

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

# TVS-hx74T

TVS-h674T

TVS-h874T

## User Guide

# Contents

## 1. Important Information

Safety information.....	3
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## 2. Product Overview

About the TVS-hx74T.....	6
Hardware specifications.....	6
Package contents.....	10
Components.....	10
Front panel.....	10
Rear panel.....	12
Right panel.....	13
Left panel.....	14
Drive numbering.....	15
Installation requirements.....	16
Setting up the NAS.....	16

## 3. Installation and Configuration

Hardware installation.....	18
Drive installation.....	18
Replacing memory modules.....	29
Installing expansion cards.....	32
Expansion unit installation.....	36
QuTS hero installation.....	40
Initializing QuTS hero using Qfinder Pro.....	41
Initializing QuTS hero using the cloud installation website.....	43

## 4. Basic Operations

Power button.....	47
Reset button.....	47
USB One Touch Copy button.....	48
LCD panel.....	48
Viewing TCP/IP settings.....	48
Configuring TCP/IP settings.....	49
Viewing drive information.....	50
Viewing shared folder information.....	50
Viewing system information.....	50
Powering off the NAS.....	51
Restarting the NAS.....	51
Changing the LCD password.....	51
LCD error messages.....	52
LEDs.....	52
Audio alert.....	56

## 5. NAS Migration

QTS NAS Migration.....	58
NAS migration requirements.....	58
Status and setting changes after NAS migration.....	58
Migrating a NAS.....	60
Migrating NAS data using HBS 3.....	60
QuTS hero NAS Migration.....	64
NAS migration requirements.....	64
Status and setting changes after NAS migration.....	64
Migrating a NAS.....	66

## 6. Troubleshooting

Forcing Qfinder Pro or myQNAPcloud to locate the NAS.....	67
Hot-swapping failed drives.....	67
Recovering unintentionally removed healthy drives.....	68
Support and other resources.....	69

## 7. Glossary

Cloud Key.....	70
myQNAPcloud.....	70
myQNAPcloud Link.....	70
Qfinder Pro.....	70
QTS.....	70
QuTS hero.....	70

## 8. Notices

Limited warranty.....	71
Disclaimer.....	71
Copyright and trademarks.....	71
GNU General Public License.....	72
CE notice.....	81
UKCA notice.....	81
FCC notice.....	81
VCCI notice.....	82
BSMI notice.....	82
SJ/T 11364-2006.....	83

# 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 the QNAP TVS-hx74T NAS.

### About the TVS-hx74T

The TVS-hx74T series is powered by an 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

#### Tip

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

Model	Ordering P/N	Drive bays	Memory
TVS-h674T	TVS-h674T-i5-32G	6	32 GB
TVS-h874T	TVS-h874T-i7-32G	8	32 GB
	TVS-h874T-i9-64G	8	64 GB

Component	TVS-h674T		TVS-h874T	
	TVS-h674T-i5-32G	TVS-h874T-i7-32G	TVS-h874T-i9-64G	
Processor				
CPU	Intel® Core™ i5-12400	Intel® Core™ i7	Intel® Core™ i9	
Frequency	6-core/12-thread 4.4 GHz burst	12-core (8P+4E)/20-thread 4.9 GHz burst	16-core (8P+8E)/24-thread 5.1 GHz burst	
Architecture	x86 64-bit			
Encryption engine	AES-NI			
Graphics	Intel® UHD Graphics 730	Intel® UHD Graphics 770	Intel® UHD Graphics 770	
Memory				

Component	TVS-h674T	TVS-h874T	
	TVS-h674T-i5-32G	TVS-h874T-i7-32G	TVS-h874T-i9-64G
Pre-installed memory	32 GB RAM: 2 x 16 DDR4 SODIMM	32 GB RAM: 2 x 16 DDR4 SODIMM	64 GB RAM: 2 x 32 DDR4 SODIMM
Memory slots	2 x SODIMM DDR4		
	<p><b>Important</b></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> <li>• Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.</li> </ul>		
Maximum memory	64 GB (2 x 32 GB)		
Flash memory	5 GB (dual-boot OS protection)		
Storage			
Drive bays	6 x 3.5-inch SATA 6 Gbps	8 x 3.5-inch SATA 6 Gbps	8 x 3.5-inch SATA 6 Gbps
	<p><b>Note</b></p> <p>The drive bays are backward compatible with SATA 3 Gbps drives.</p>		
Drive compatibility	<p>3.5-inch bays:</p> <ul style="list-style-type: none"> <li>• 3.5-inch SATA hard disk drives</li> <li>• 2.5-inch SATA solid-state drives</li> </ul> <p><b>Tip</b></p> <p>For the list of compatible drive models and expansion cards, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a>.</p>		
M.2 SSD slots	2 x PCIe Gen 4 x4 NVMe		
SSD cache acceleration support	This device supports SSD cache acceleration for all drives.		



Component	TVS-h674T	TVS-h874T	
	TVS-h674T-i5-32G	TVS-h874T-i7-32G	TVS-h874T-i9-64G
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  <b>Note</b> These ports provide 2.5 Gbps, 1 Gbps, 100 Mbps, and 10 Mbps network connection speeds.		
External I/O Ports & Expansion Slots			
PCIe slots	<ul style="list-style-type: none"> <li>Slot 1: PCIe Gen 4 x16</li> <li>Slot 2: PCIe Gen 4 x4</li> </ul> <b>Tip</b> For the list of compatible drive models and expansion cards, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a> .		
USB ports	<ul style="list-style-type: none"> <li>1 x USB 3.2 Gen 2 Type-C</li> <li>2 x USB 3.2 Gen 2 Type-A</li> </ul>		
HDMI ports	1 x HDMI 1.4b		
Interface			
Display panel	Monochrome backlit LCD display		
Buttons	<ul style="list-style-type: none"> <li>Power</li> <li>Reset</li> <li>LCD enter</li> <li>LCD select</li> <li>USB One Touch Copy</li> </ul>		
Dimensions			
Form factor	Tower		

Component	TVS-h674T	TVS-h874T	
	TVS-h674T-i5-32G	TVS-h874T-i7-32G	TVS-h874T-i9-64G
Dimensions (H x W x D)	188.2 x 264.3 x 280.8 mm (7.41 x 10.41 x 11.06 in)	188.2 x 329.3 x 280.8 mm (7.41 x 12.96 x 11.06 in)	188.2 x 329.3 x 280.8 mm (7.41 x 12.96 x 11.06 in)
Net weight	6.36 kg (14.02 lbs)	7.34 kg (16.18 lbs)	7.34 kg (16.18 lbs)
Others			
Power supply unit	1 x 350W, 100-240V AC, 50/60Hz		
System battery	CR2032 lithium battery (3V, 225 mAh)		
	<p><b>Warning</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>		
	<p><b>Important</b></p> <p>Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.</p>		
Fans	<ul style="list-style-type: none"> <li>System: 2 x 92 mm, 12V DC fans</li> <li>CPU: 1 x 60 mm, 12V DC fan</li> </ul>	<ul style="list-style-type: none"> <li>System: 2 x 120 mm, 12V DC fans</li> <li>CPU: 1 x 60 mm, 12V DC fan</li> </ul>	<ul style="list-style-type: none"> <li>System: 2 x 120 mm, 12V DC fans</li> <li>CPU: 1 x 60 mm, 12V DC fan</li> </ul>
Operating temperature	0°C to 40°C (32°F to 104°F)		
Relative humidity	<ul style="list-style-type: none"> <li>Non-condensing relative humidity: 5% to 95%</li> <li>Wet-bulb temperature: 27°C (80.6°F)</li> </ul>		

**Tip**

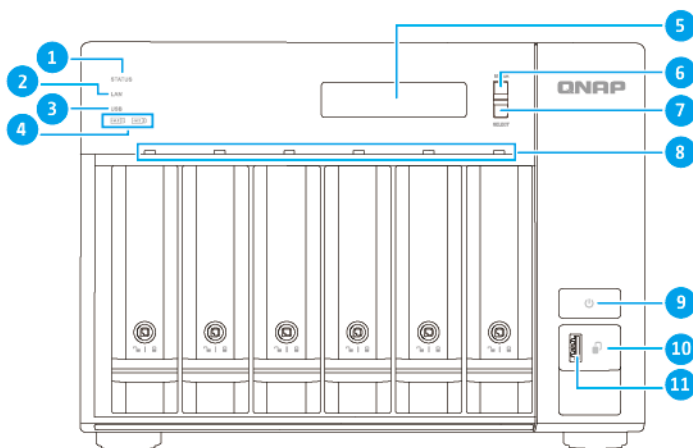
For the list of compatible drive models and expansion cards, go to <https://www.qnap.com/compatibility>.

## Package contents

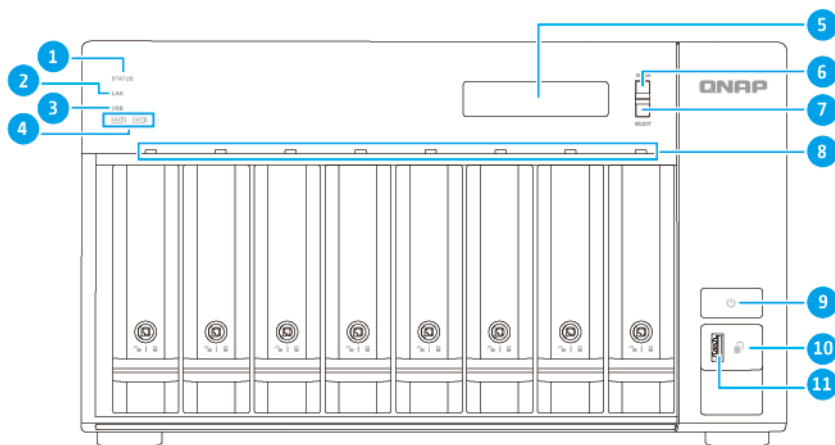
Item	Quantity
TVS-hx74T NAS	1
Power cords	1
Ethernet cable	1 x Cat5e (RJ45)
Screws for 3.5-inch drives	<ul style="list-style-type: none"> <li>• TVS-h674T: 24</li> <li>• TVS-h874T: 32</li> </ul>
Screws for 2.5-inch drives	<ul style="list-style-type: none"> <li>• TVS-h674T: 18</li> <li>• TVS-h874T: 24</li> </ul>
Heatsinks for M.2 SSDs	2
Drive tray keys	2
Quick Installation Guide (QIG)	1

## Components

### Front panel



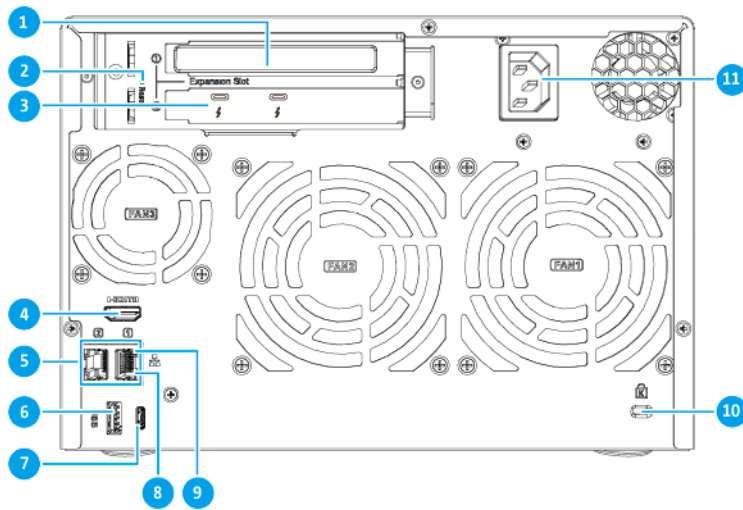
#### TVS-h674T



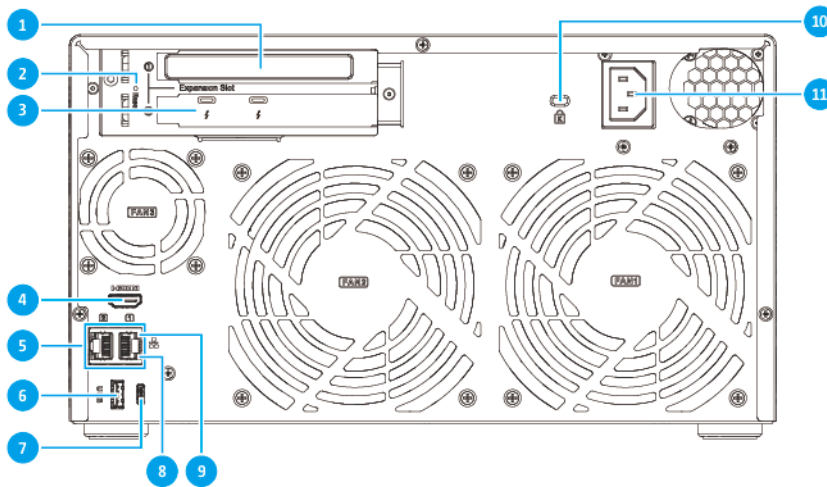
### TVS-h874T

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



### TVS-h674T

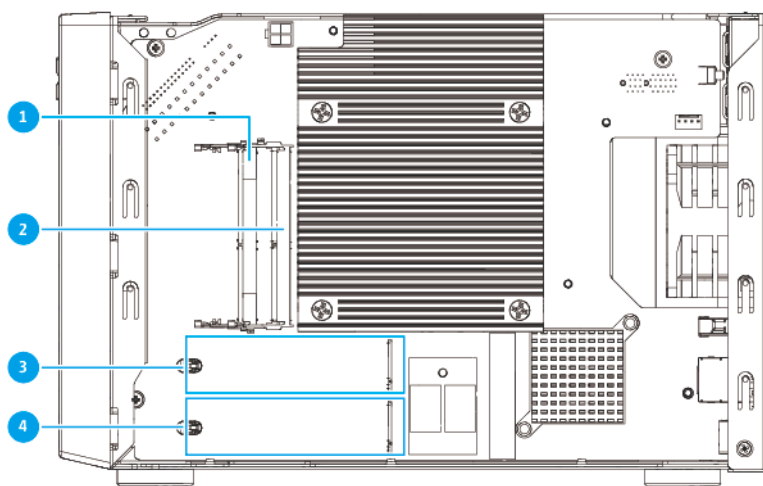


### TVS-h874T

No.	Component	No.	Component
1	PCIe full-height cover	7	USB 3.2 Gen 2 Type-C port
2	Reset button	8	2.5 Gigabit Ethernet speed LED

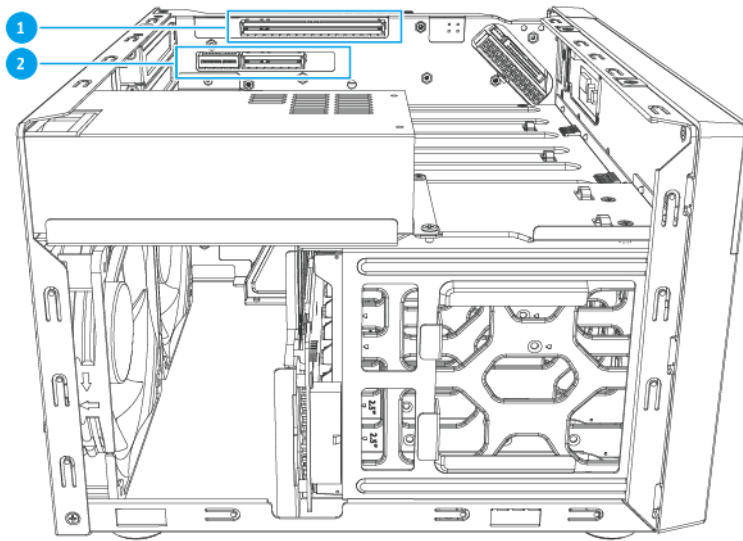
No.	Component	No.	Component
3	PCIe full-height cover	9	2.5 Gigabit Ethernet activity LED
	<p><b>Note</b></p> <p>This slot is preinstalled with a Thunderbolt™ 4 AIC expansion card.</p>		
4	HDMI port	10	Kensington security slot
5	2.5 Gigabit Ethernet ports (RJ45)	11	Power input
6	USB 3.2 Gen 2 Type-A port	-	-

## Right panel



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

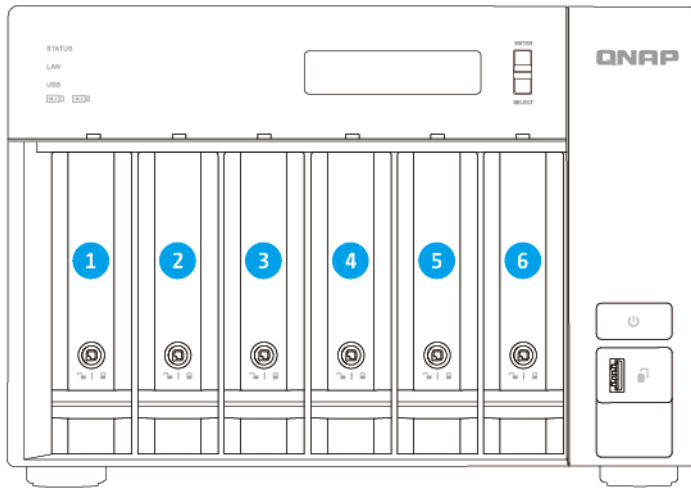
## Left panel



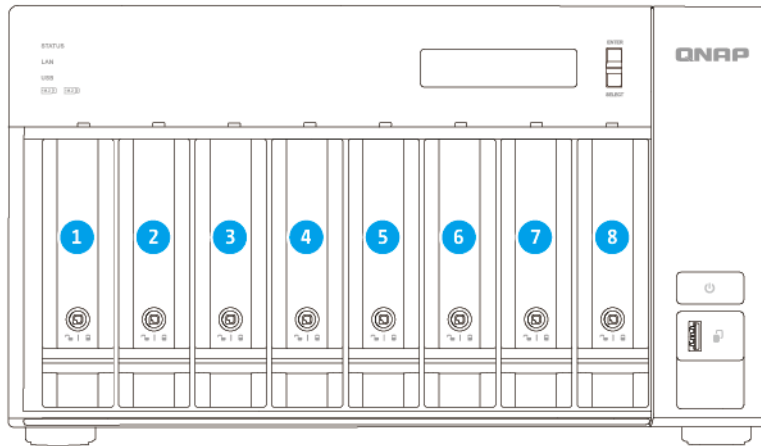
No.	Component	No.	Component
1	PCIe slot 1 (PCIe 4.0 x16)	2	PCIe slot 2 (PCIe 4.0 x4)

**Note**  
This slot is preinstalled with a Thunderbolt™ 4 AIC expansion card.

## Drive numbering



**TVS-h674T**



**TVS-h874T**



## Installation requirements

Category	Item
Environment	<ul style="list-style-type: none"> <li>Room temperature: 0°C to 40°C (32°F to 104°F)</li> <li>Non-condensing relative humidity: 5% to 95%</li> <li>Wet-bulb temperature: 27°C (80.6°F)</li> <li>Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals</li> </ul>
Hardware and peripherals	<ul style="list-style-type: none"> <li>Storage drives For the list of compatible drive models, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a>.</li> <li>Network cable</li> <li>Qfinder Pro installer</li> <li>Computer</li> </ul>
Tools	<ul style="list-style-type: none"> <li>Phillips #1 or #2 screwdriver</li> <li>Anti-static wrist strap</li> </ul>

## 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 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](#).

- 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.

## 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, and expansion units.

### Drive installation

The TVS-hx74T series is compatible with 3.5-inch hard drives, 2.5-inch solid-state drives, and M.2 solid-state drives.

### Installing 3.5-inch hard drives 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.

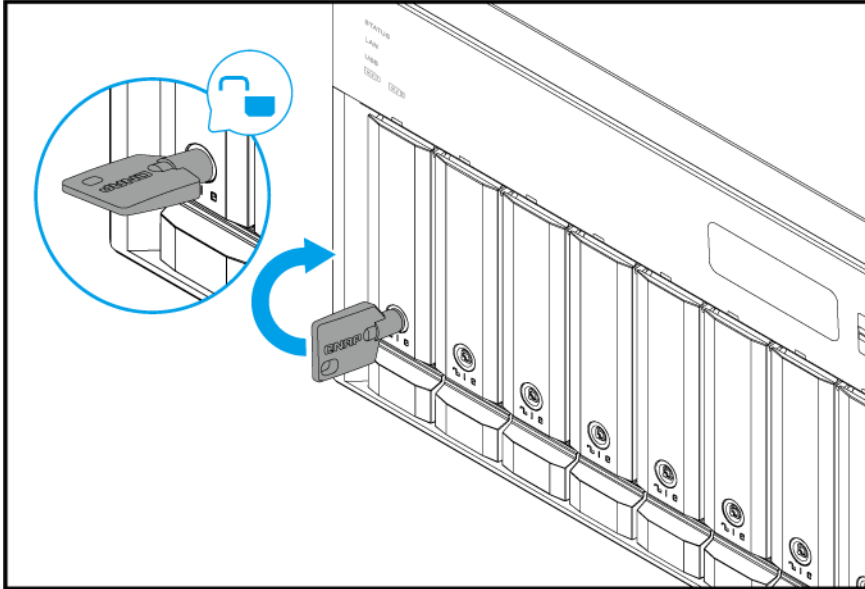
1. Power off the NAS.
2. Remove the drive tray.
  - a. Optional: Unlock the tray.

#### Note

The preinstalled drive trays come unlocked.

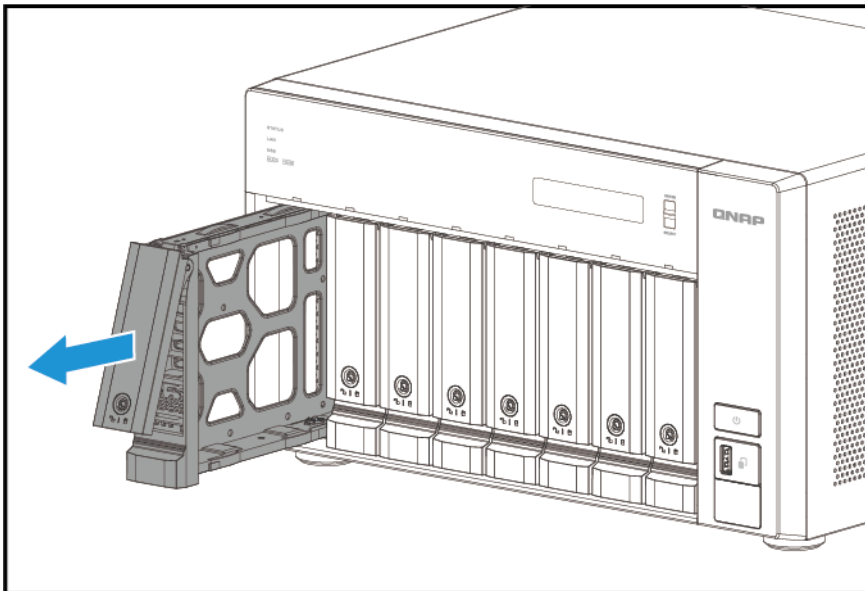
**Important**

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

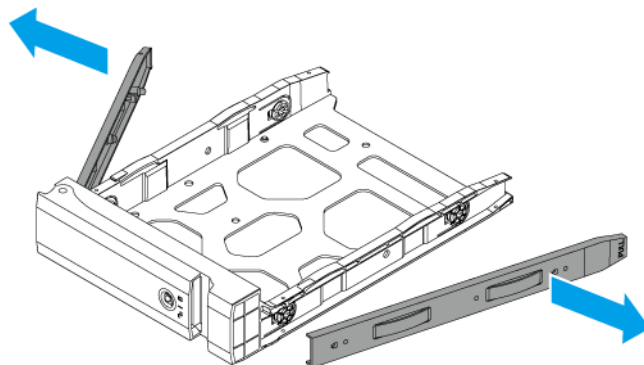


b. Pull the tray handle outward.

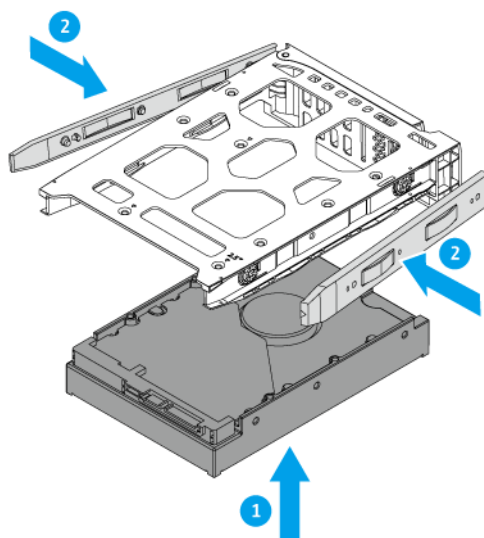
c. Pull the tray out.



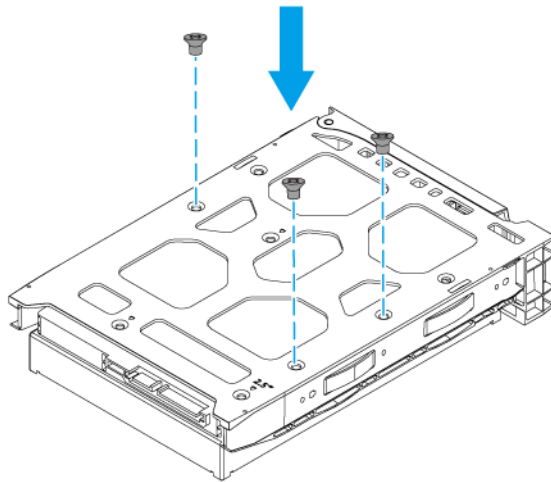
3. Install a drive on the tray.
  - a. Remove the fastening panels from the sides of the drive tray.



- 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.

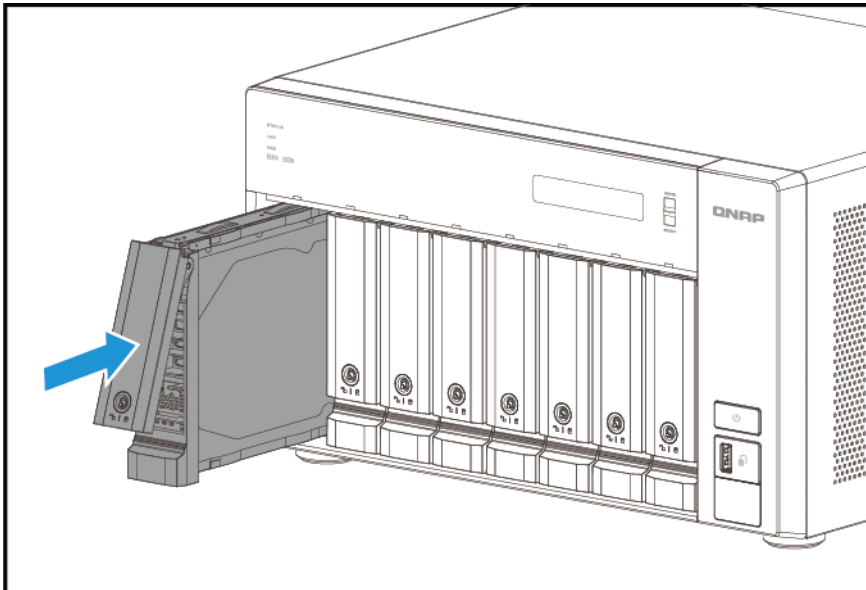


- d.** Optional: Attach the screws to further secure the drive.

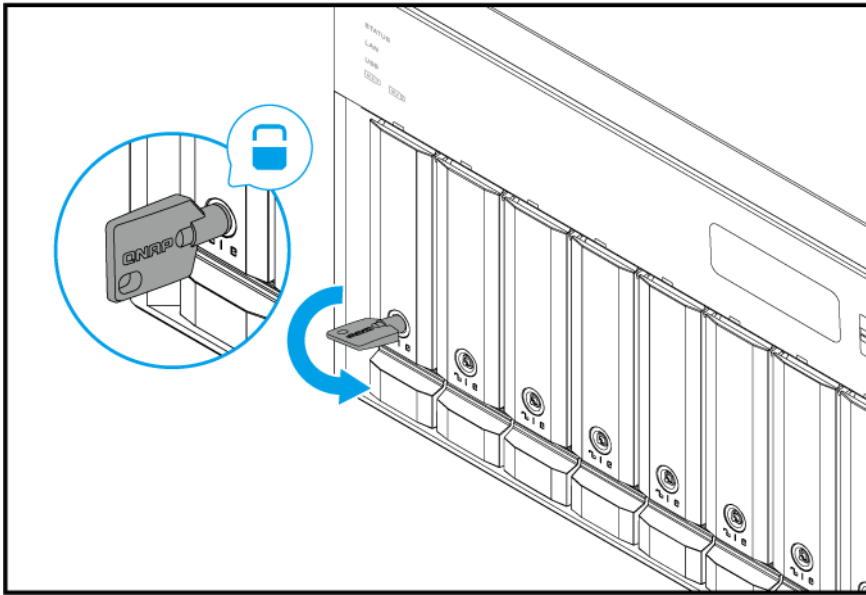


- 4.** Load the tray into the bay.

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



- c. Lock the tray.



5. Power on the NAS.

## Installing 2.5-inch 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.

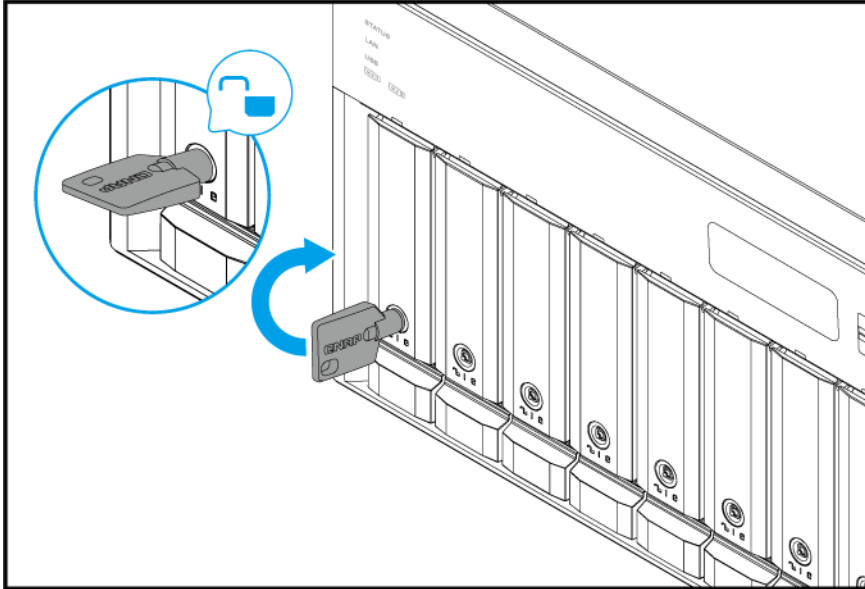
1. Power off the NAS.
2. Remove the drive tray.
  - a. Optional: Unlock the tray.

### Note

The preinstalled drive trays come unlocked.

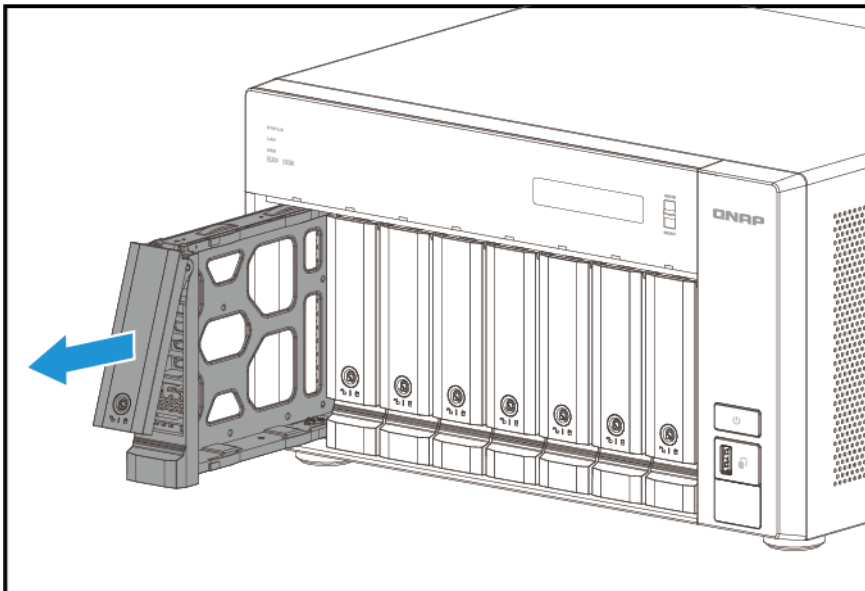
**Important**

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



b. Pull the tray handle outward.

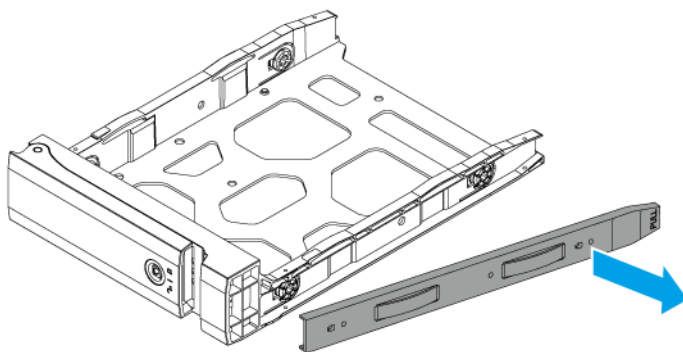
c. Pull the tray out.





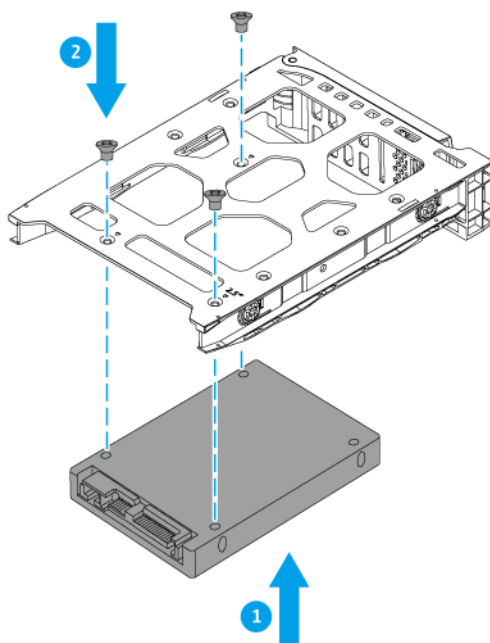
**3. Install a drive on the tray.**

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

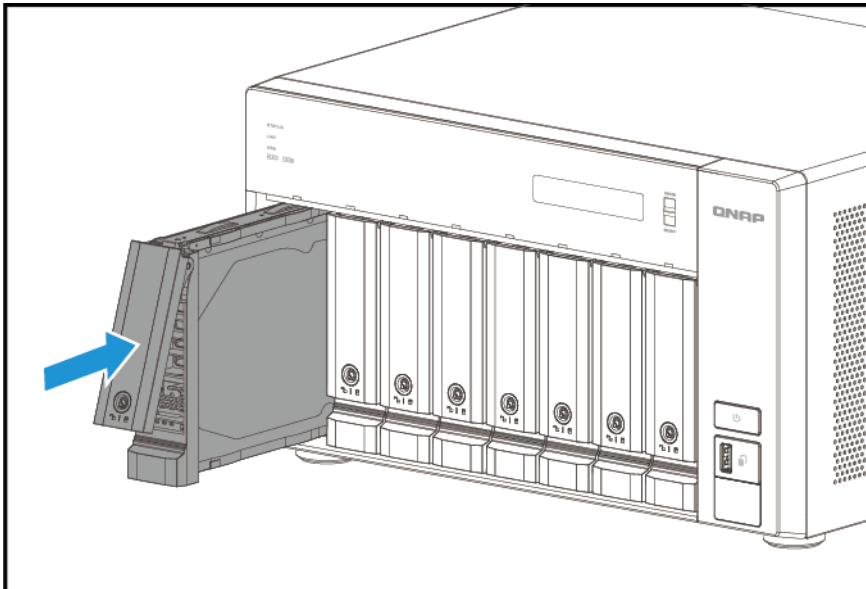


- b.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.

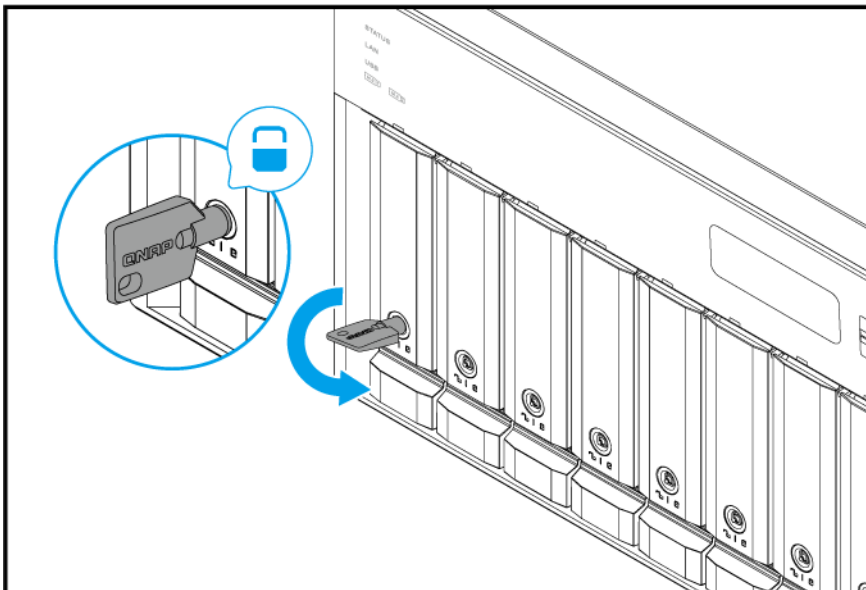
- c.** Attach the screws.



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-hx74T series has two M.2 SSD slots on the [Right panel](#). 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.



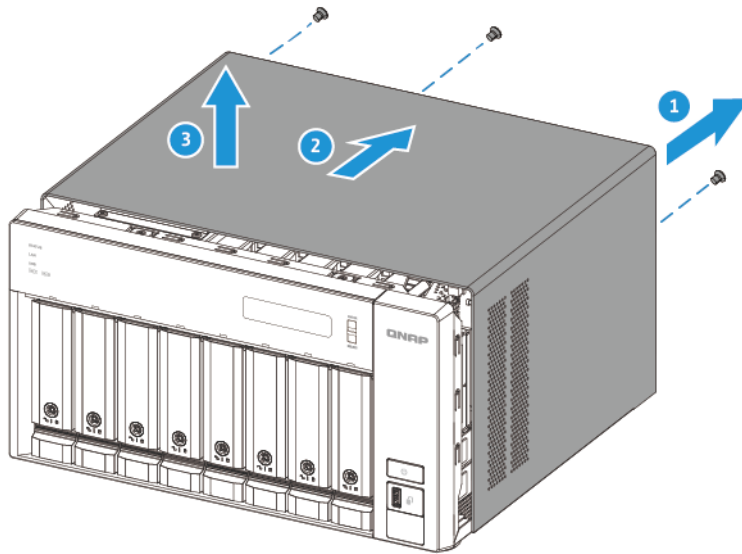
- **Other moving components:** Keep your hands and other body parts away from other moving components.

**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.

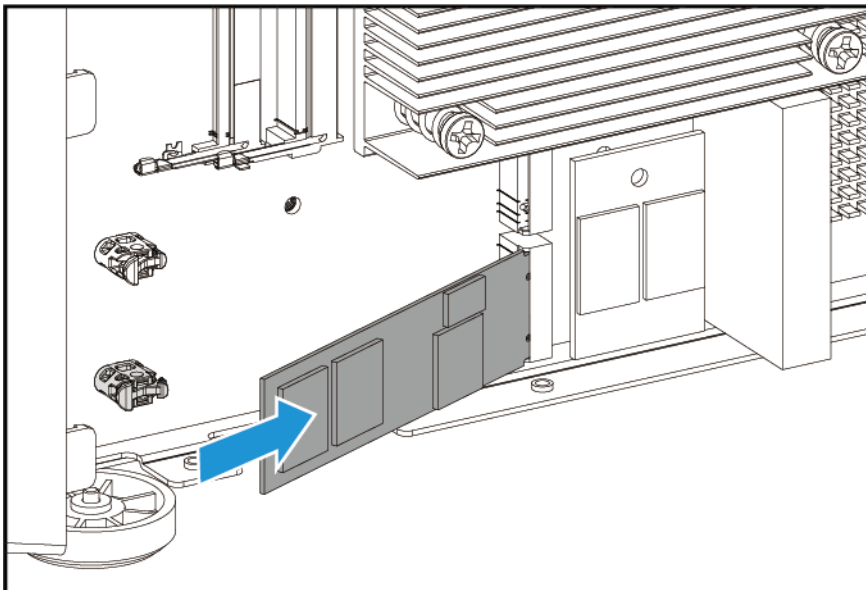
1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - a. Remove the screws.
  - b. Slide the cover back.

- c. Lift the cover off the device.

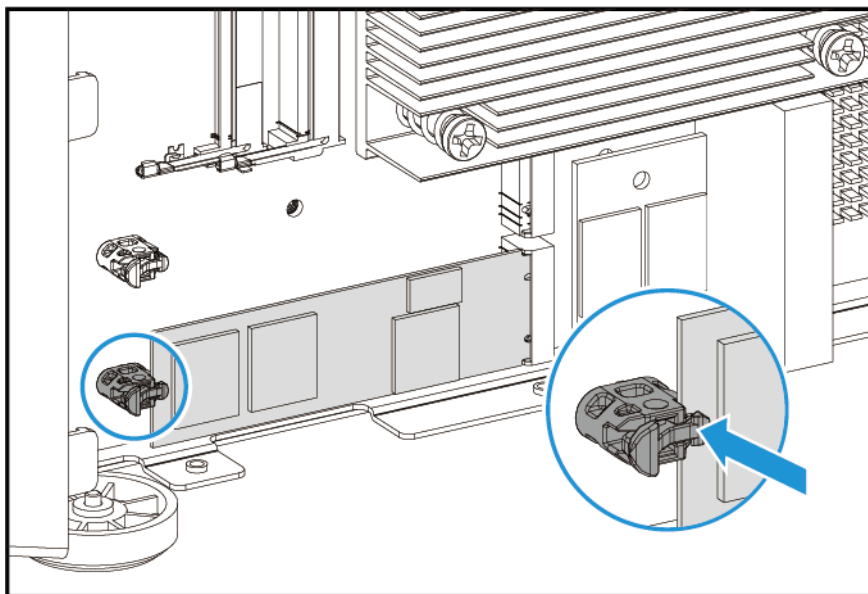


5. Install the M.2 SSD.

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



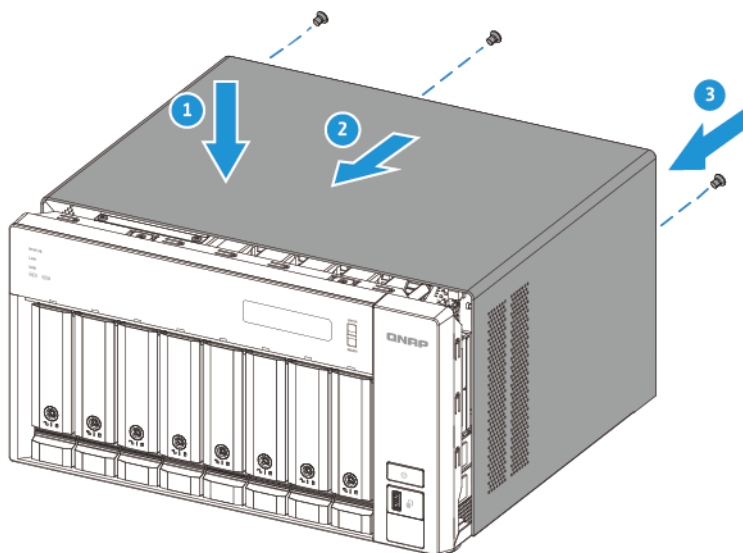
- c. Carefully press the M.2 SSD down until the spacer locks the drive into place.



- 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. Attach 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-hx74T 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.

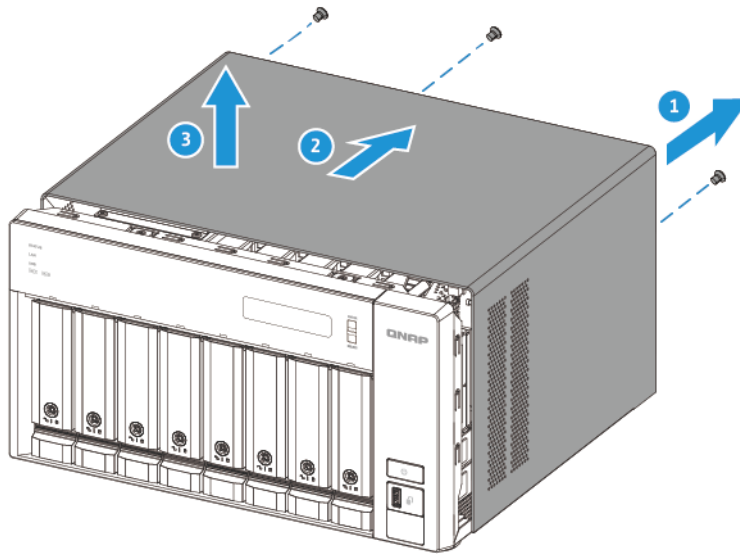


**Other moving components:** Keep your hands and other body parts away from other moving components.

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

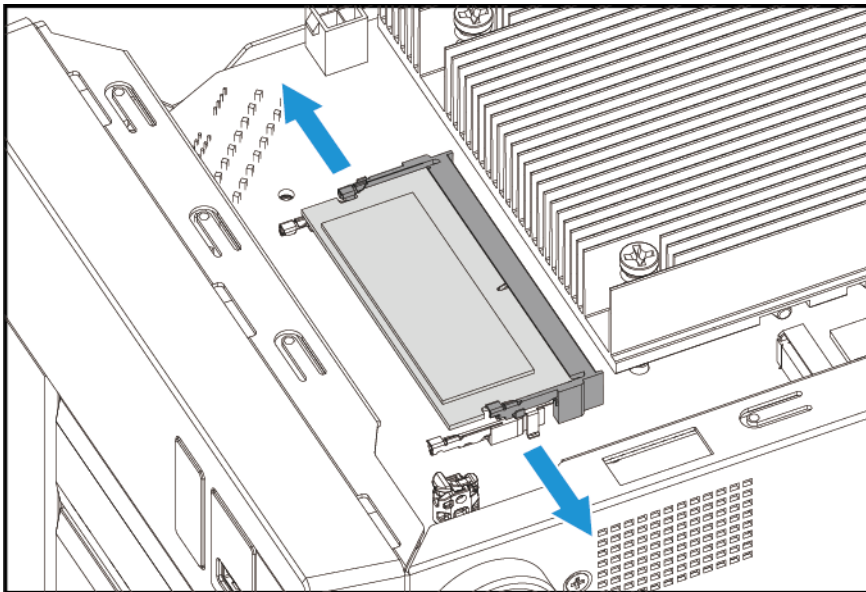
1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - a. Remove the screws.
  - b. Slide the cover back.

- c. Lift the cover off the device.



5. Remove an existing module.

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



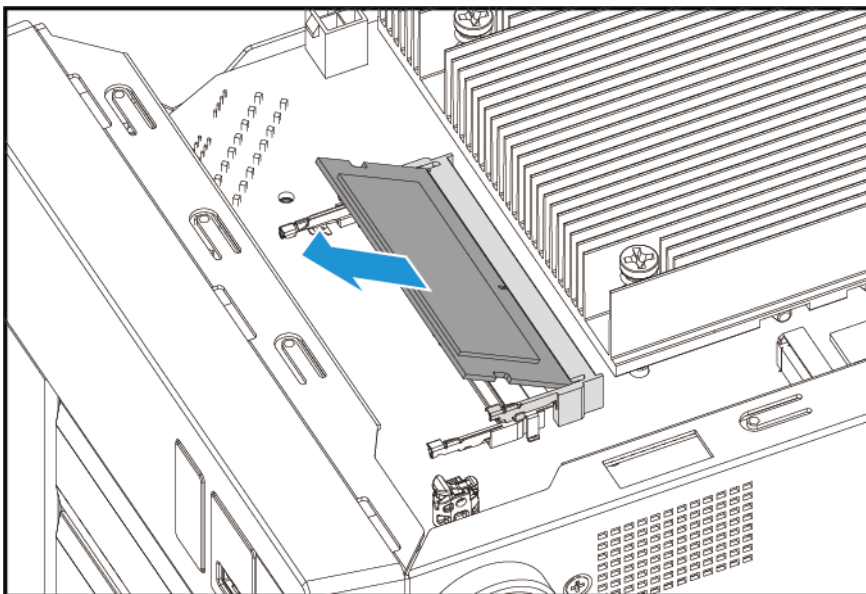
- b. Verify that the module has tilted upward and is completely released from the slot.

**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.

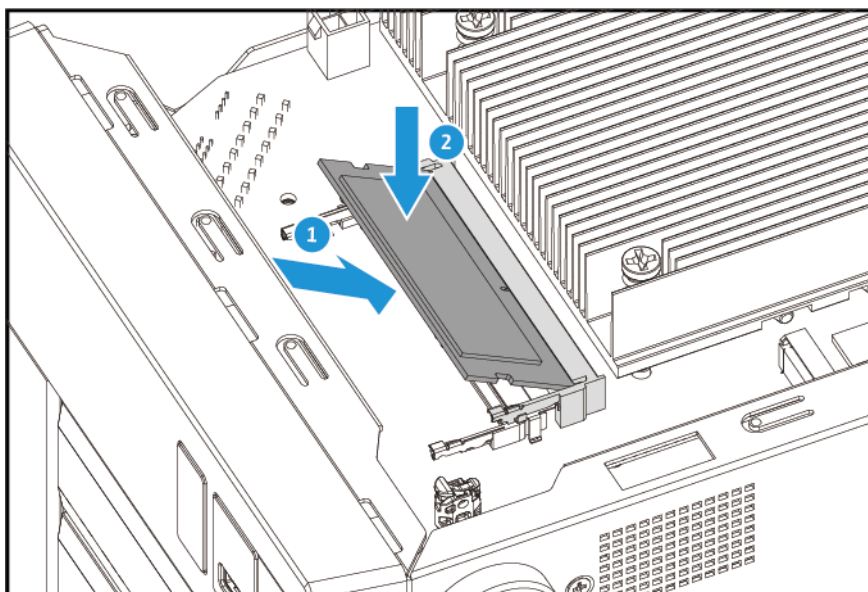
- d. Carefully slide the module out of the slot.



**Warning**

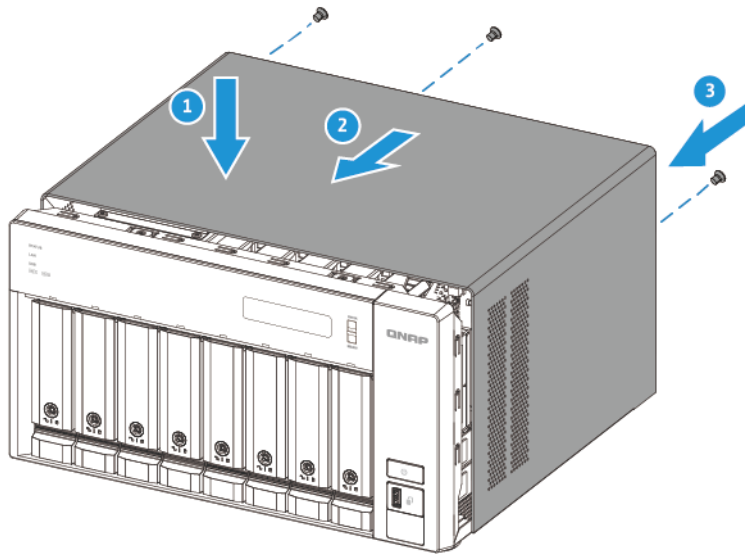
- Do not touch the internal components, particularly the metal connectors.
- Do not bend the module.

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. Attach 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

The TVS-hx74T 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-hx74T.

**Warning**

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

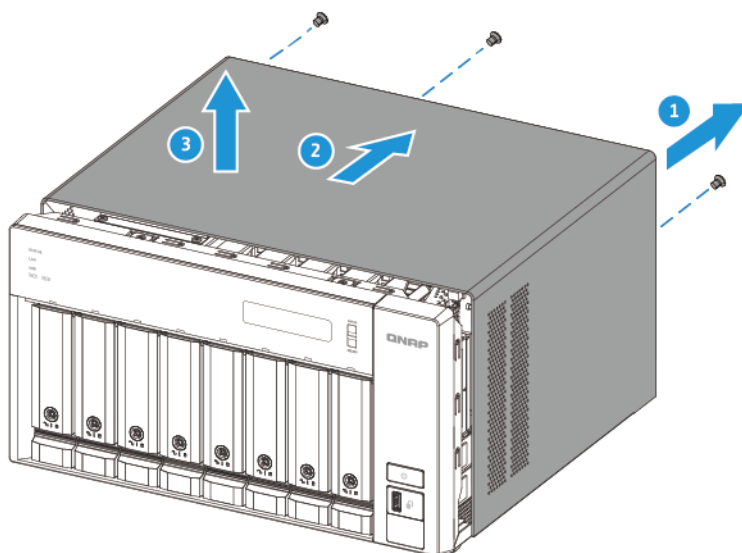


**Other moving components:** Keep your hands and other body parts away from other moving components.

**Note**

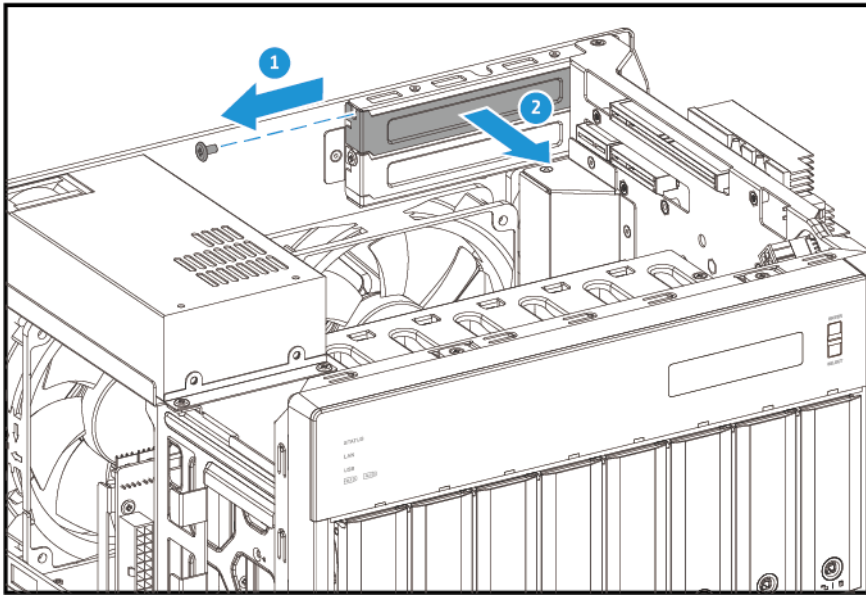
Check the expansion card power supply requirements and compatibility list before installation. For more information, see [www.qnap.com/compatibility](http://www.qnap.com/compatibility).

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. Remove the screws that secure the top cover to the chassis.
  - b. Slide the cover back.
  - c. Lift the cover off the device.



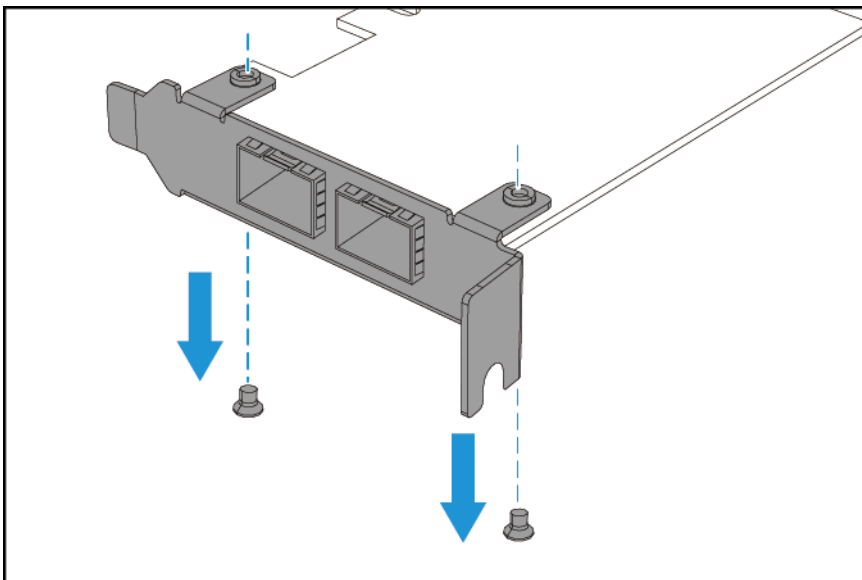
5. Remove the PCIe cover.
  - a. Remove the screw that secures the cover to the bracket.

- b.** Pull the cover away from the slot.



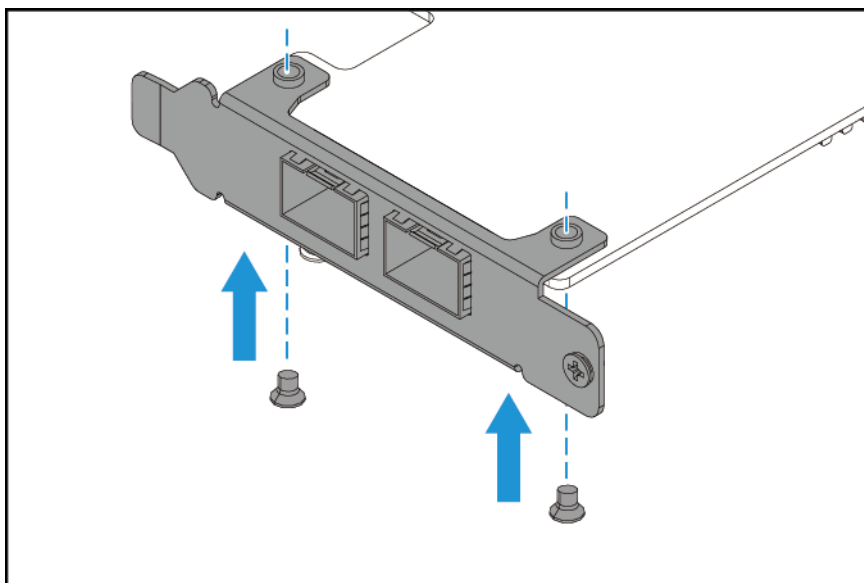
- 6.** Optional: Attach the QNAP bracket to the expansion card.

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



- b.** Carefully pull the bracket away from the card.

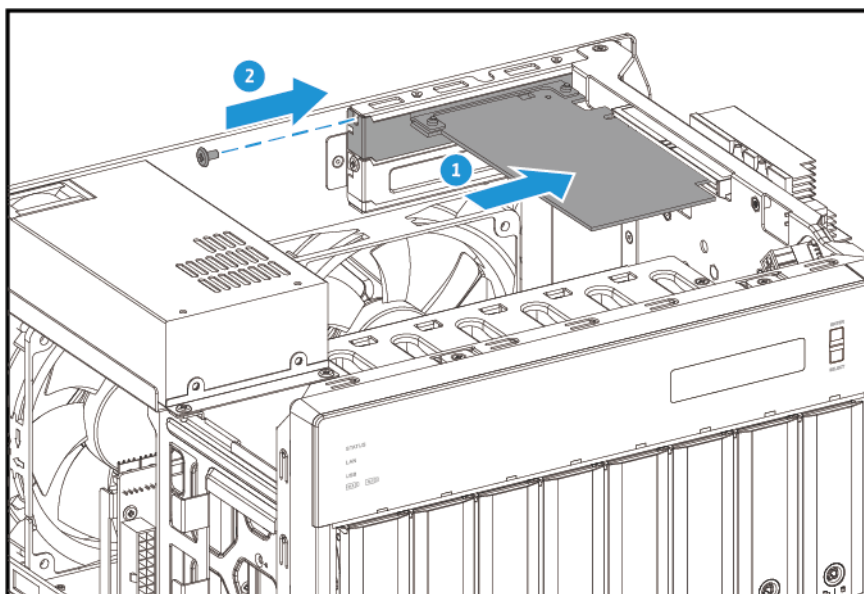
- c. Attach the QNAP bracket to the card using the same screws.



- d. Verify that the bracket does not move.

7. Install the expansion card.

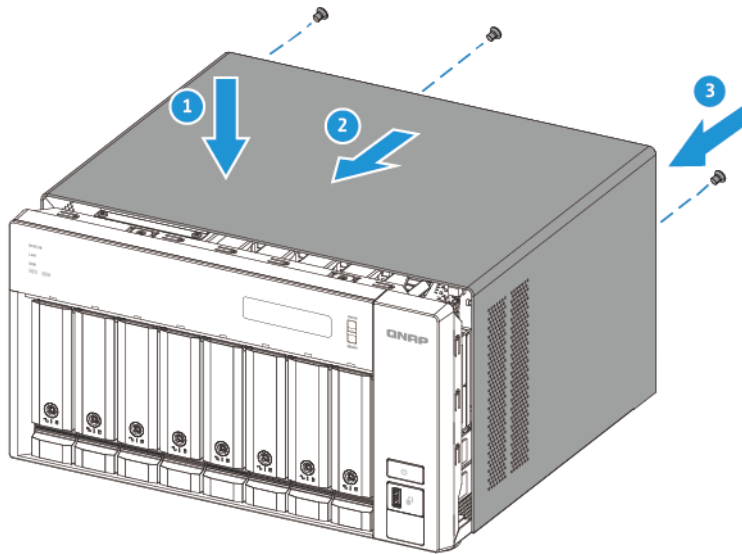
- a. Hold the card by the edges.  
b. Insert the card into the slot.  
c. Attach the screw.



8. Attach the case cover.

- a. Place the cover on the device.  
b. Slide the cover forward.

- c. Attach the screws connecting the top cover to the chassis.



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-hx74T 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	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-B interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 1 Type-A to Type-B cable</li> <li>• USB 3.2 Gen 1 Type-C to Type-B cable</li> </ul>
UX-800P	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-B interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 1 Type-A to Type-B cable</li> <li>• USB 3.2 Gen 1 Type-C to Type-B cable</li> </ul>

Expansion Unit Model	Description	Required Accessories
TR-002	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> </ul>
TR-004	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> </ul>
TR-004U	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 1 Type-A to Type-C cable</li> <li>• RAIL-B02</li> </ul>
TL-D800C	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 2 Type-C interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> </ul>
TL-R1200C-RP	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 2 Type-C interface</li> <li>• Supports SATA HDD/SDD</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• RAIL-B02</li> </ul>
TL-D400S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 connector cable</li> <li>• QXP-400eS-A1164 host bus adapter</li> </ul>
TL-D800S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 2 x SFF-8088 connector cables</li> <li>• QXP-800eS-A1164 host bus adapter</li> </ul>
TL-D1600S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 4 x SFF-8088 to SFF-8644 connector cables</li> <li>• QXP-1600eS-A1164 host bus adapter</li> </ul>
TL-R400S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 connector cable</li> <li>• QXP-400eS-A1164 host bus adapter</li> <li>• RAIL-B02</li> </ul>

Expansion Unit Model	Description	Required Accessories
TL-R1200S-RP	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 3 x SFF-8088 to SFF-8644 connector cables</li> <li>• QXP-1600eS-A1164 host bus adapter</li> <li>• RAIL-B02</li> </ul>

## Connecting SATA JBOD expansion units

To connect the TVS-hx74T 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](#).

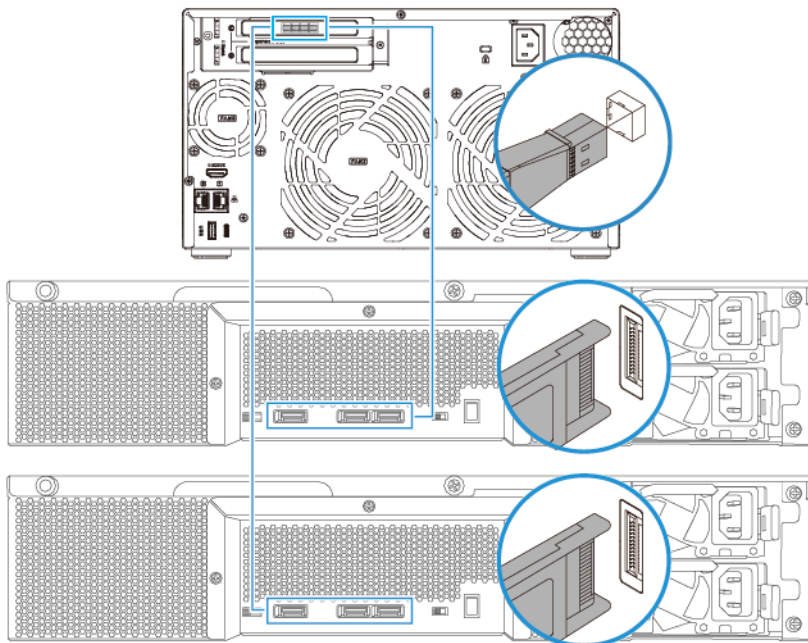
### Important

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.

**Note**

This image shows connecting the TVS-h874T 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

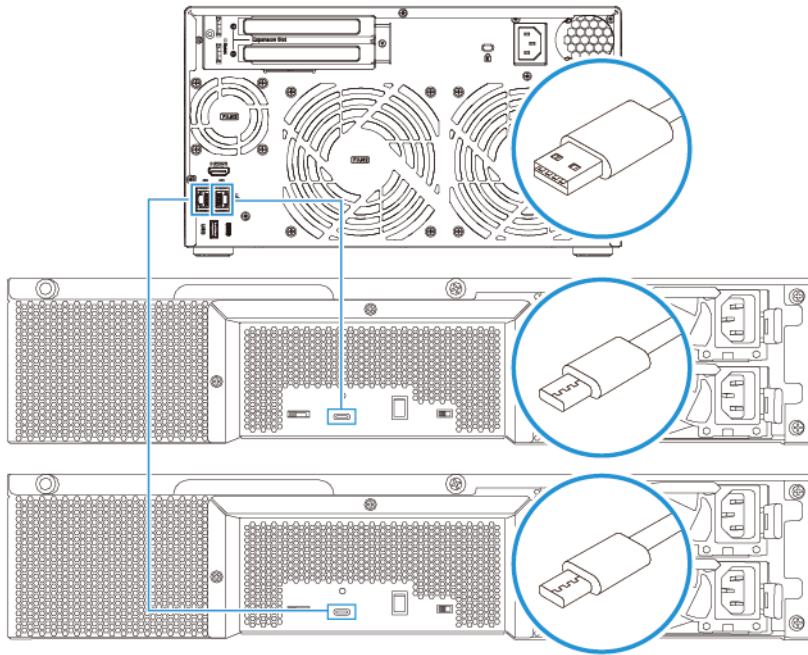
The TVS-hx74T supports connecting a maximum of two USB expansion units.



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-h874T to the TL-R1200C-RP 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-hx74T 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)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> <li>• Locate the NAS using Qfinder Pro.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p>For details, see <a href="#">Initializing QuTS hero using Qfinder Pro</a>.</p>	<ul style="list-style-type: none"> <li>• Computer</li> <li>• Network cable</li> <li>• Qfinder Pro installer</li> </ul>
Cloud installation	<p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> <li>• Scan the QR code on the NAS.</li> <li>• Log into your myQNAPcloud account.</li> <li>• Use myQNAPcloud Link to remotely access your NAS.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p>For details, see <a href="#">Initializing QuTS hero using the cloud installation website</a>.</p>	<ul style="list-style-type: none"> <li>• Computer or mobile device</li> <li>• Network cable</li> <li>• myQNAPcloud account</li> <li>• Cloud Key</li> </ul>

## Initializing QuTS hero using Qfinder Pro

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

**Warning**

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

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

**Note**

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

4. Locate the NAS in the list and then double-click the name or IP address.  
The **Smart Installation Guide** opens in the default web browser.
5. If the screen shows a different operating system, click **QuTS hero**.

#### Note

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

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

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

Installation methods	Steps
Automatic	Click <b>Start</b> . Automatically searches for available firmware updates and installs firmware.
Manual installation	<ol style="list-style-type: none"> <li>a. Click <b>Manual Installation</b>. The <b>Install Firmware</b> window appears.</li> <li>b. Click <b>Browse</b>. The upload file window appears.</li> <li>c. Select file.</li> <li>d. Click <b>Open</b>. Starts firmware installation.</li> </ol>
Skip	Click <b>Skip</b> . 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 <b>Start</b> . Automatically searches for available firmware updates and installs firmware.
Manual installation	<p><b>a.</b> Click <b>Manual Installation</b>. The <b>Install Firmware</b> window appears.</p> <p><b>b.</b> Click <b>Browse</b>. The upload file window appears.</p> <p><b>c.</b> Select file.</p> <p><b>d.</b> Click <b>Open</b>. Starts firmware installation.</p>
Skip	Click <b>Skip</b> . Skips firmware installation.

11. Specify the following information

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

#### Important

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

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

12. Click **Next**.

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

**Tip**

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

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

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

16. Click **Next**.

17. Review the settings.

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

**Warning**

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

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

## 4. Basic Operations

This chapter describes basic NAS operations.

### Power button

Operation	User Action	Result
Power on	Press the button once.	The device powers on.
Power off	Press and hold the button for 1.5 seconds.	The device powers off.
Force power off	Press and hold the button for 5 seconds.	The device powers off.  <div style="background-color: #fff9c4; padding: 10px; border-radius: 5px;"> <p><b>Important</b> Use this method only when the device is unresponsive.</p> </div>

### Reset button

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"> <li>• System administrator password: For details on the default password, see <a href="#">this FAQ</a>.</li> <li>• TCP/IP configuration: <ul style="list-style-type: none"> <li>• Obtain IP address settings automatically via DHCP</li> <li>• Disable jumbo frames</li> <li>• If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".</li> </ul> </li> <li>• System port: 8080 (system service port)</li> <li>• Security level: Low (Allow all connections)</li> <li>• LCD panel password: (blank)</li> <li>• VLAN: Disabled</li> </ul>



Operation	User Action	Result
Advanced system reset	Press and hold the button for 10 seconds.	<p>The default factory settings are restored.</p> <ul style="list-style-type: none"> <li>To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</li> </ul>

## USB One Touch Copy button

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

This feature supports incremental backups. The QNAP device 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 shared folders

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

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 **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 shared folder 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 **Select** 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 **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 QuTS hero 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 QuTS hero 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 QuTS hero 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
<b>Enter</b>	Move to the next item in the <code>New Password</code> screen.
<b>Select</b>	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.
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](#).

## System Status LED

Status	Description
Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> <li>• A drive is being formatted.</li> <li>• The device is being initialized.</li> <li>• The operating system is being updated.</li> <li>• RAID rebuilding is in progress.</li> <li>• Online RAID Capacity Expansion is in progress.</li> <li>• Online RAID Level Migration is in progress.</li> <li>• The firmware is being updated.</li> </ul> <div style="background-color: #fff9c4; padding: 10px; margin-top: 10px;"> <p><b>Important</b></p> <p>When updating the firmware, do not remove the power cord or USB cable, and do not force-exit the application.</p> </div>
Red	<ul style="list-style-type: none"> <li>• A drive is invalid.</li> <li>• A shared folder has reached its full capacity.</li> <li>• A shared folder is about to reach its full capacity.</li> <li>• A system fan is not functioning.</li> <li>• An error occurred when accessing (read/write) the data.</li> <li>• A bad sector is detected on the hard drive.</li> <li>• 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).</li> <li>• A hardware self-test error occurred.</li> </ul>
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	<ul style="list-style-type: none"> <li>• The device is starting up.</li> <li>• The device is not configured.</li> <li>• A drive is not formatted.</li> </ul>
Green	The device is ready.

Status	Description
Off	<ul style="list-style-type: none"> <li>All drives are in standby mode.</li> <li>The device is powered off.</li> </ul>

### 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 LED

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

### LAN LED

Status	Description
Orange	The network connection is operating.
Flashes orange	The device is being accessed from the network.

Status	Description
Off	The device is not connected to a network.

## 2.5 Gigabit Ethernet Speed LED

Status	Description
Green	The network connection is operating at 2.5 Gbps.
Orange	<ul style="list-style-type: none"> <li>The network connection is operating at 1 Gbps.</li> <li>The network connection is operating at 100 Mbps.</li> </ul>
Off	<ul style="list-style-type: none"> <li>The network connection is operating at 10 Mbps.</li> <li>There is no network connection.</li> </ul>

## 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.

## USB LED

Status	Description
Blue	A USB device connected to the front USB port is detected.
Off	No USB expansion unit has been detected.



## USB One Touch Copy LED

Status	Description
Flashes blue every 0.5 seconds	<ul style="list-style-type: none"> <li>• A USB device connected to the USB One Touch Copy port is detected.</li> <li>• A USB device connected to the front USB port is being removed from the device.</li> <li>• A USB device connected to the front USB port is being accessed.</li> </ul>
Blue	A USB device is detected in the front USB port.
Off	<ul style="list-style-type: none"> <li>• No USB device is detected.</li> <li>• The NAS has finished copying data to or from the USB device connected to the front USB port.</li> </ul>

## Expansion LED

Status	Description
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	<ul style="list-style-type: none"> <li>• The NAS is starting up.</li> <li>• When the reset button is pressed for 3 seconds, the NAS resets configurations.</li> <li>• When the reset button is pressed for 10 seconds, the NAS resets configurations and reboots.</li> <li>• The operating system was updated.</li> </ul>
	3	<ul style="list-style-type: none"> <li>• Cannot detect installed disk.</li> <li>• The firmware was updated.</li> </ul>

Duration	Frequency	Description
Long beep (1.5 seconds)	3 (every 5 minutes)	<ul style="list-style-type: none"> <li>• A power error occurred.</li> <li>• A system fan is not functioning.</li> <li>• A fan module has been removed.</li> <li>• The NAS data cannot be copied to the external storage device connected to the USB One Touch Copy port.</li> </ul>
	2	<ul style="list-style-type: none"> <li>• A storage pool is about to reach full capacity.</li> <li>• A storage pool has reached full capacity.</li> <li>• A storage pool status error occurred.</li> <li>• A shared folder is about to reach its full capacity.</li> <li>• A shared folder has reached its full capacity.</li> <li>• The drives are in degraded mode.</li> <li>• A drive is rebuilding.</li> <li>• A shared folder status error occurred.</li> <li>• A drive is plugged in or out.</li> </ul>
	1	<ul style="list-style-type: none"> <li>• The NAS is powering off.</li> <li>• The NAS was powered off by force shutdown (hardware shutdown).</li> <li>• The NAS was powered on successfully and is ready.</li> </ul>
Long and short beeps	1 long and 2 short beeps	The JBOD expansion unit has been removed.

## 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.

### 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	<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><b>Warning</b></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><b>Warning</b></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><b>Important</b></p> <p>Folder permissions on the destination NAS must be reconfigured after migration.</p> </div>
Network	<ul style="list-style-type: none"> <li>• 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.</li> <li>• You must reconfigure network settings when the source NAS is running on QTS 4.3.5 or earlier versions.</li> </ul>
Windows AD configuration	Windows AD configurations must be reconfigured.
Licenses	<p>Licenses are not migrated.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p><b>Warning</b></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"> <li>• Letters: A to Z, a to z</li> <li>• Numbers: 0 to 9</li> <li>• Special characters: . - _ ~ ! @ # \$ % ^ &amp; ( ) { }</li> <li>• Does not start or end with a space.</li> </ul>
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
<b>Name</b>	The name used to identify the storage space.
<b>IP address / Host name</b>	The IP address or hostname used to access the storage space.  <div style="background-color: #fff9c4; padding: 5px; border: 1px solid #ccc;"> <p><b>Tip</b> Click  to scan for available devices.</p> </div>
<b>Port</b>	The port number used to access the storage space. This value must be between 1 to 65535.
<b>Password</b>	The password used to access the storage space.
<b>Use SSL connection</b>	Requires SSL connection when accessing the remote NAS.


7. Optional: Test the connection.

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

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

#### Important

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

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

- b. Select a folder.
  - c. Click **OK**.  
The dialog box closes.
  - d. Under the destination, click **+**.  
A dialog box opens.
  - e. Select a folder.
  - f. Click **OK**.
  - g. Optional: Add more paired folders if necessary.
11. Click **Next**.  
The **Schedule** screen appears.
  12. Select **Sync now**.
  13. Click **Next**.  
The **Rules** screen appears.
  14. Optional: Configure job rules.
  15. Click **Next**.  
The **Summary** screen appears.
  16. Review the job summary.
  17. Click **Create**.  
The source NAS runs the created one-way sync job.

**Note**

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

## Importing local users or group settings to the destination NAS

1. Power on the source NAS.
2. Back up the users or group settings from the source NAS.
  - a. Log on to QTS.
  - b. Go to **Control Panel > Privilege > Users**.
  - c. Click **Create**, and then click **Import/Export Users**.  
The **Import/Export Users** window appears.
  - d. Select **Export user and user group settings**.



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

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

- a. On the destination NAS, log on to QTS.
- b. Go to **Control Panel > Privilege > Users**.
- c. Click **Create**, and then click **Import/Export Users**.
- d. Select **Import user and user group settings**.

#### Note

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

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

## QuTS hero NAS Migration

### NAS migration requirements

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

Your device must meet the following requirements:

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

#### Important

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

#### Warning

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

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

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

### Status and setting changes after NAS migration

The status of NAS data and settings varies after migration.

Data and Settings	After NAS Migration
Registered myQNAPcloud name	Your registered myQNAPcloud name is not migrated.
Encrypted shared folders	<p>If the NAS does not support file system encryption, encrypted shared folders are not migrated.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p><b>Warning</b></p> <p>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.</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><b>Warning</b></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: #ffe6cc; padding: 10px;"> <p><b>Important</b></p> <p>Folder permissions on the destination NAS must be reconfigured after migration.</p> </div>
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	<p>Licenses are not migrated.</p> <div style="background-color: #ffe6e6; padding: 10px;"> <p><b>Warning</b></p> <p>To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.</p> </div>
Applications	If the destination NAS has less RAM than the source NAS, the following features and applications might not function: Virtualization Station, Qsirch, and Snapshots.

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

## Migrating a NAS

### Important

Before performing NAS migration, ensure that you understand all requirements and possible changes after migration.

For details see the following topics:

- [NAS migration requirements](#)
- [Status and setting changes after NAS migration](#)

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

### Important

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

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

## 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 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	$\geq 3$	One member drive fails.
RAID 6	$\geq 4$	One or two member drives fail.
RAID 10	$\geq 4$ (Must be an even number)	One or two member drives in two different pairs fail.
RAID 50	$\geq 6$	One disk per subgroup fails.
RAID 60	$\geq 8$	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	$\geq 5$	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 drive with a capacity that is the same as or larger than the failed drive.
5. Remove the failed drive from the device.
6. Wait for 20 seconds or until the device beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.  
The NAS beeps twice.
10. Go to **Main Menu > Storage & Snapshots > Storage > Storage/Snapshots**.
11. Locate the storage pool that contains the new drive and then verify that the status is Rebuilding.

## Recovering unintentionally removed healthy drives

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

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

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
RAID-TP	Yes	$\geq 5$	3

## Support and other resources

QNAP provides the following resources:

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

## 7. Glossary

### Cloud Key

Unique 8-digit code assigned to each NAS device

### myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

### myQNAPcloud Link

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

### 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

## 8. Notices

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

### Limited warranty

QNAP offers limited warranty service on our products. Your QNAP-branded hardware product is warranted against defects in materials and workmanship for a period of one (1) year or more from the date printed on the invoice. ("Warranty Period"). Please review your statutory rights at [www.qnap.com/warranty](http://www.qnap.com/warranty), which may be amended from time to time by QNAP in its discretion.

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