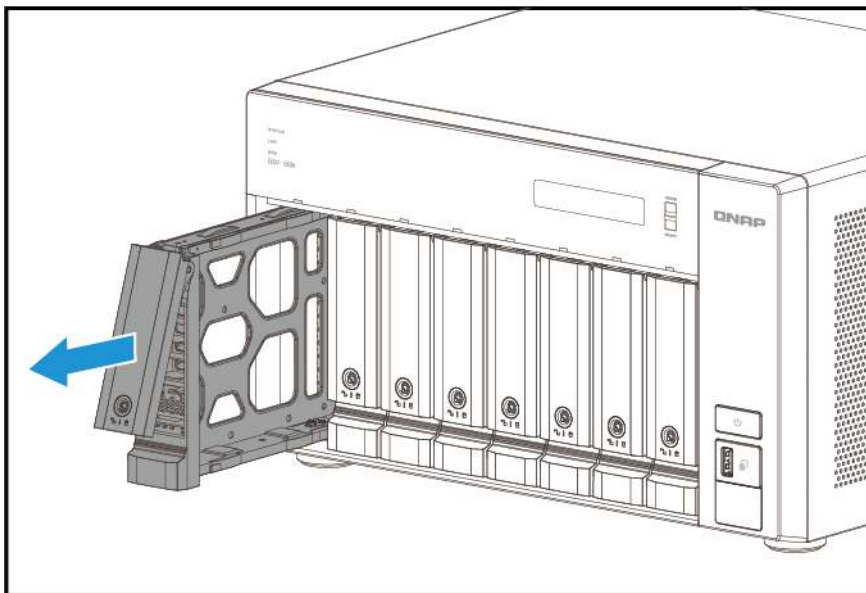


Important

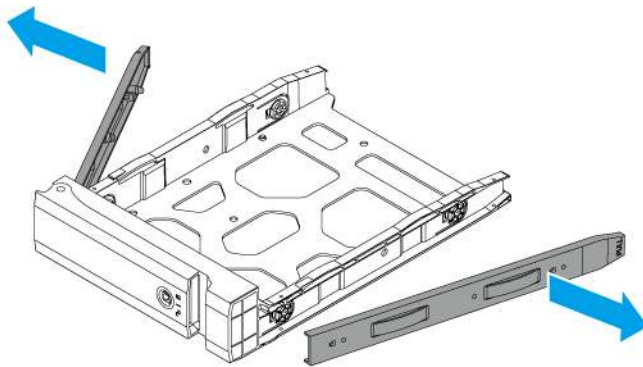
Ensure the drive tray keys are stored in a safe place.



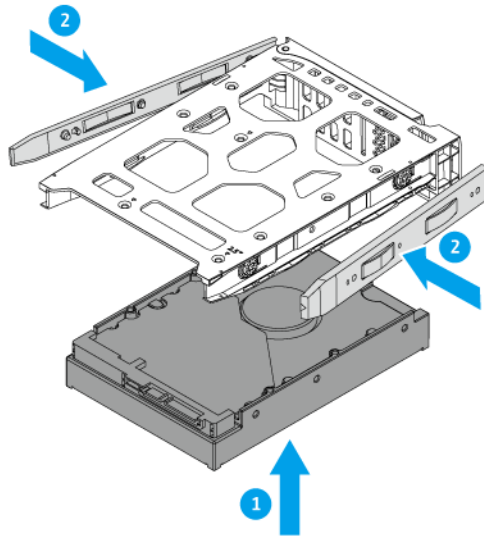
- b.** Pull the tray handle outward.
- c.** Pull the tray out.



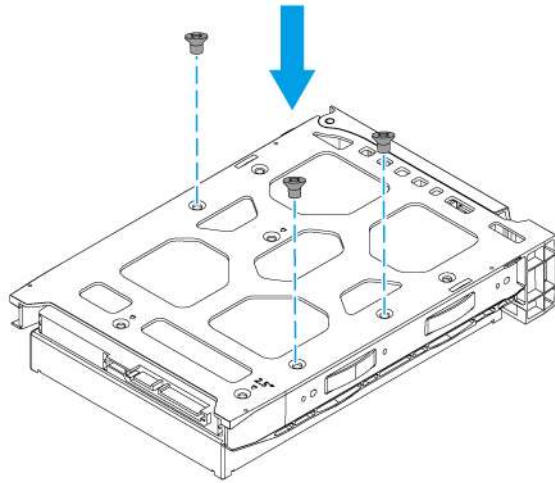
- 3.** Install a drive on the tray.
 - a.** Remove the fastening panels from the sides of the drive tray.



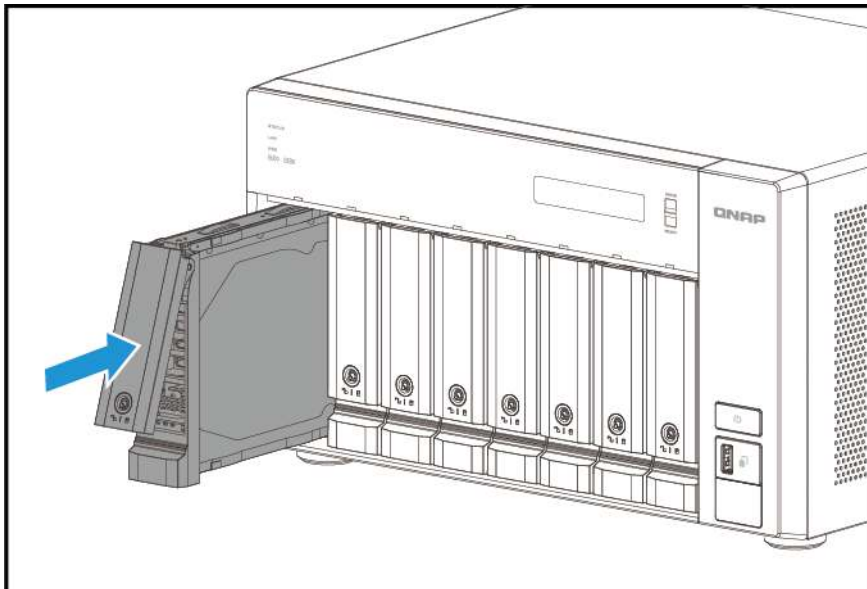
- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the fastening panels to lock the drive to the tray.



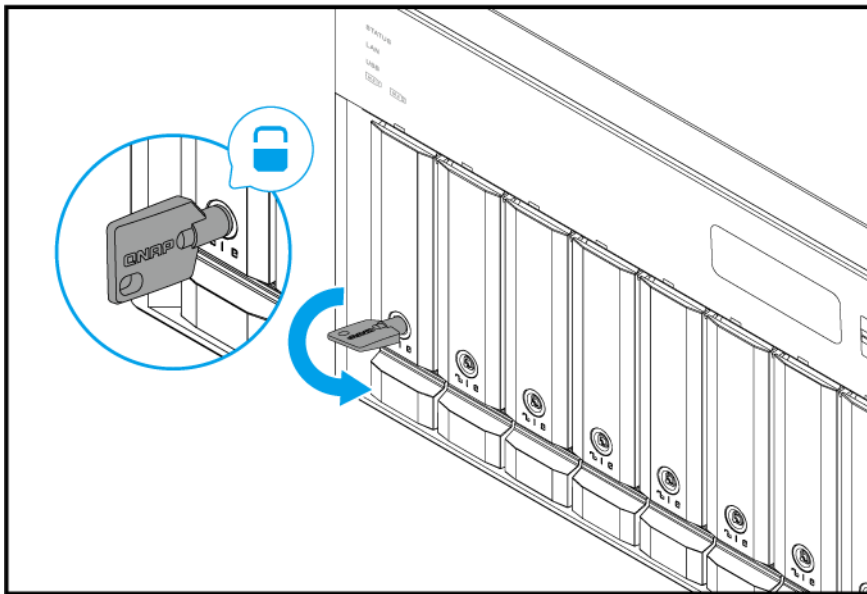
- d.** Optional: Attach the screws to further secure the drive.



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 Hard Drives or 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.

•



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. Optional: Unlock the tray.



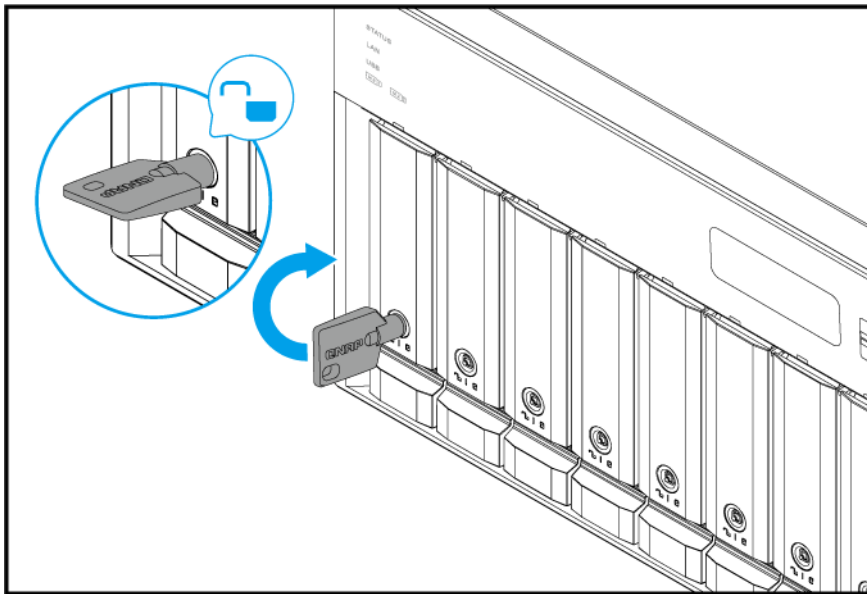
Note

The preinstalled drive trays come unlocked.

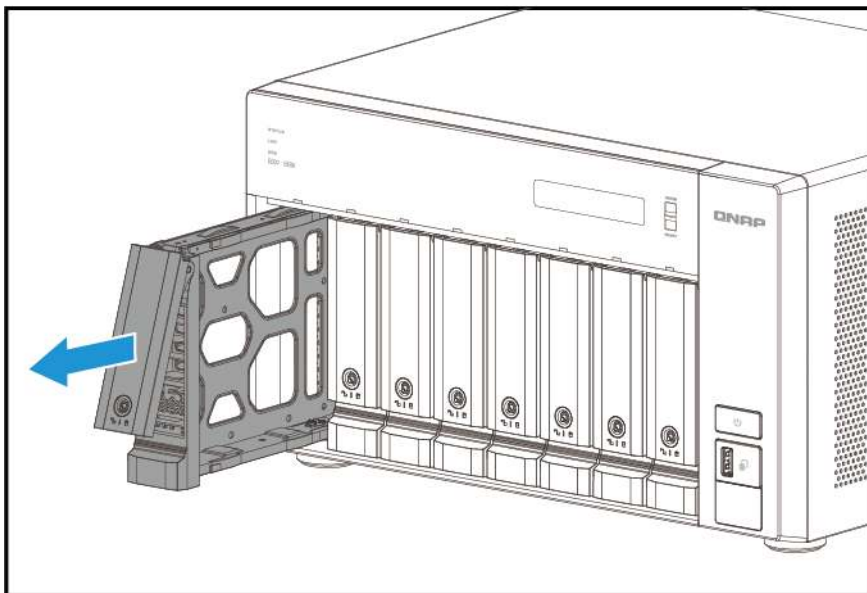


Important

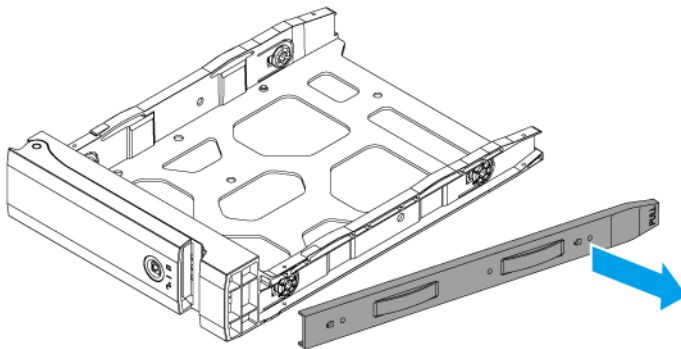
Ensure the drive tray keys are stored in a safe place.



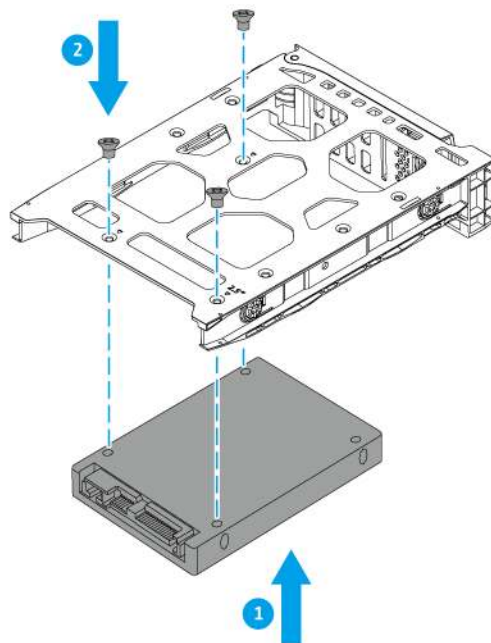
- b.** Pull the tray handle outward.
- c.** Pull the tray out.



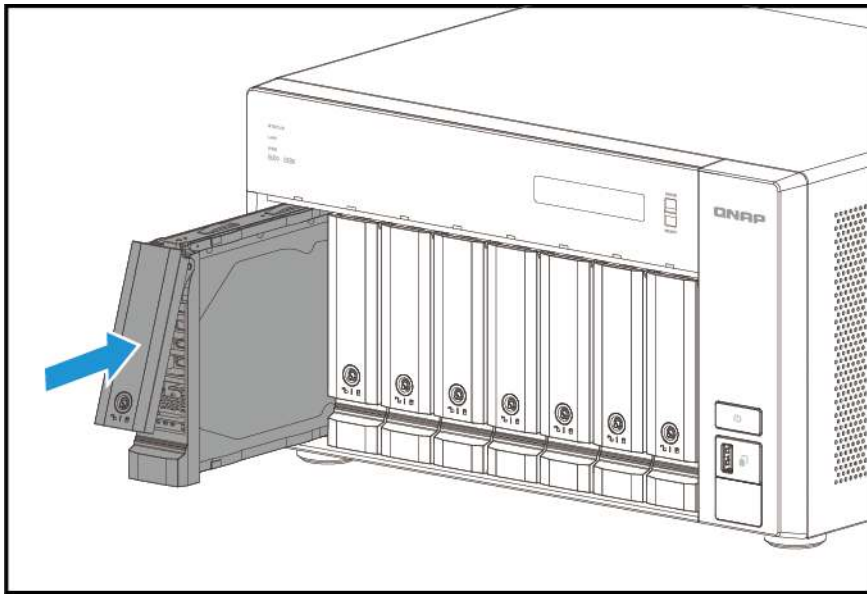
- 3.** Install a drive on the tray.
 - a.** Remove the right fastening panel from the drive tray.



- 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.

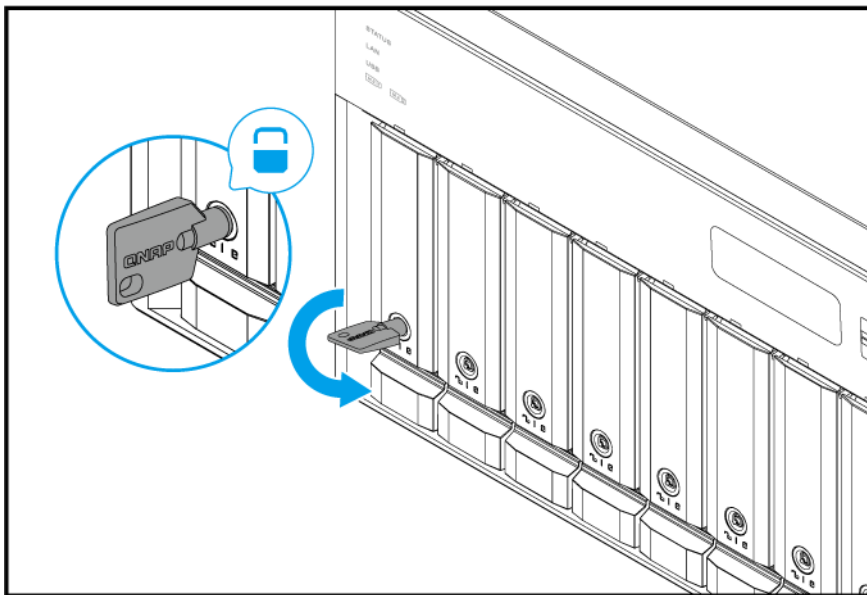


- 4.** Load the tray into the bay.
 - a.** Insert the tray into the bay.



b. Push the handle.

c. Lock the tray.



5. Power on the NAS.

Installing M.2 Solid-State Drives

The TVS-hx74 series has two M.2 SSD slots on the [Right Panel](http://www.qnap.com/compatibility). For a list of compatible M.2 SSDs, go to <http://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.



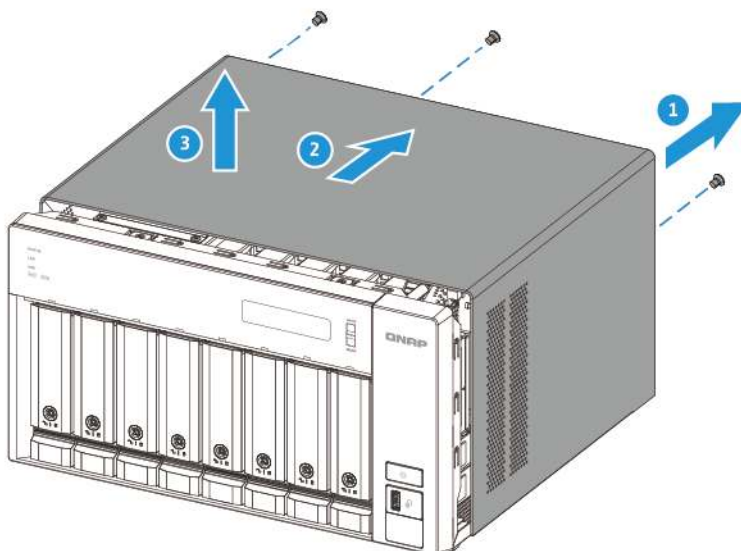
Other moving components: Keep your hands and other body parts away from other moving components.



Note

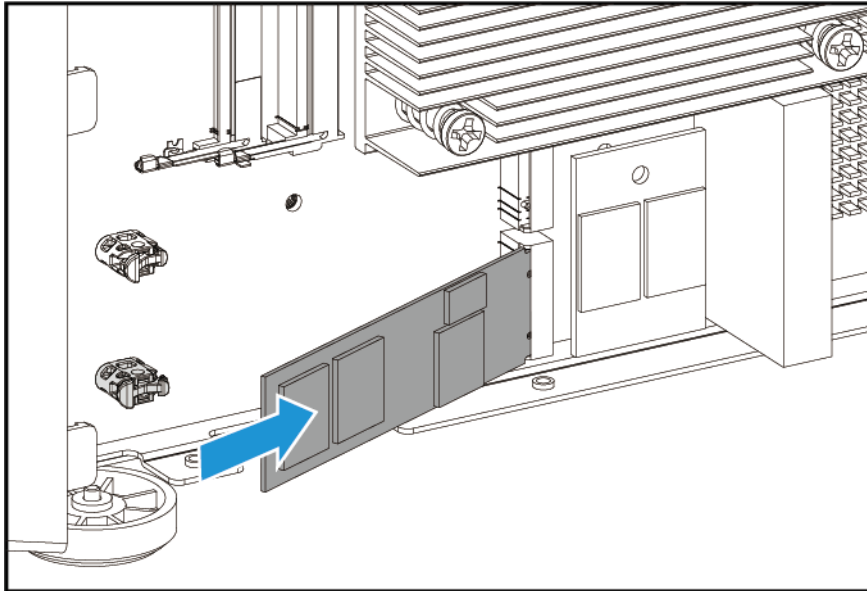
- QNAP recommends installing heatsinks on the M.2 SSD controllers to enhance cooling efficiency and to ensure consistent performance.
- Before installing non-QNAP heatsinks, ensure that they are of the appropriate size and shape.

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.
 - a. Loosen the screws.
 - b. Slide the cover back.
 - c. Lift the cover off the device.

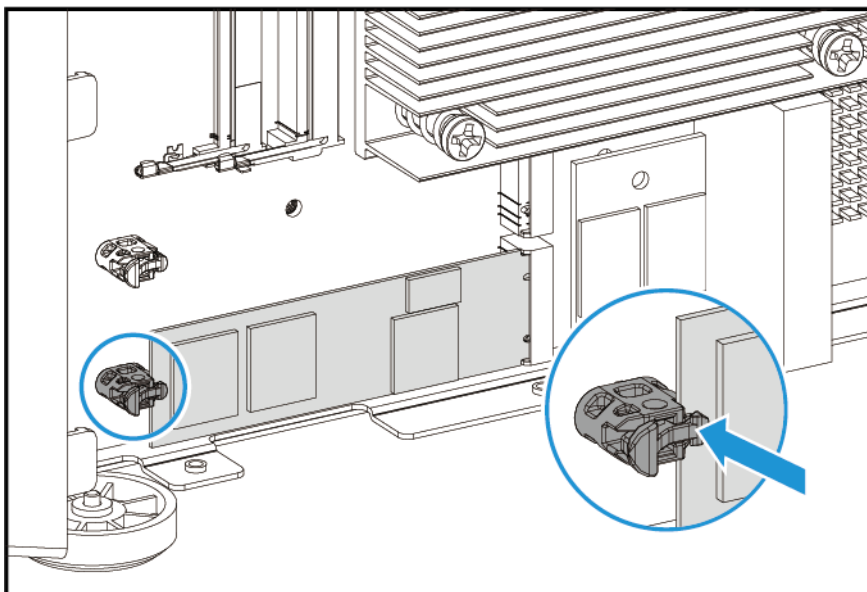


5. Install the M.2 SSD.

- a.** Unlock the M.2 spacer by pushing down on its edge.
- b.** Insert the M.2 SSD into the slot.



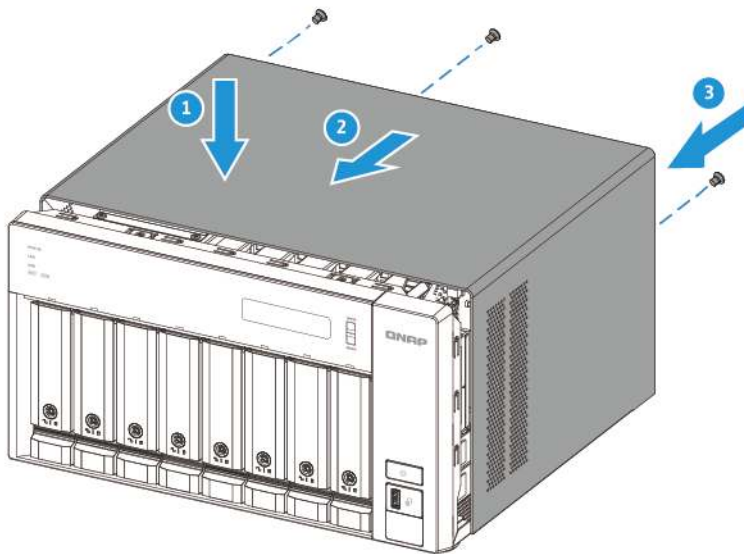
- c.** Carefully press the M.2 SSD down until the spacer locks the drive into place.



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

6. Attach the case cover.

- a.** Place the cover on the device.
- b.** Slide the cover forward.
- c.** Tighten the screws.



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

Replacing Memory Modules

The TVS-hx74 series has two memory slots. You can increase the memory capacity of the NAS by upgrading memory modules.

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

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



Warning

-



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

-

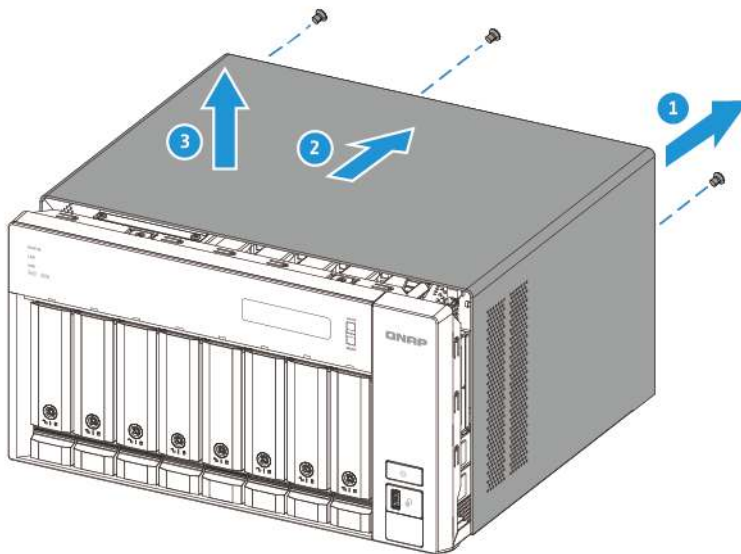


Other moving components: Keep your hands and other body parts away from other moving components.

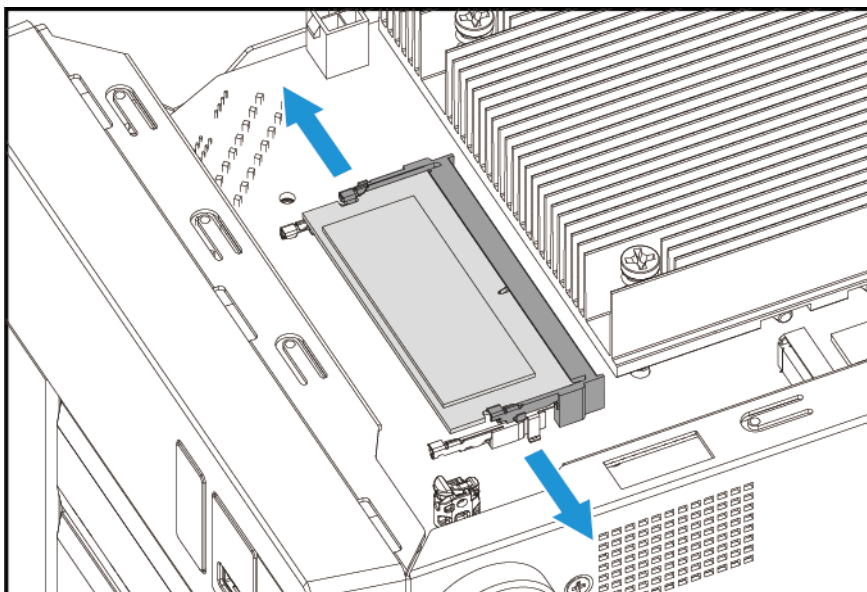
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. 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. Loosen the screws.
 - b. Slide the cover back.
 - c. Lift the cover off the device.



5. Remove an existing module.
 - a. Push the retention clips outward simultaneously to release the module.

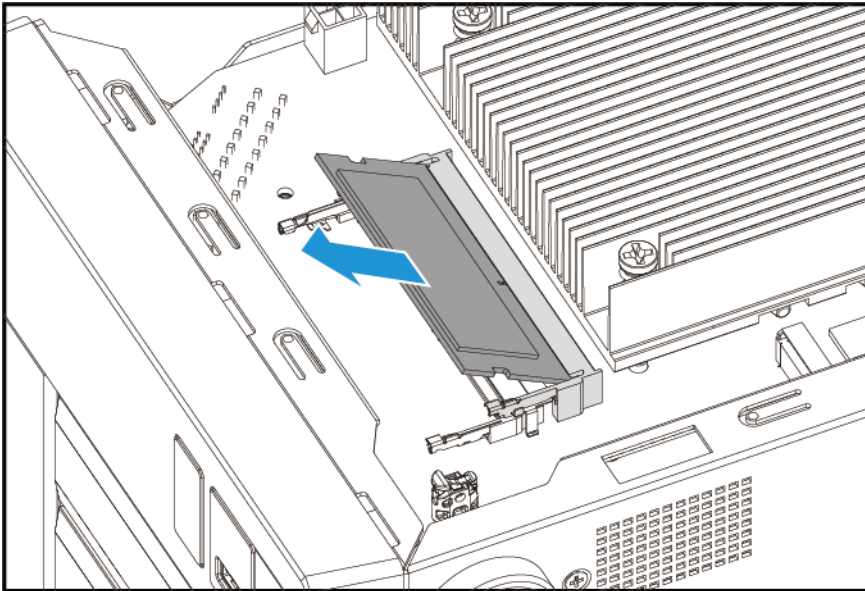


- b. Verify that the module has tilted upward and is completely released from the slot.

**Warning**

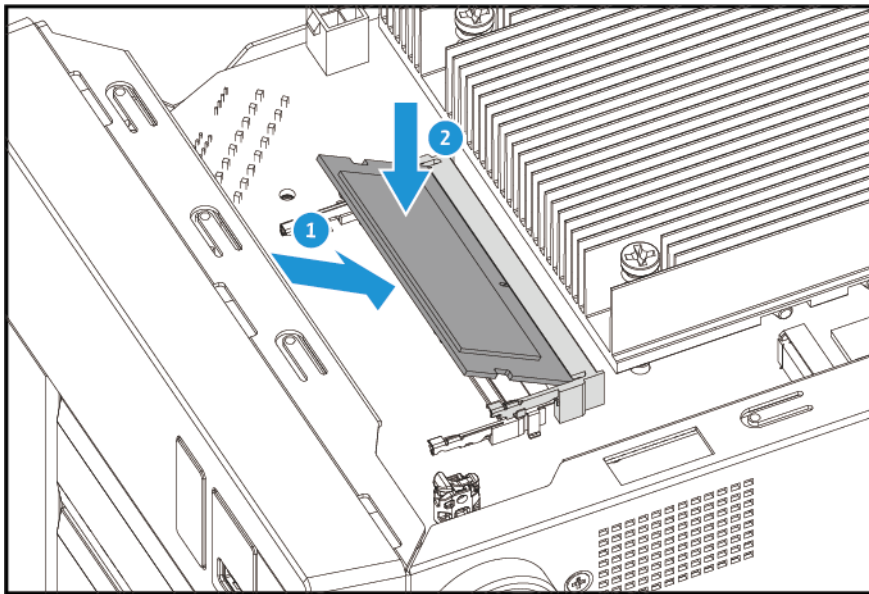
Attempting to remove a module that is not completely released may damage the module and the system board.

- c. Hold the module by the edges.
- d. Carefully slide the module out of the slot.

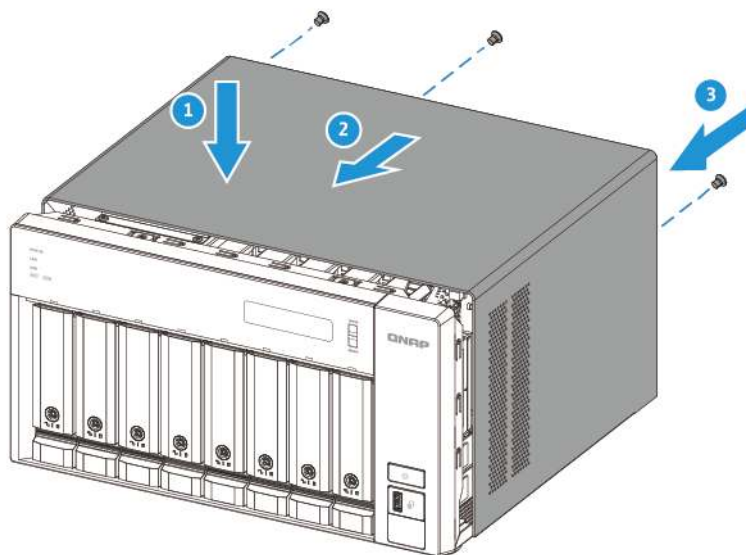
**Warning**

- 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 case cover.
 - a. Place the cover on the device.
 - b. Slide the cover forward.
 - c. Tighten the screws.



8. Connect all cables and external attachments.
9. Power on the device.
10. Verify that the module is recognized by the device.
 - a. Log on to QuTS hero as administrator.

- b. Go to **Control Panel > System > System Status > Hardware Information**.
- c. Check the value for **Total memory**.

Installing Expansion Cards on the TVS-h474

The TVS-hx74 series 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 TVS-hx74.



Warning

•



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

•



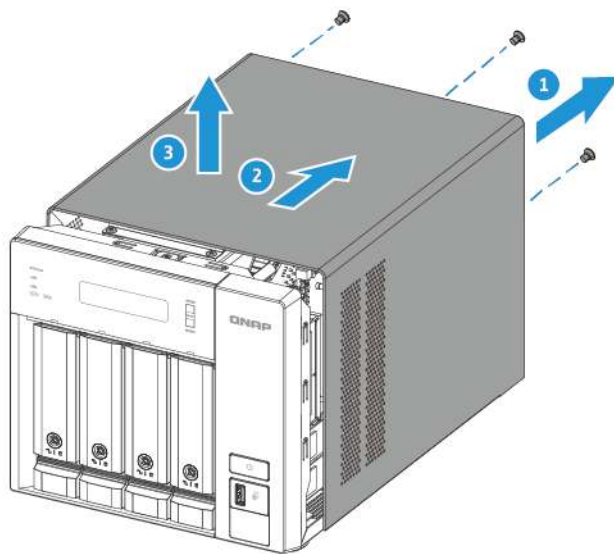
Other moving components: Keep your hands and other body parts away from other moving components.



Note

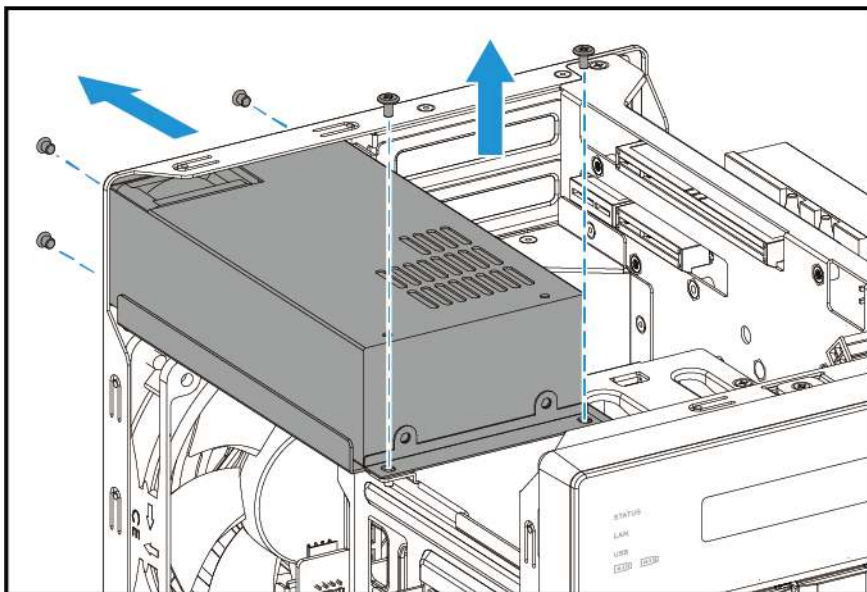
Check the expansion card power supply requirements and compatibility list before installation. For more information, see www.qnap.com/compatibility.

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. Loosen the screws.
 - b. Slide the cover back.
 - c. Lift the cover off the device.

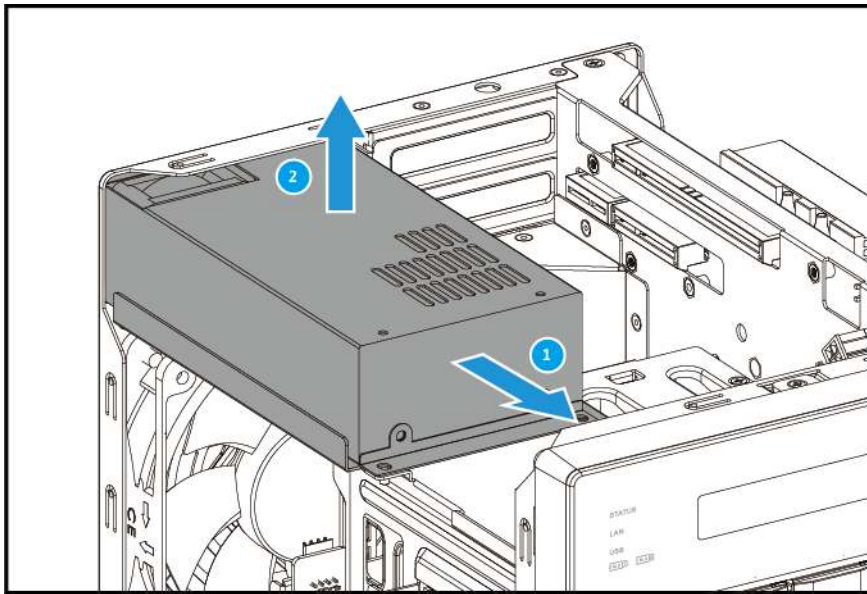


5. Remove the fan module.

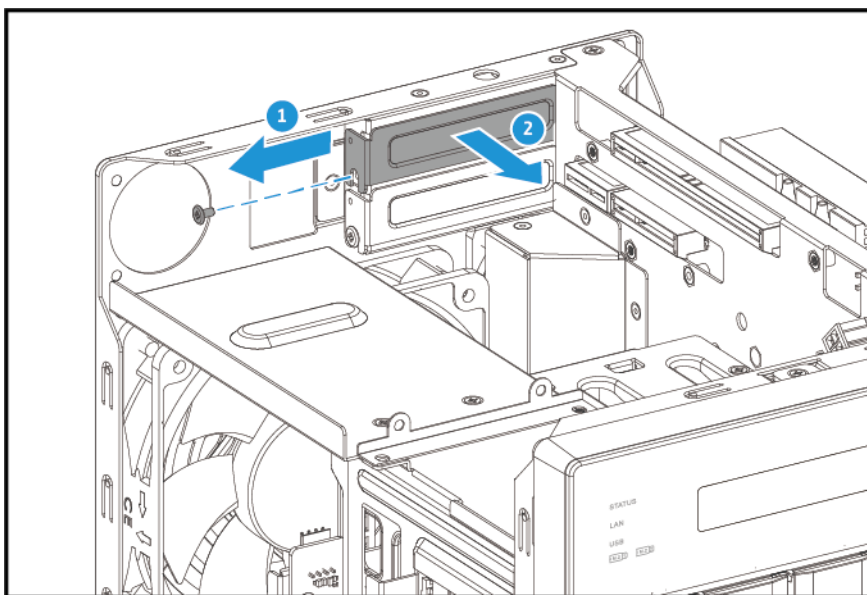
- a.** Disconnect the fan cable from the system board.
- b.** Remove the screws that secure the module to the chassis.



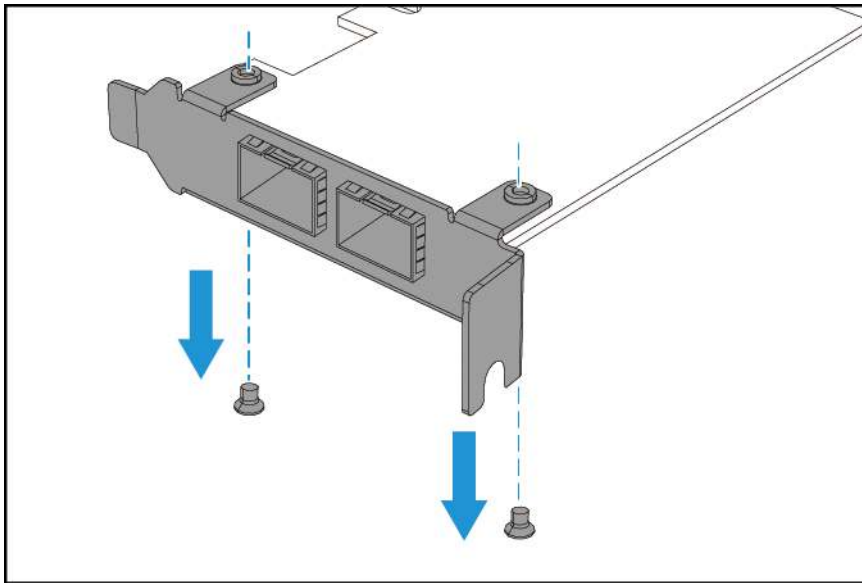
- c.** Slide the module forward and lift it out of the chassis.



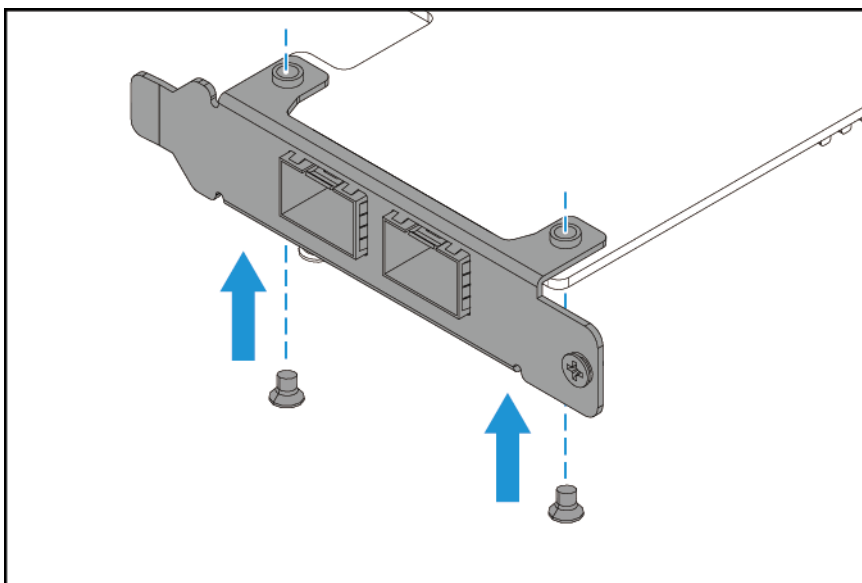
6. Remove the PCIe cover.
 - a. Remove the screw that secures the cover to the bracket.
 - b. Pull the cover away from the slot.



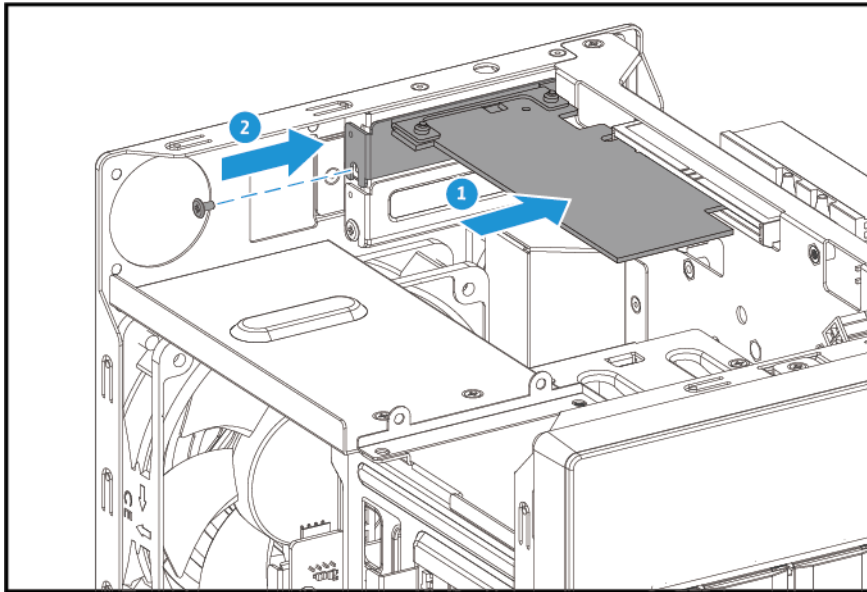
7. Optional: Attach the QNAP bracket to the expansion card.
 - a. Remove all screws of the existing bracket.



- b.** Carefully pull the bracket away from the card.
- c.** Attach the QNAP bracket to the card using the same screws.

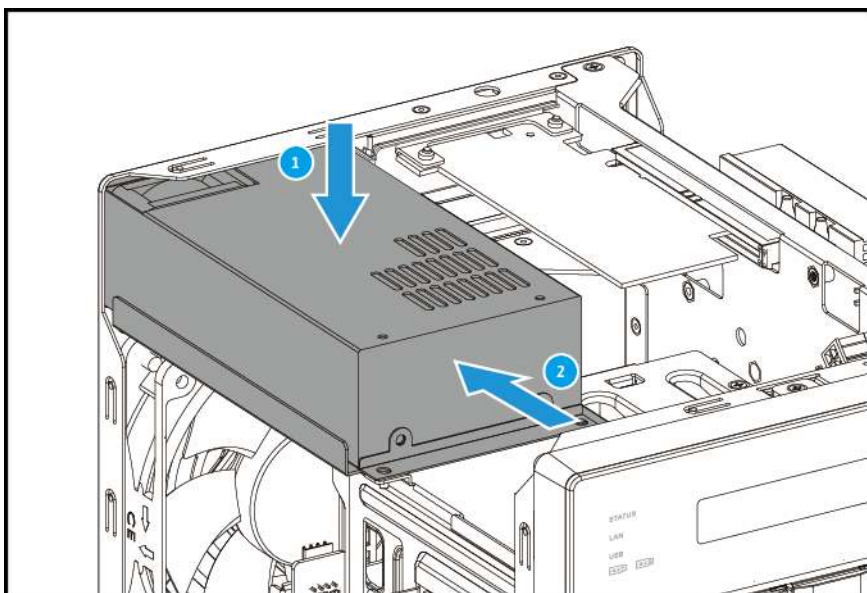


- d.** Verify that the bracket does not move.
- 8.** Install the expansion card.
- a.** Hold the card by the edges.
 - b.** Insert the card into the slot.
 - c.** Attach the screw.

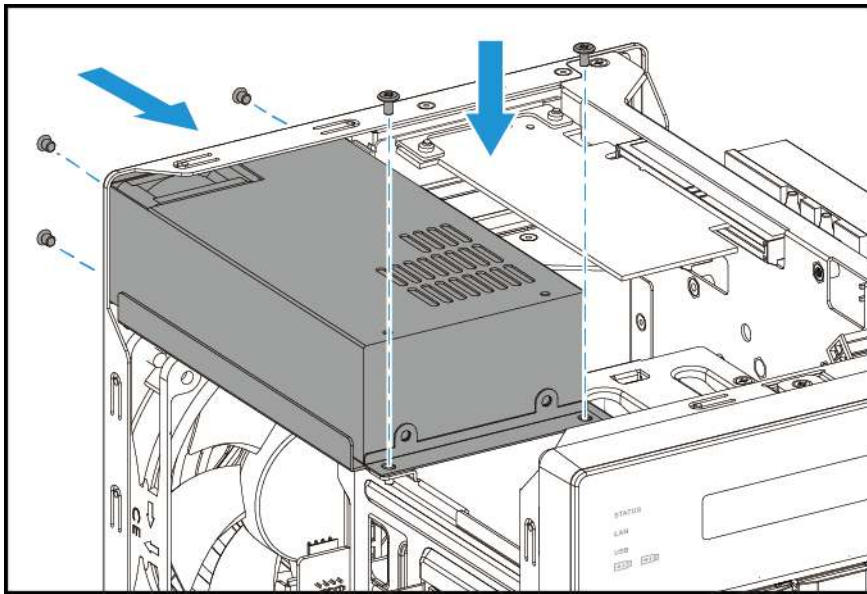


9. Attach the fan module.

- a.** Align the protruding part of the module with the hole on the chassis.
- b.** Place the module on the chassis and push it into place.

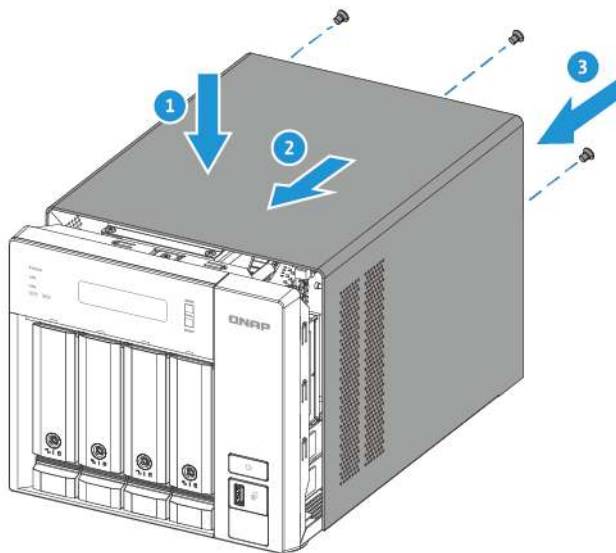


- c.** Attach the screws.



10. Attach the case cover.

- a.** Place the cover on the device.
- b.** Slide the cover forward.
- c.** Tighten the screws.



- 11. Connect all cables and external attachments.**
- 12. Connect the power cord to the electrical outlet.**
- 13. Power on the device.**

Installing Expansion Cards on the TVS-h674 and TVS-h874

The TVS-hx74 series 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 TVS-hx74.



Warning

-



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

-



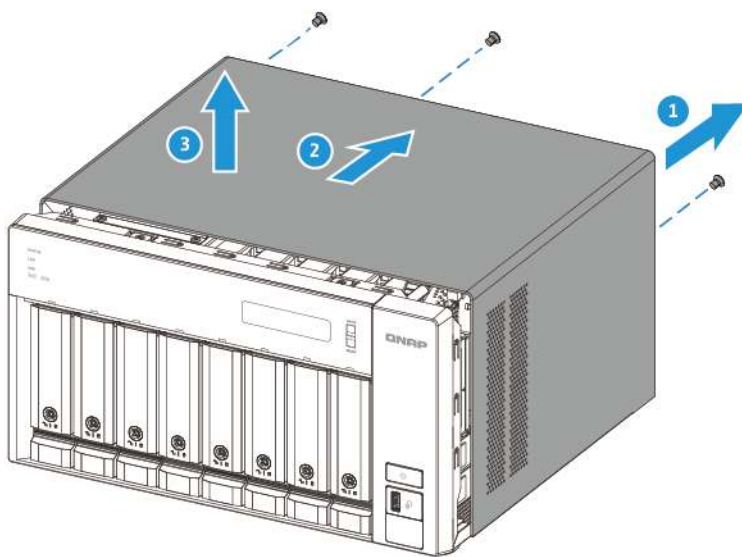
Other moving components: Keep your hands and other body parts away from other moving components.



Note

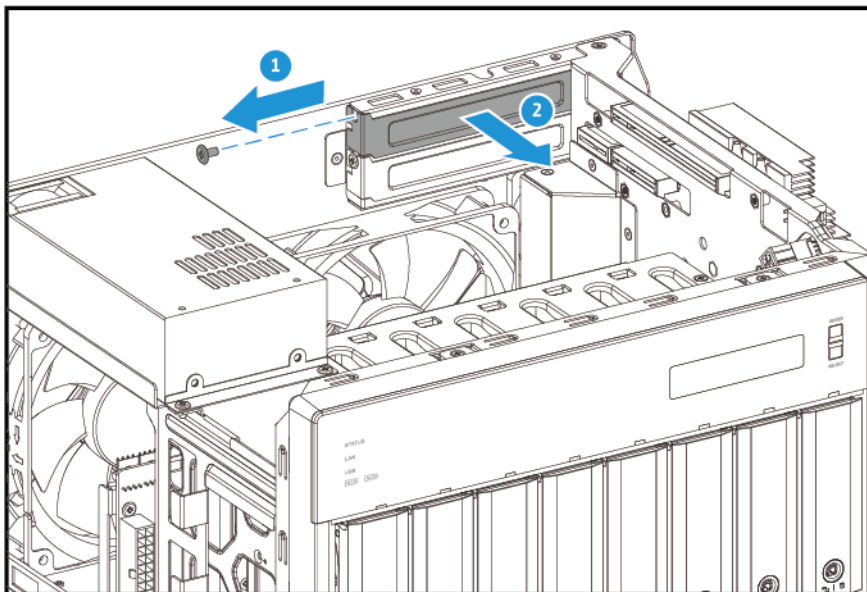
Check the expansion card power supply requirements and compatibility list before installation. For more information, see www.qnap.com/compatibility.

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. Loosen the screws.
 - b. Slide the cover back.
 - c. Lift the cover off the device.



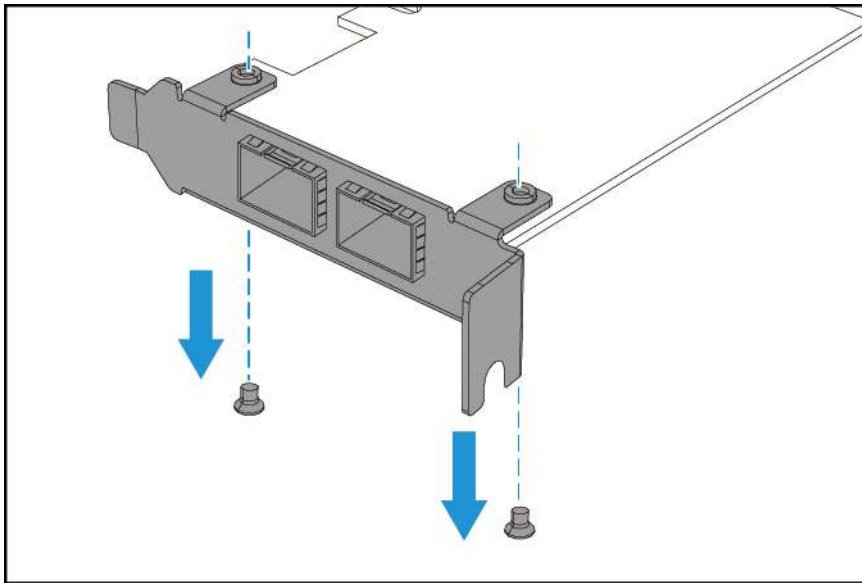
5. Remove the PCIe cover.

- a.** Remove the screw that secures the cover to the bracket.
- b.** Pull the cover away from the slot.

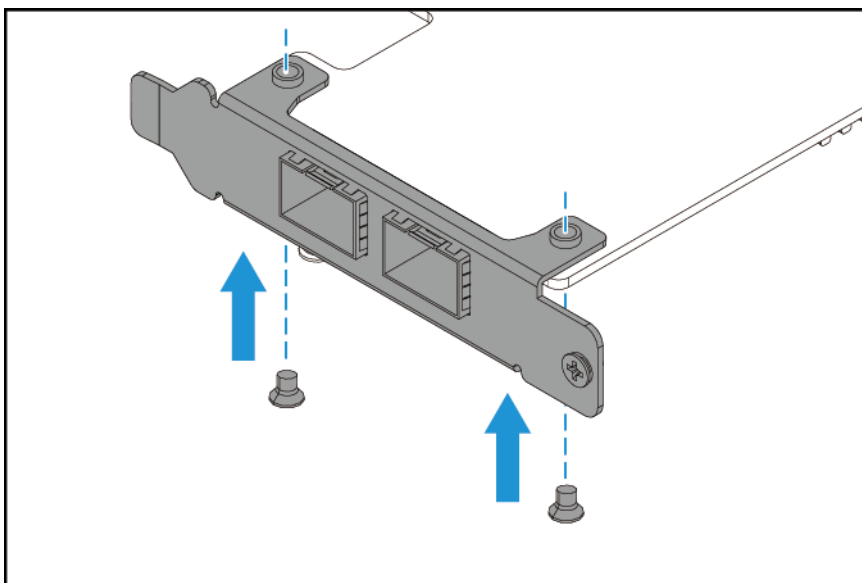


6. Optional: Attach the QNAP bracket to the expansion card.

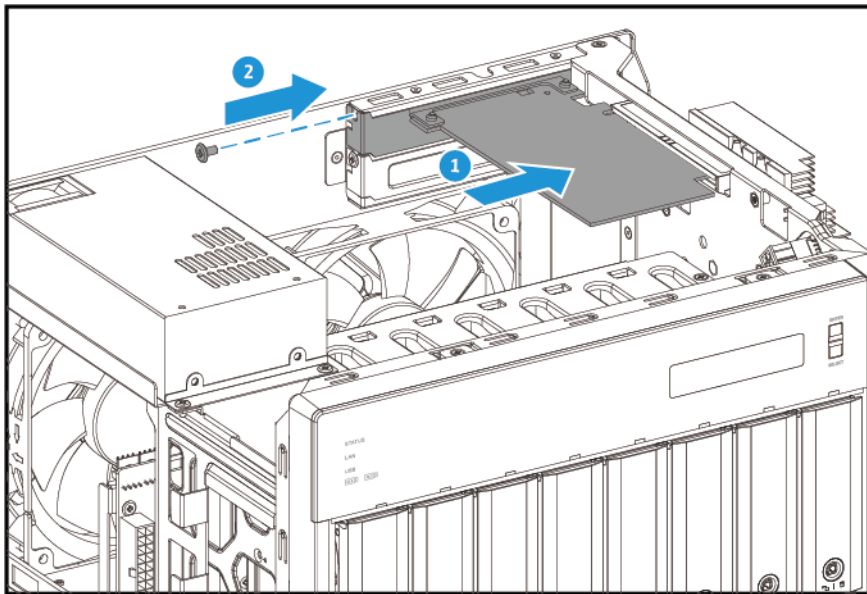
- a.** Remove all screws of the existing bracket.



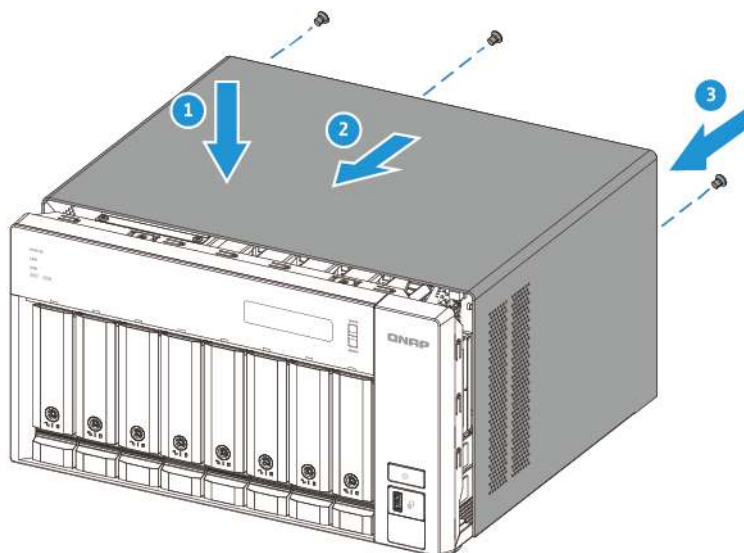
- b.** Carefully pull the bracket away from the card.
- c.** Attach the QNAP bracket to the card using the same screws.



- d.** Verify that the bracket does not move.
- 7.** Install the expansion card.
- a.** Hold the card by the edges.
 - b.** Insert the card into the slot.
 - c.** Attach the screw.



- 8.** Attach the case cover.
 - a.** Place the cover on the device.
 - b.** Slide the cover forward.
 - c.** Tighten the screws.



- 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 TVS-hx74 series is compatible with both SATA 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
UX-500P	• Uses a USB 3.2 Gen 1 Type-B interface • Supports SATA HDD/SDD	• USB 3.2 Gen 1 Type-A to Type-B cable • USB 3.2 Gen 1 Type-C to Type-B cable
UX-800P	• Uses a USB 3.2 Gen 1 Type-B interface • Supports SATA HDD/SDD	• USB 3.2 Gen 1 Type-A to Type-B cable • USB 3.2 Gen 1 Type-C to Type-B cable
TR-002	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD	• USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TR-004	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD	• USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TR-004U	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD	• 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/SDD	• 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	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD	• USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02
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

Expansion Unit Model	Description	Required Accessories
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
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
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

Connecting SATA JBOD Expansion Units

To connect the TVS-hx74 to SATA JBOD expansion units, a host bus adapter must be installed on the NAS.

For required accessories 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 on the TVS-h474](#) and [Installing Expansion Cards on the TVS-h674 and TVS-h874](#).



Important

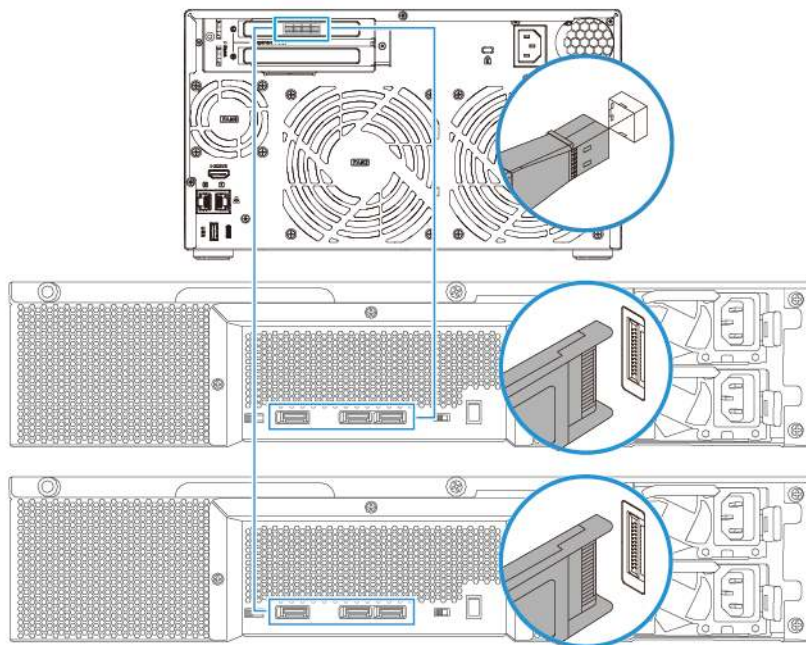
The QNAP QXP host bus adapter is required for connecting the SATA JBOD enclosure to a host device. Third-party host bus adapters are not compatible with QNAP JBOD enclosures.

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



Note

This image shows connecting the TVS-h874 to the TL-R400S JBOD enclosures.



4. Power on the SATA JBOD 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 administrator.
 - b. Go to **Main Menu > Storage & Snapshots > Overview > System**.
 - c. Verify that the expansion units are listed.

Connecting USB Expansion Units

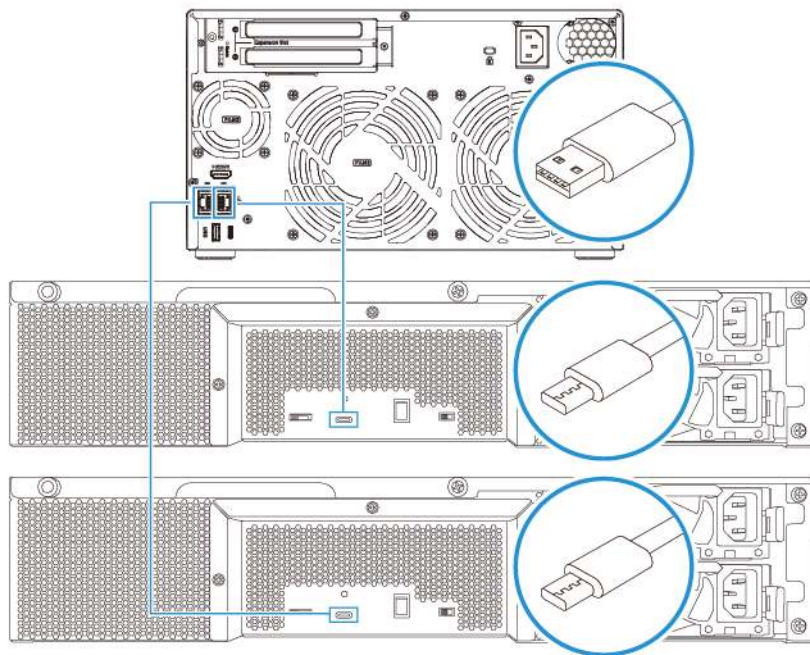
The TVS-hx74 supports connecting a maximum of two USB expansion units.

1. Connect the expansion unit to the NAS.
 - a. Connect the USB cable to the USB Type-B or USB Type-C port on the expansion unit.
 - b. Connect the USB cable to a USB 3.2 Gen 2 Type-A or USB Type-C port on the NAS.



Note

This image shows connecting the TVS-h874 to the TL-R1200-CP expansion enclosures.



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

QuTS hero Installation

The TVS-hx74 uses the QNAP QuTS hero operating system. You can install QuTS hero using any of the following methods.

You can also install the QNAP QTS operating system. If your NAS is connected to the internet, the option to install QTS will appear in the Smart Installation Guide wizard using any of the methods in the table. You can also manually download the QTS 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)	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. For details, see Initializing QuTS hero Using Qfinder Pro.	• 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. • Log into your myQNAPcloud account. • Use myQNAPcloud Link to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard. For details, see Initializing QuTS hero Using the Cloud Installation Website.	• Computer or mobile device • Network cable • myQNAPcloud account • Cloud Key

Initializing QuTS hero Using Qfinder Pro

You can initialize QuTS hero using Qfinder Pro, which is an 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	a. 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.

3. 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.	 Important Use this method only when the device is unresponsive.

Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default: - System administrator password: The default password is the first MAC address in uppercase letters without special characters. For example, if the first MAC address is 00-08-9B-F6-15-75, then the admin password would be 00089BF61575.  Tip You can find the first MAC address with Qfinder Pro or attached to a label on the device listed as MAC1. - 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) - LCD panel password: (blank) - VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

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 QuTS hero 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 QuTS hero 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	• Display a configuration screen. • Move to the next item on a configuration screen.
Select	• 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 QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** 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 Shared Folders Information

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

1. Press **Enter** or **Select**.
The panel displays the NAS name and QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** repeatedly until the panel displays `Main Menu 3. Shared Folders`.
4. Press and hold **Enter**.
The panel displays the name and capacity of the first shared folder.
5. Press and hold **Select**.
Repeat this step as necessary.
The panel displays the name and capacity of the next shared folder.

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 QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** 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 QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** 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 QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.

3. Press **Enter** 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 QuTS hero version.
2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP.`
3. Press **Enter** 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.
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.

System Message	Description
Shared Folder [number] Full	Shared folder is full.
HDD Ejected	Drive has ejected.
Shared Folder [number] Degraded	Shared folder [number] is in degrade mode.
Shared Folder [number] Unmounted	Shared folder [number] has unmounted.
Shared Folder [number] Inactive	Shared folder [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](#) .

LED	Status	Description
System Status	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 disk volume has reached its full capacity. • A disk volume 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 the hard 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).
	Flashes green every 0.5 seconds	• The device is starting up. • The device is not configured. • A drive is not formatted.
	Green	The device is ready.
	Off	• All drives are in standby mode. • The device is powered off.
LAN	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	Green	The network connection is operating at 2.5 Gbps.
	Orange	• The network connection is operating at 1 Gbps. • The network connection is operating at 100 Mbps.
	Off	The network connection is operating at 10 Mbps.

LED	Status	Description
2.5 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	There is no network connection.
Drive	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.
USB	Blue	A USB device connected to the front USB port is detected.
	Off	No USB expansion unit has been detected.
USB One Touch Copy	Flashes blue every 0.5 seconds	- A USB device connected to the USB One Touch Copy port is detected. - A USB device connected to the front USB port is being removed from the device. - A USB device connected to the front USB port is being accessed.
	Blue	A USB device is detected in the front USB port.
	Off	- No USB device is detected. - The NAS has finished copying data to or from the USB device connected to the front USB port.
Expansion	Blue	A QNAP USB or SATA external storage device is connected.
	Off	No expansion unit has been detected.

Audio Alert

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. - The firmware was updated.

Duration	Frequency	Description
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. • The NAS data cannot be copied to the external storage device connected to the USB One Touch Copy port.
	2	• A storage pool is about to reach full capacity. • A storage pool has reached full capacity. • A storage pool status error occurred. • 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 volume status error occurred. • A drive is plugged in or out.
	1	• The NAS is powering off. • The NAS was powered off by force shutdown (hardware shutdown). • The NAS was powered on successfully and is ready.
Long and short beeps	1 long and 2 short beeps	The JBOD expansion unit has been removed.

4. 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.

Data and Settings	After NAS 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.
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.

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

Creating a One-Way Sync Job

- On the source NAS, go to **App Center > HBS 3 > Sync**.
- Click **Sync Now**.
- Select **One-way Sync Job**.
The **Create a Sync Job** window appears.
- Click **Remote NAS**.
- Click **Add New Account**.
The **Create a Storage Space** window appears.
- 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.

- 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.

- Click **Create**.
- 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.

Data and Settings	After NAS Migration
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 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.
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.

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	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.
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 & 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 shared folder 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, and RAID-TP group from degraded mode.

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
Single	Yes	1	N/A
JBOD	Yes	≥ 2	N/A
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
Community Forum	https://forum.qnap.com
QNAP Accessories Store	https://shop.qnap.com

6. 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

Qfinder Pro

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

QTS

QNAP NAS operating system

QuTS hero

QNAP NAS operating system featuring ZFS file system

7. Notices

This chapter provides information about warranty, disclaimers, licensing, and federal regulations.

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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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For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

Terms and Conditions

1. Definitions.

"This License" refers to version 3 of the GNU General Public License.

“Copyright” also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

“The Program” refers to any copyrightable work licensed under this License. Each licensee is addressed as “you”. “Licensees” and “recipients” may be individuals or organizations.

To “modify” a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a “modified version” of the earlier work or a work “based on” the earlier work.

A “covered work” means either the unmodified Program or a work based on the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

2. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it.

“Object code” means any non-source form of a work.

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END OF TERMS AND CONDITIONS

CE Notice



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UKCA Notice



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FCC Notice

FCC Class B Notice



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

**Note**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

**Important**

Any modifications made to this device that are not approved by QNAP Systems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

VCCI Notice

VCCI-B

BSMI Notice

SJ/T 11364-2006



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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
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