

TS-x62, TS-x64

TS-262

TS-462

TS-264

TS-464

TS-664

User Guide

Contents

1. Product Overview

About the TS-x62 and TS-x64.....	3
Hardware specifications.....	3
Package contents.....	7
Components.....	7
Front panel.....	8
Rear panel.....	10
System board.....	13
Front drive numbering.....	14
Network port numbering.....	16
USB port numbering.....	17
Safety information.....	17
Installation requirements.....	19
Setting up the NAS.....	19

2. Installation and Configuration

Hardware installation.....	20
Drive installation.....	20
Replacing memory modules (TS-462-2G, TS-464-4G, TS-664-4G).....	35
Installing expansion cards.....	40
Expansion unit installation.....	47
QTS installation.....	50
Initializing QTS using Qfinder Pro.....	51
Initializing QTS using the cloud installation website.....	54
Initializing QTS using an HDMI connection.....	57

3. Basic Operations

Power button.....	59
Reset button.....	59
USB One Touch Copy button.....	60
LEDs.....	60
Audio alerts.....	62

4. NAS Migration

NAS migration requirements.....	63
Status and setting changes after NAS migration.....	63
Migrating a NAS.....	64
Migrating NAS data using HBS 3.....	65
Preparing the destination NAS.....	65
Creating a one-way sync job.....	66
Importing local users or group settings to the destination NAS.....	67

5. Troubleshooting

Forcing Qfinder Pro or myQNAPcloud to locate the NAS.....	69
Hot-swapping failed drives.....	69
Recovering unintentionally removed hard drives.....	70
Support and other resources.....	70

6. Glossary

Cloud Key.....	71
----------------	----

myQNAPcloud.....	71
myQNAPcloud Link.....	71
Qfinder Pro.....	71
QNAP ID.....	71
QTS.....	71

7. Notices

Limited warranty.....	72
Disclaimer.....	72
Copyright and trademarks.....	72
GNU General Public License.....	73
CE notice.....	80
UKCA notice.....	80
FCC notice.....	80
VCCI notice.....	81
BSMI notice.....	81
SJ/T 11364-2006.....	82

1. Product Overview

This chapter provides basic information about the QNAP device.

About the TS-x62 and TS-x64

The TS-x62 and TS-x64 QNAP NAS series include hardware optimized for dedicated backup jobs, AI-driven applications, multimedia streaming, and VPN services. The Intel® Celeron® CPU includes an integrated GPU which offers an HDMI resolution of up to 4K at 60 Hz, and boosts the performance of AI-driven applications such as QuMagie and DA Drive Analyzer. The QTS operating system additionally provides modern security protections and fast caching with M.2 SSDs. The TS-x62 and TS-x64 series are multipurpose NAS devices suitable as personal backup servers, work-from-home VPN tools, or multimedia management servers.

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](#).

Ordering P/N	CPU	Pre-installed memory	Drive bays
TS-262-4G	Intel® Celeron® N4505	4 GB RAM (non-expandable)	2 x 3.5-inch SATA 6 Gbps
TS-264-8G	Intel® Celeron® N5095	8 GB RAM (non-expandable)	2 x 3.5-inch SATA 6 Gbps
TS-462-2G	Intel® Celeron® N4505	2 GB RAM: 1 x 2 GB DDR4 SODIMM	4 x 3.5-inch SATA 6 Gbps
TS-462-4G	Intel® Celeron® N4505	4 GB RAM (non-expandable)	4 x 3.5-inch SATA 6 Gbps
TS-464-4G	Intel® Celeron® N5095	4 GB RAM: 1 x 4 GB DDR4 SODIMM	4 x 3.5-inch SATA 6 Gbps
TS-464-8G	Intel® Celeron® N5095	8 GB RAM (non-expandable)	4 x 3.5-inch SATA 6 Gbps
TS-664-4G	Intel® Celeron® N5095	4 GB RAM: 1 x 4 GB DDR4 SODIMM	6 x 3.5-inch SATA 6 Gbps
TS-664-8G	Intel® Celeron® N5095	8 GB RAM (non-expandable)	6 x 3.5-inch SATA 6 Gbps







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.



To avoid potential injury or damage to components, do not touch the fans while the NAS is connected to a power source.

Component	TS-262, TS-462	TS-264, TS-464, TS-664
Processor		
CPU	Intel® Celeron® N4505	Intel® Celeron® N5095
Frequency	2-core/2-thread 2.00 GHz base/2.90 GHz burst	4-core/4-thread 2.00 GHz base/2.90 GHz burst
Architecture	x86 64-bit	
Encryption engine	AES-NI	
Graphics	Intel® UHD Graphics	
Memory		
Memory slots	<ul style="list-style-type: none"> • TS-262, TS-264, TS-464-8G, TS-664-8G, TS-462-4G: Non-expandable memory • TS-462-2G, TS-464-4G, TS-664-4G: 2 x DDR4 SODIMM <div style="border-left: 2px solid red; padding-left: 10px; margin-top: 10px;"> <p>Important</p> <ul style="list-style-type: none"> • 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. </div>	
Maximum memory	<ul style="list-style-type: none"> • TS-262, TS-462-4G: 4 GB RAM (non-expandable) • TS-264, TS-464-8G, TS-664-8G: 8 GB RAM (non-expandable) • TS-462-2G, TS-464-4G, TS-664-4G: 16 GB RAM: 2 x 8 GB 	
Flash memory	4 GB (dual-boot OS protection)	
Storage		
Drive bays	<ul style="list-style-type: none"> • TS-262: 2 x 3.5-inch SATA 6 Gbps • TS-462: 4 x 3.5-inch SATA 6 Gbps 	<ul style="list-style-type: none"> • TS-264: 2 x 3.5-inch SATA 6 Gbps • TS-464: 4 x 3.5-inch SATA 6 Gbps • TS-664: 6 x 3.5-inch SATA 6 Gbps


Component	TS-262, TS-462	TS-264, TS-464, TS-664
Drive compatibility	<ul style="list-style-type: none"> 3.5-inch SATA hard disk drives 2.5-inch SATA solid-state drives <div style="display: flex; align-items: flex-start;">  <p>Note You can purchase tray bases from QNAP or an authorized reseller. For details, go to https://shop.qnap.com/.</p> </div>	
M.2 SSD slots	2 x M.2 2280 PCIe Gen 3 x1	
M.2 SSD form factor	2280	
SSD cache acceleration support	Supported	
Hot-swapping	The device supports hot-swapping drives except for the following: M.2 SSDs	
Network		
2.5 Gigabit network interface	1 x 2.5 GbE RJ45	2 x 2.5 GbE RJ45
	<div style="display: flex; align-items: flex-start;">  <p>Note The 2.5 Gigabit Ethernet port supports the following network connectivity speeds: 2.5 GbE, 1 GbE, 100 Mb, and 10 Mb.</p> </div>	
External I/O Ports & Expansion Slots		
USB ports	<ul style="list-style-type: none"> Front: 1 x USB 3.2 Gen 2 Type-A <div style="display: flex; align-items: flex-start;">  <p>Note This USB port supports One Touch Copy.</p> </div> <ul style="list-style-type: none"> Rear: 1 x USB 3.2 Gen 2 Type-A Rear: 2 x USB 2.0 Gen 1 Type-A 	
	<div style="display: flex; align-items: flex-start;">  <p>Tip For the list of compatible drive models and expansion cards, go to https://www.qnap.com/compatibility.</p> </div>	
PCIe slots	1 x PCIe 3.0 x2	
HDMI ports	1 x HDMI 2.0 (up to 4096 x 2160 resolution at 60 Hz)	
Interface		
Buttons	<ul style="list-style-type: none"> Power Reset USB One Touch Copy 	
Dimensions		
Form factor	Tower	

Component	TS-262, TS-462	TS-264, TS-464, TS-664
Dimensions (H x W x D)	<ul style="list-style-type: none"> • TS-262: 168 x 105 x 226 mm (6.61 x 4.13 x 8.90 in) • TS-462: 168 x 170 x 226 mm (6.61 x 6.69 x 8.90 in) 	<ul style="list-style-type: none"> • TS-264: 168 x 105 x 226 mm (6.61 x 4.13 x 8.90 in) • TS-464: 168 x 170 x 226 mm (6.61 x 6.69 x 8.90 in) • TS-664: 168 x 235 x 226 mm (6.61 x 9.25 x 8.90 in)
Net weight	<ul style="list-style-type: none"> • TS-262: 1.55 kg (3.41 lbs) • TS-462: 2.26 kg (4.98 lbs) 	<ul style="list-style-type: none"> • TS-264: 1.55 kg (3.41 lbs) • TS-464: 2.26 kg (4.98 lbs) • TS-664: 2.9 kg (6.39 lbs)
Others		
Power supply unit	<ul style="list-style-type: none"> • TS-262: 65W, 100-240V AC, 50/60 Hz • TS-462: 90W, 100-240V AC, 50/60 Hz 	<ul style="list-style-type: none"> • TS-264: 65W, 100-240V AC, 50/60 Hz • TS-464: 90W, 100-240V AC, 50/60 Hz • TS-664: 120W, 100-240V AC, 50/60 Hz
System battery	<p>CR2032 lithium battery (3V, 225 mAh)</p> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;">  </div> <div> <p>Warning</p> <ul style="list-style-type: none"> • This battery is a button battery. If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours. Keep batteries out of reach of children. • To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type. </div> </div>	
Fans	<ul style="list-style-type: none"> • TS-262: 1 x 70 mm, 12V DC smart fan • TS-462: 1 x 120 mm, 12V DC smart fan 	<ul style="list-style-type: none"> • TS-264: 1 x 70 mm, 12V DC smart fan • TS-464: 1 x 120 mm, 12V DC smart fan • TS-664: 2 x 90 mm, 12V DC smart fan
Operating temperature	0°C to 40°C (32°F to 104°F)	
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) 	
Security slot	Kensington security slot	

**Tip**

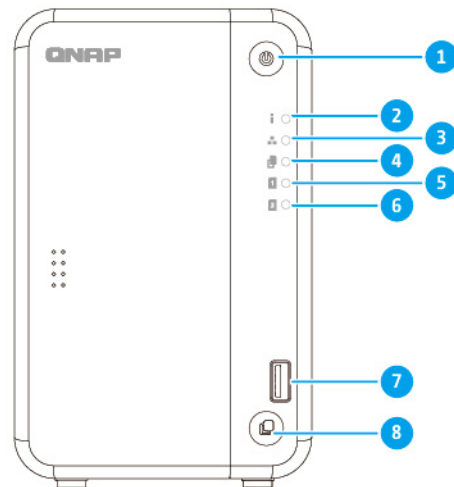
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

Package contents

Item	Quantity
TS-x62/TS-x64	1
Drive trays	<ul style="list-style-type: none"> • TS-262, TS-264: 2 • TS-464, TS-462: 4 • TS-664: 6
Screws for 2.5-inch drives	<ul style="list-style-type: none"> • TS-262, TS-264: 8 • TS-464, TS-462: 16 • TS-664: 24
Screws for 3.5-inch drives	<ul style="list-style-type: none"> • TS-262, TS-264: 8 • TS-464, TS-462: 16 • TS-664: 24
AC power adapter	1
Power cord	1
Cat 5e Ethernet cable	1  Note The Cat5e Ethernet cable supports transfer speeds of up to 2.5 Gbps.
Quick Installation Guide (QIG)	1

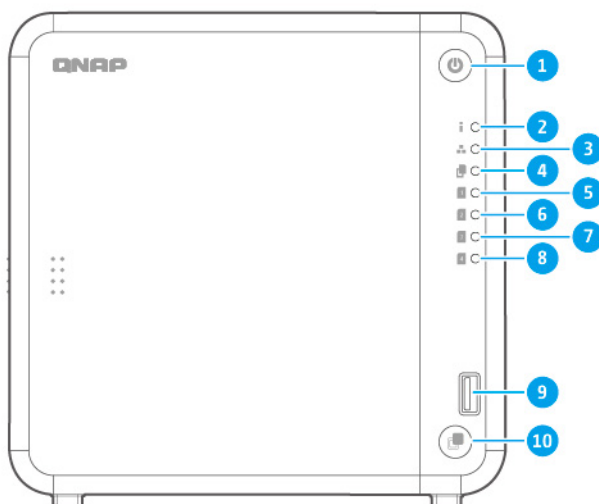
Components

Front panel



TS-262, TS-264

No.	Component	No.	Component
1	Power button	5	Drive 1 LED
2	Status LED	6	Drive 2 LED
3	LAN LED	7	USB 3.2 Gen 2 One Touch Copy Type-A port
4	USB LED	8	USB One Touch Copy button



TS-462, TS-464

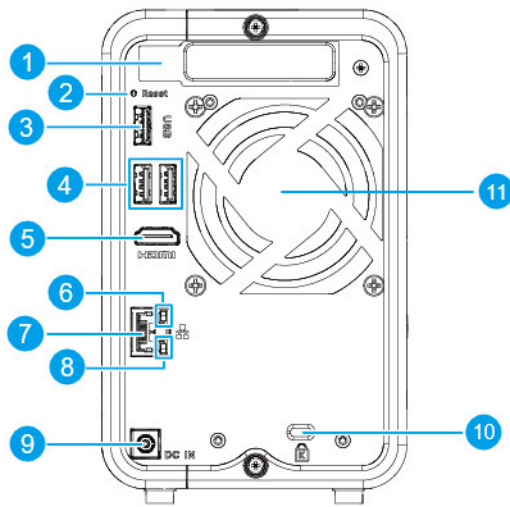
No.	Component	No.	Component
1	Power button	6	Drive 2 LED
2	Status LED	7	Drive 3 LED
3	LAN LED	8	Drive 4 LED
4	USB LED	9	USB 3.2 Gen 2 One Touch Copy Type-A port
5	Drive 1 LED	10	USB One Touch Copy button



TS-664

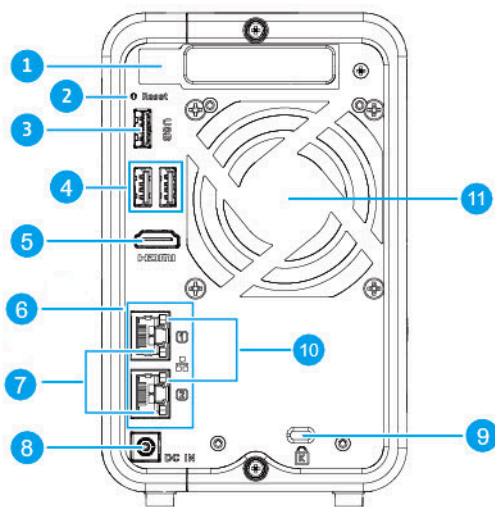
No.	Component	No.	Component
1	Power button	7	Drive 3 LED
2	Status LED	8	Drive 4 LED
3	LAN LED	9	Drive 5 LED
4	USB LED	10	Drive 6 LED
5	Drive 1 LED	11	USB 3.2 Gen 2 One Touch Copy Type-A port
6	Drive 2 LED	12	USB One Touch Copy button

Rear panel



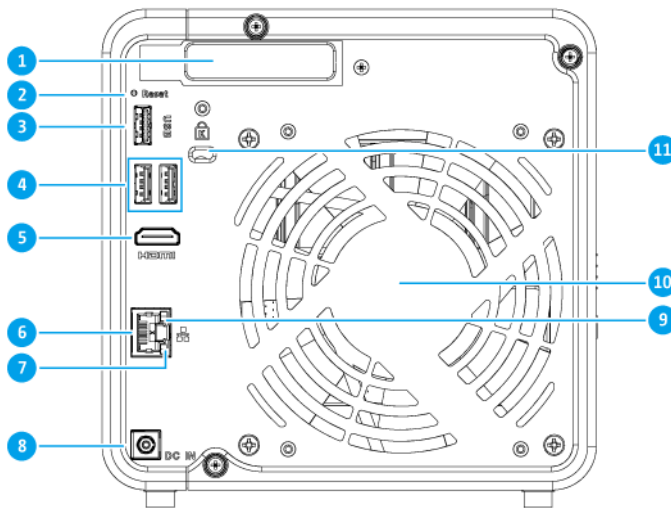
TS-262

No.	Component	No.	Component
1	PCIe low-profile cover	7	2.5 Gigabit Ethernet port (RJ45)
2	Reset button	8	2.5 Gigabit Ethernet speed LED
3	USB 3.2 Gen 2 Type-A port	9	Power input
4	USB 3.2 Gen 1 Type-A ports	10	Kensington security slot
5	HDMI 2.0 port	11	System fan
6	2.5 Gigabit Ethernet activity LED	-	-



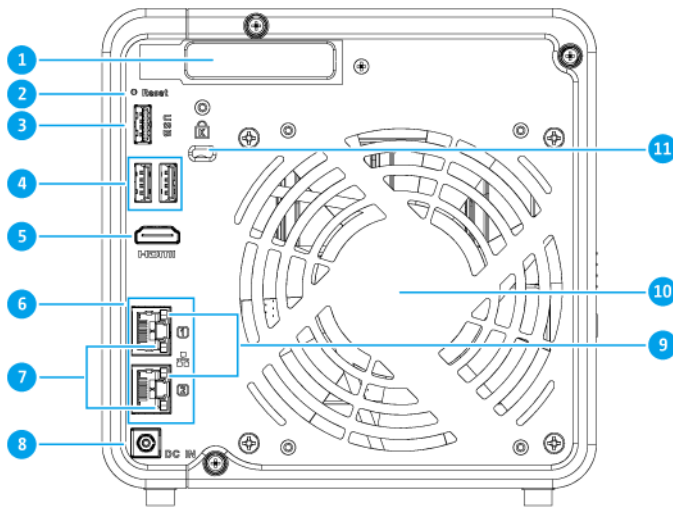
TS-264

No.	Component	No.	Component
1	PCIe low-profile cover	7	2.5 Gigabit Ethernet speed LED
2	Reset button	8	Power input
3	USB 3.2 Gen 2 Type-A port	9	Kensington security slot
4	USB 3.2 Gen 1 Type-A ports	10	2.5 Gigabit Ethernet activity LED
5	HDMI 2.0 port	11	System fan
6	2.5 Gigabit Ethernet ports (RJ45)	-	-



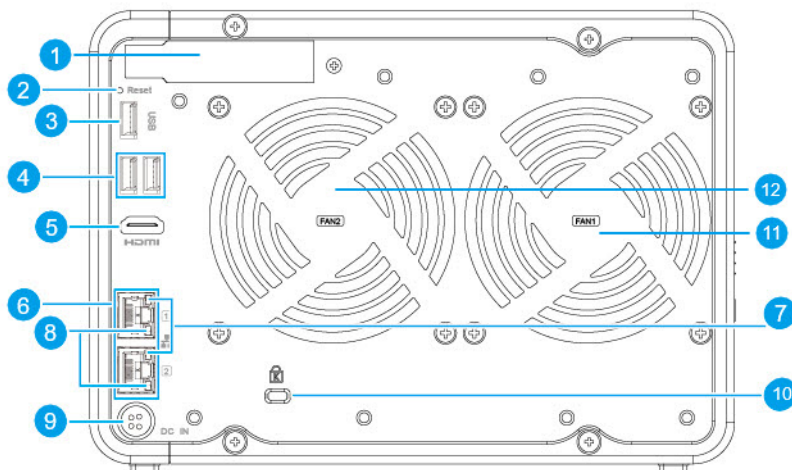
TS-462

No.	Component	No.	Component
1	PCIe low-profile cover	7	2.5 Gigabit Ethernet activity LED
2	Reset button	8	Power input
3	USB 3.2 Gen 2 Type-A port	9	2.5 Gigabit Ethernet speed LED
4	USB 3.2 Gen 1 Type-A ports	10	System fan
5	HDMI 2.0 port	11	Kensington security slot
6	2.5 Gigabit Ethernet port (RJ45)	-	-



TS-464

No.	Component	No.	Component
1	PCIe low-profile cover	7	2.5 Gigabit Ethernet activity LED
2	Reset button	8	Power input
3	USB 3.2 Gen 2 Type-A port	9	2.5 Gigabit Ethernet speed LED
4	USB 3.2 Gen 1 Type-A ports	10	System fan
5	HDMI 2.0 port	11	Kensington security slot
6	2.5 Gigabit Ethernet ports (RJ45)	-	-



TS-664

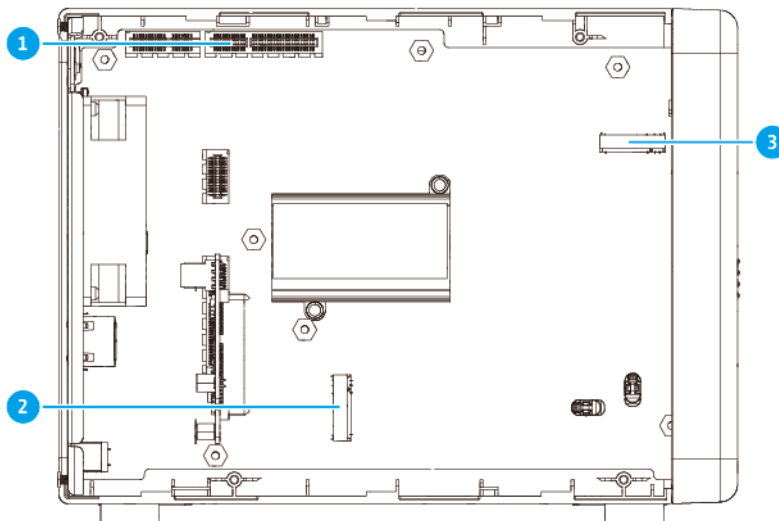
No.	Component	No.	Component
1	PCIe low-profile cover	7	2.5 Gigabit Ethernet speed LED
2	Reset button	8	2.5 Gigabit Ethernet activity LED
3	USB 3.2 Gen 2 Type-A port	9	Power input
4	USB 3.2 Gen 1 Type-A ports	10	Kensington security slot
5	HDMI 2.0 port	11	System fan
6	2.5 Gigabit Ethernet ports (RJ45)	12	System fan

System board



Note

The memory capacity for the following models cannot be expanded: TS-262, TS-264, TS-462-4G, TS-464-8G, TS-664-8G.



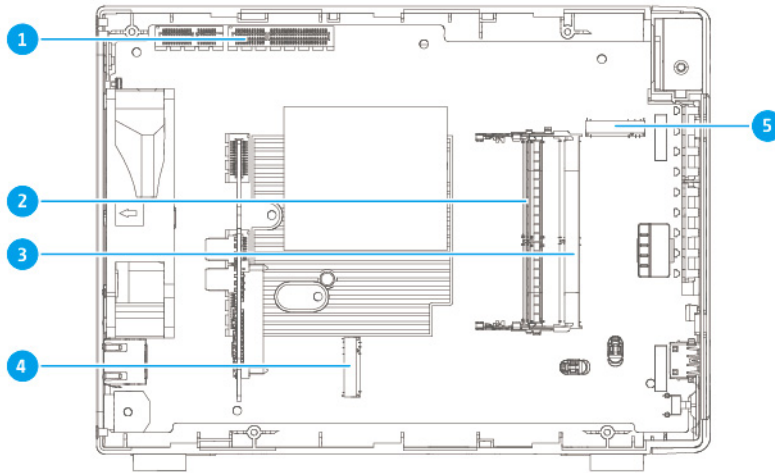
TS-262, TS-264



Note

This image does not include the chassis.

No.	Component	No.	Component
1	PCIe slot (PCIe Gen 3.0 x 2)	3	M.2 SSD slot 2
2	M.2 SSD slot 1	-	-



TS-462, TS-464, TS-664

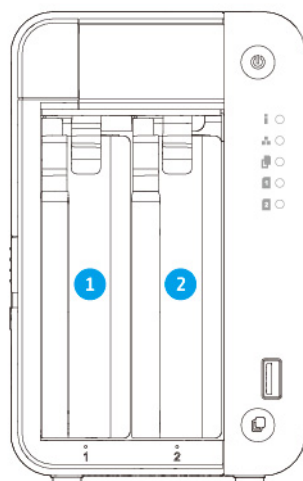


Note

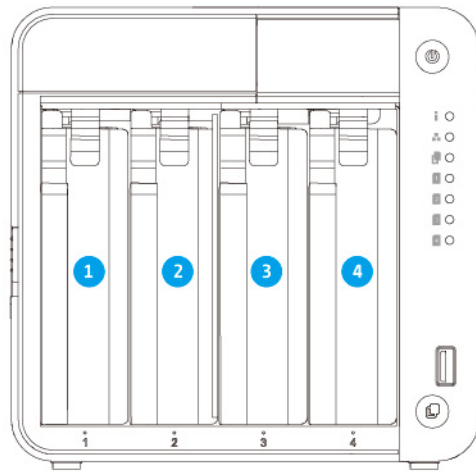
This image does not include the chassis.

No.	Component	No.	Component
1	PCIe slot (PCIe Gen 3.0 x 2)	4	M.2 SSD slot 1
2	Memory slot 1	5	M.2 SSD slot 2
3	Memory slot 2	-	-

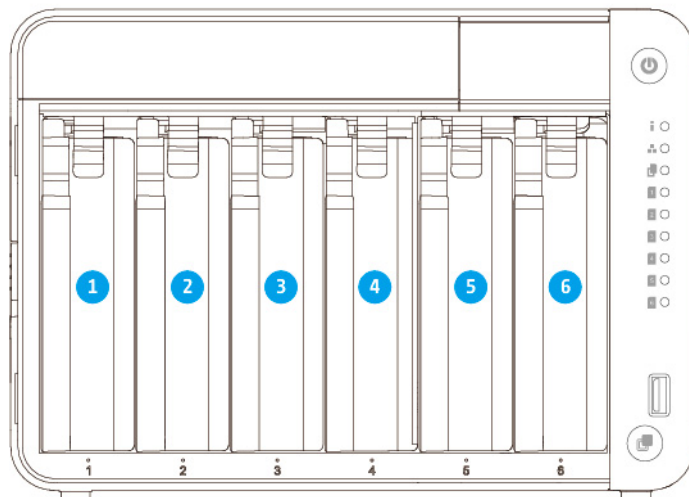
Front drive numbering



TS-262, TS-264

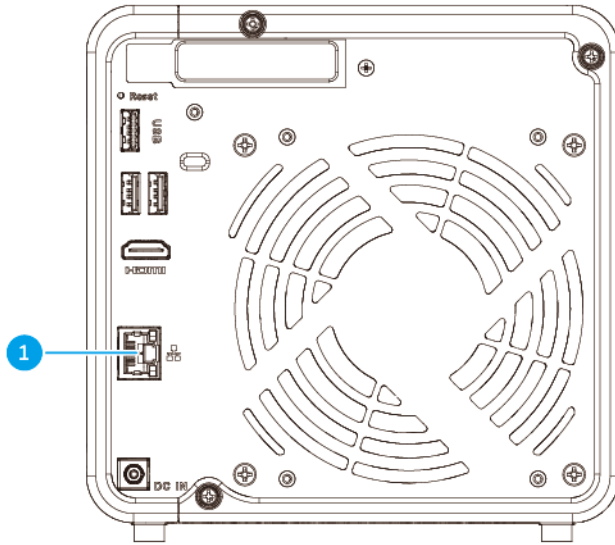


TS-462, TS-464

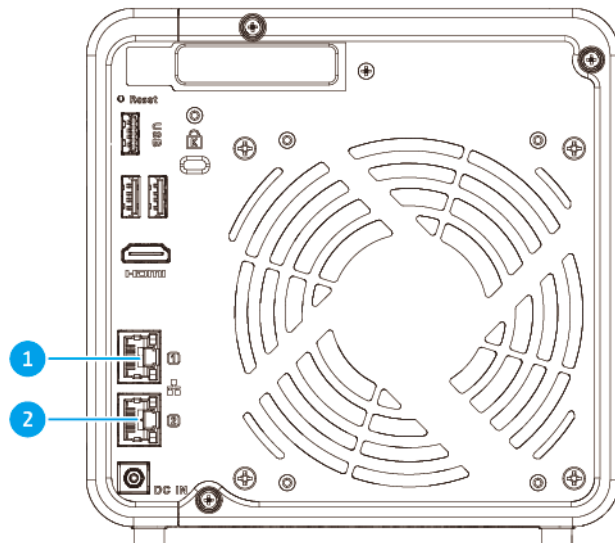


TS-664

Network port numbering

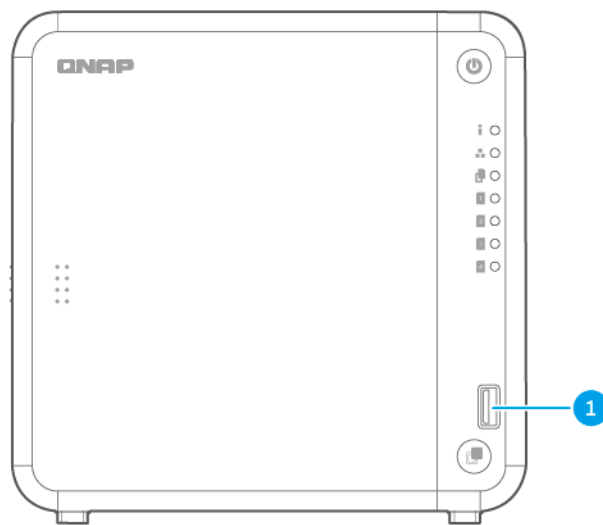


TS-x62

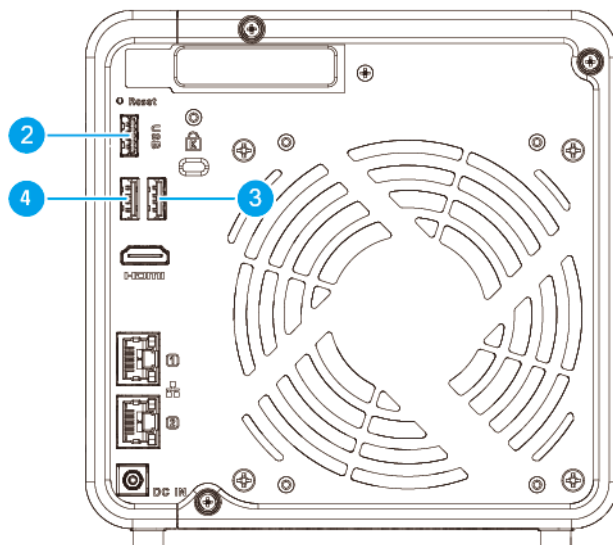


TS-x64

USB port numbering



Front USB Ports



Rear USB Ports

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	<ul style="list-style-type: none"> Room temperature: 0°C to 40°C (32°F to 104°F) Non-condensing relative humidity: 5% to 95% Wet-bulb temperature: 27°C (80.6°F) Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals Free from objects that may obstruct device ventilation or apply pressure to the device or power cord
Hardware and peripherals	<ul style="list-style-type: none"> Storage drives For the list of compatible drive models, go to https://www.qnap.com/compatibility. Network cable
Tools	<ul style="list-style-type: none"> Flat head screwdriver Anti-static wrist strap

Setting up the NAS



Important

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

- Place your NAS device in an environment that meets the requirements.
For details, see [Installation requirements](#).
- Install drives.
For details, see the following topics:
 - [Installing 2.5-inch drives on 3.5-inch trays](#)
 - [Installing 3.5-inch hard drives on 3.5-inch trays](#)
 - [Installing M.2 solid-state drives](#)
- Optional: Connect expansion units.
For details, see [Expansion unit installation](#).
- Connect the power cord and all applicable cables.
- Power on the NAS.
- Install QTS.
For details, see [QTS installation](#).
- Log on to QTS.

2. Installation and Configuration

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

Hardware installation

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

Drive installation

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

Installing 2.5-inch drives on 3.5-inch trays



Warning

- Installing a drive deletes all data on the drive.

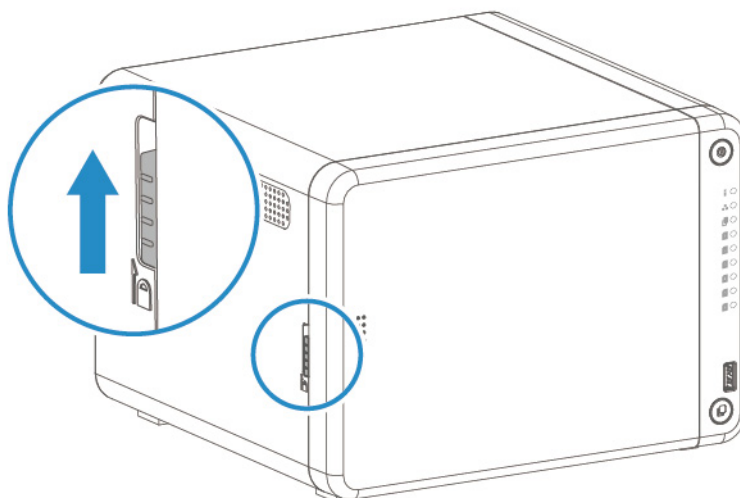
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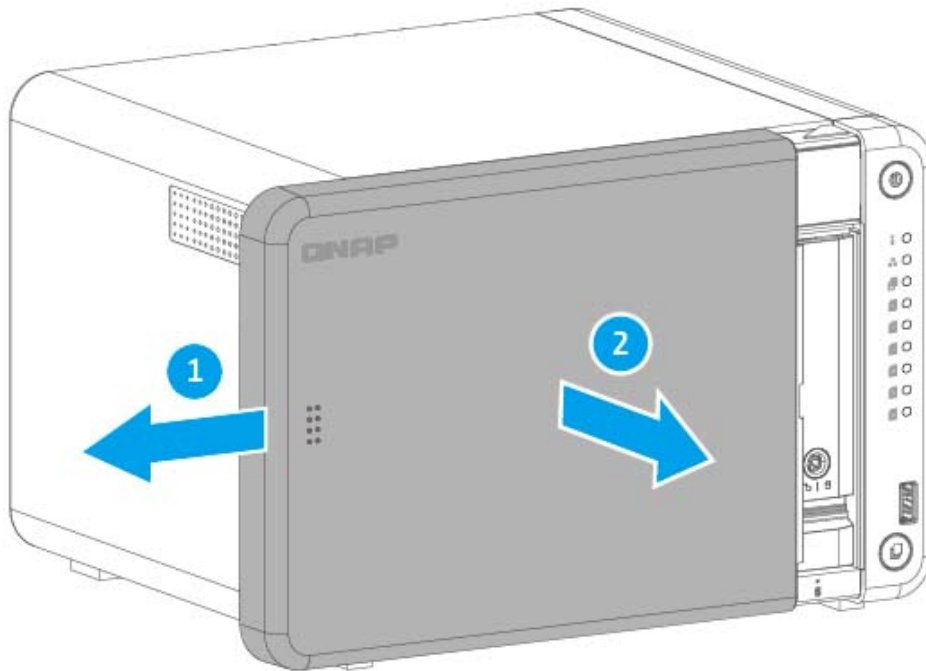
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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

1. Power off the NAS.
2. Remove the front cover.
 - a. Locate the locking mechanism on the left side of the NAS.
 - b. Slide the lock up to release the front cover.

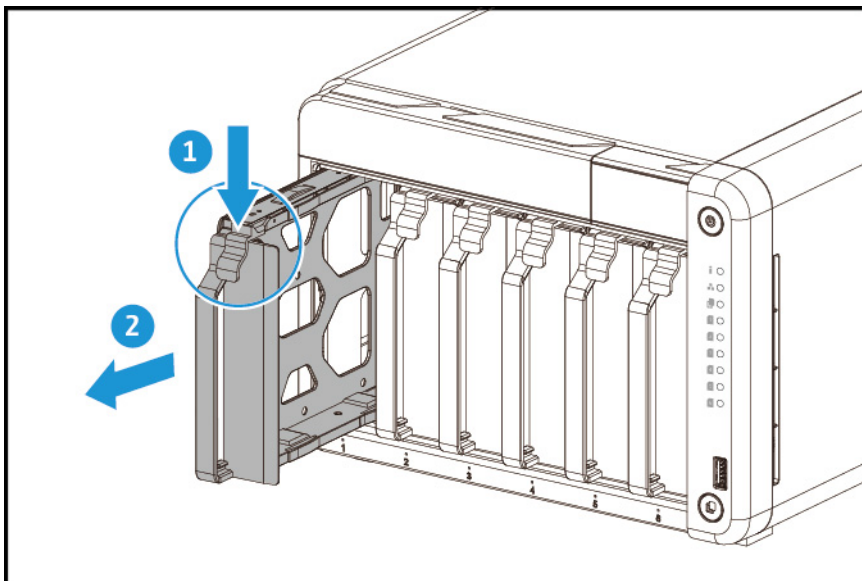


- c. Slide the front cover to the left and then pull.



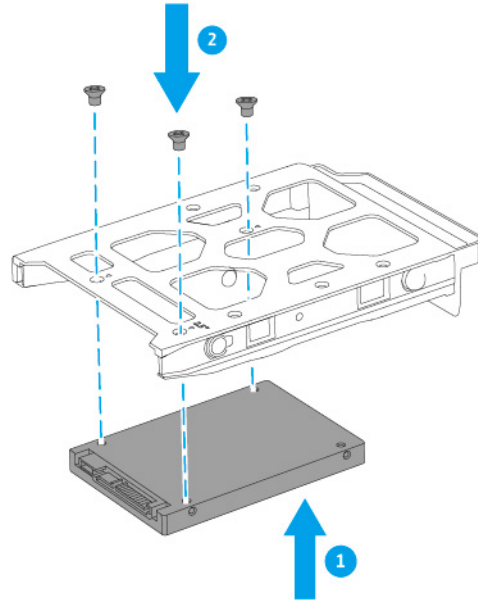
3. Remove the drive tray.

- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.

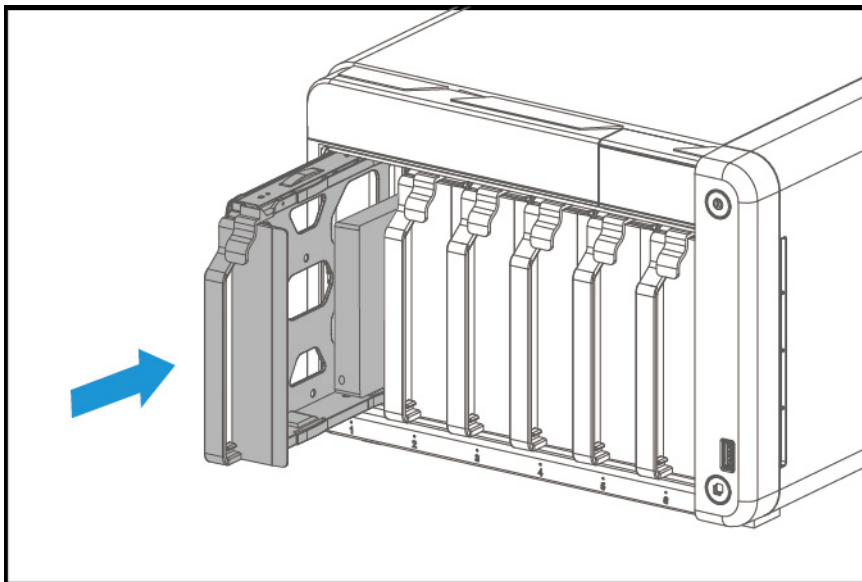


4. Install a drive on the tray.

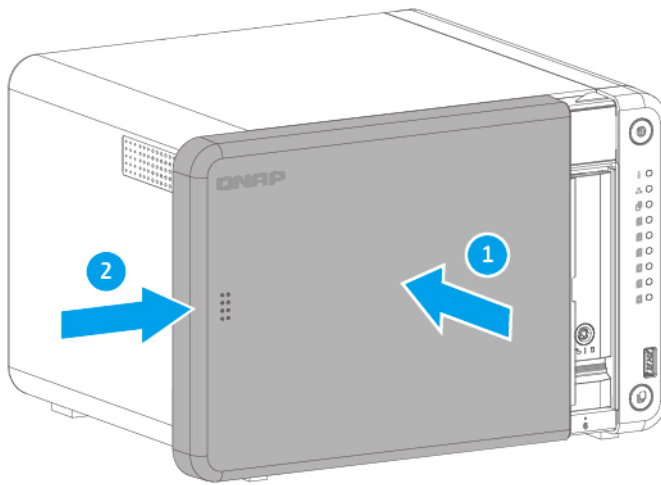
- a. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- b. Attach the screws.



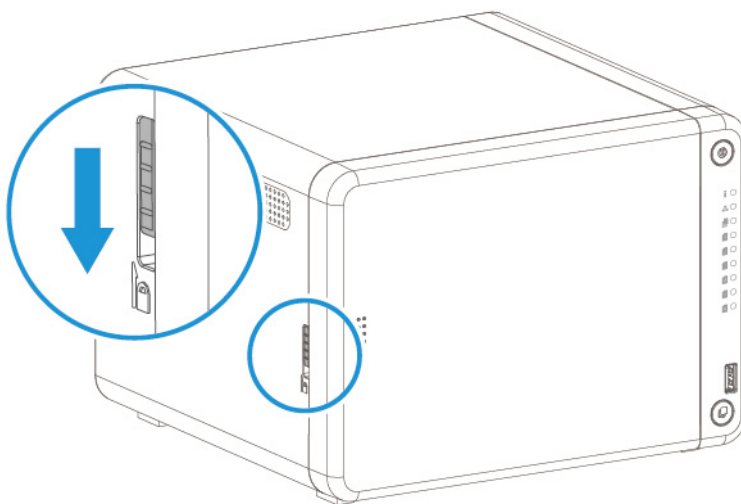
5. Insert the tray into the bay.



6. Attach the front cover.
 - a. Align the front cover with the grooves on the case and then slide to the right.



b. Slide the lock down to secure the front cover.



7. Power on the NAS.

Installing 3.5-inch hard drives on 3.5-inch trays



Warning

- Installing a drive deletes all data on the drive.

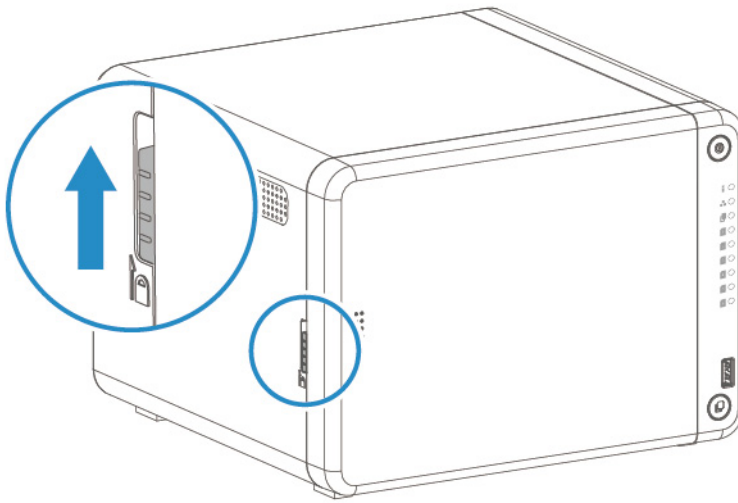
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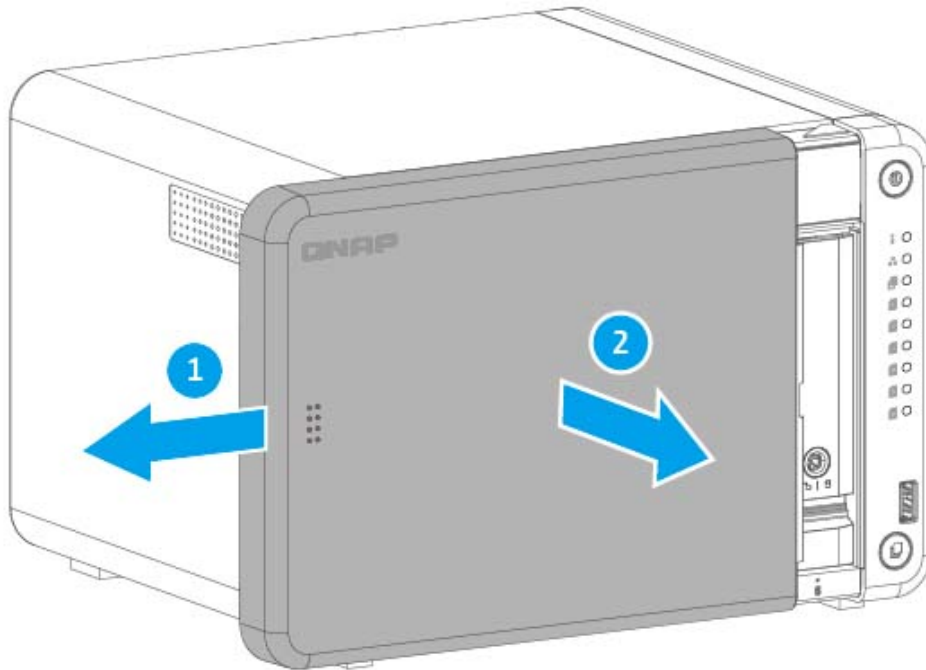
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 - a. Locate the locking mechanism on the left side of the NAS.
 - b. Slide the lock up to release the front cover.

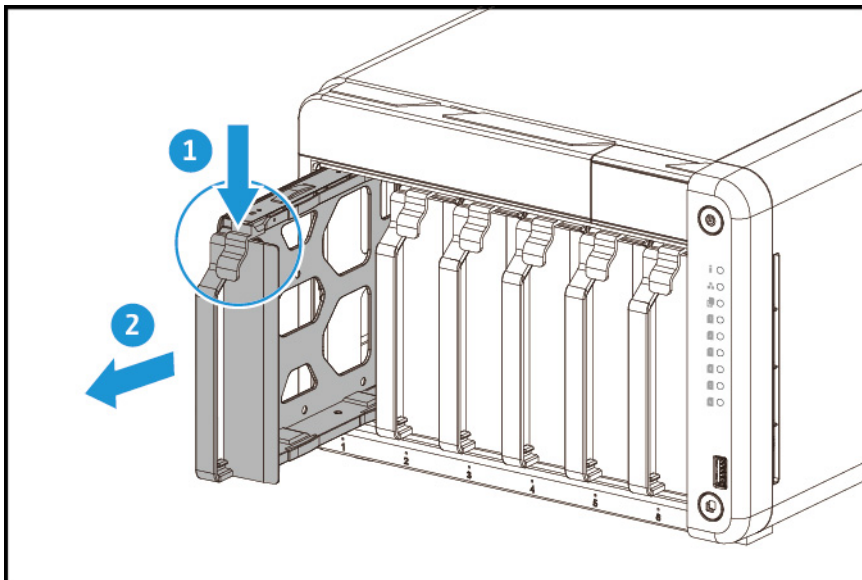


- c. Slide the front cover to the left and then pull.



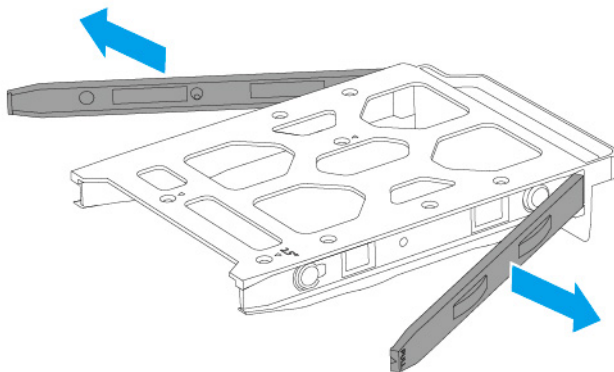
3. Remove the drive tray.

- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.

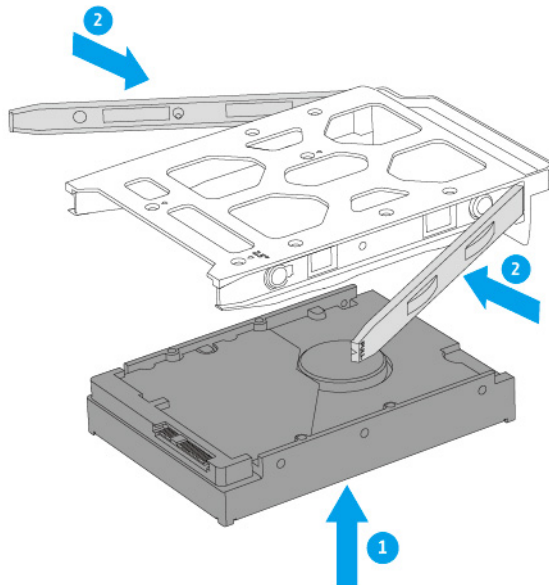


4. Install a drive on the tray.

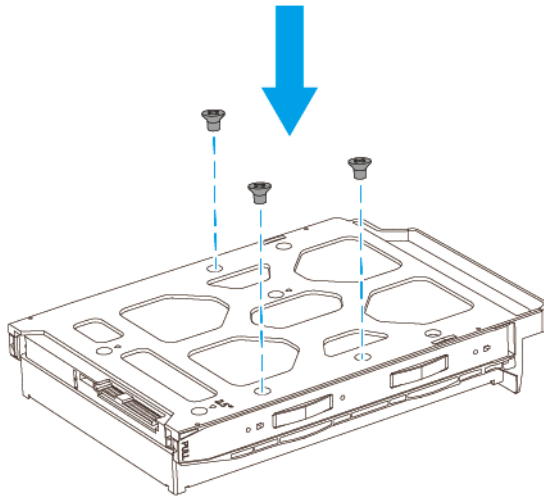
- a. Remove the fastening panels from the sides of the drive tray.



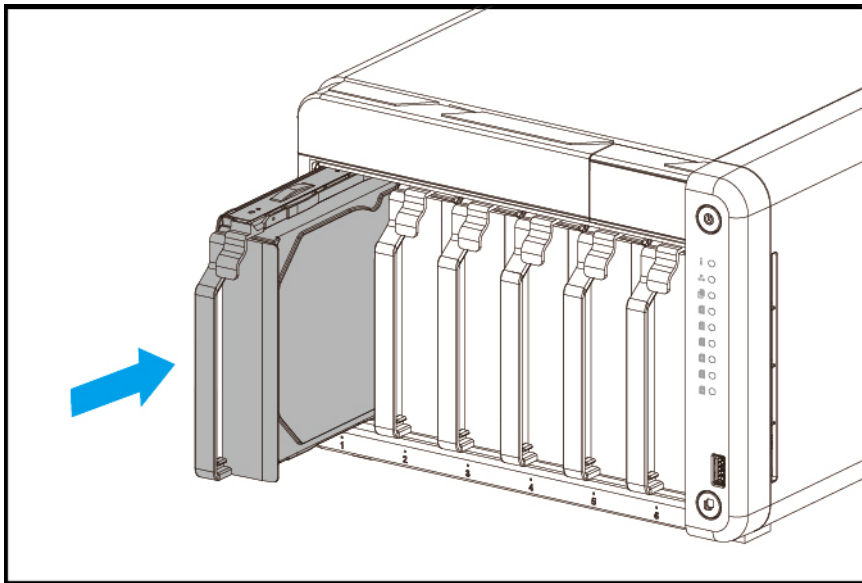
- b.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- c.** Attach the fastening panels to lock the drive to the tray.



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

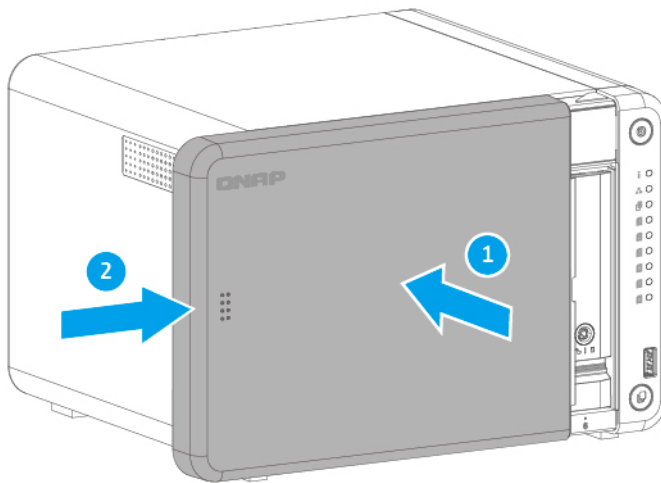


5. Insert the tray into the bay.

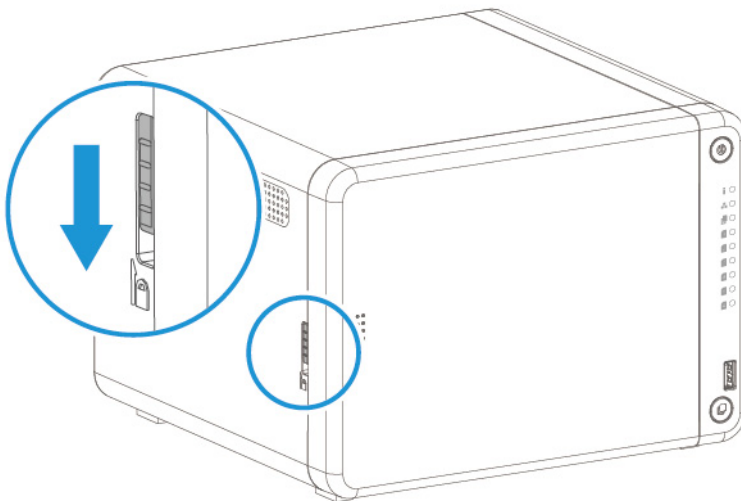


6. Attach the front cover.

- a. Align the front cover with the grooves on the case and then slide to the right.



- b. Slide the lock down to secure the front cover.



7. Power on the NAS.

Installing M.2 solid-state drives



Warning

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



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



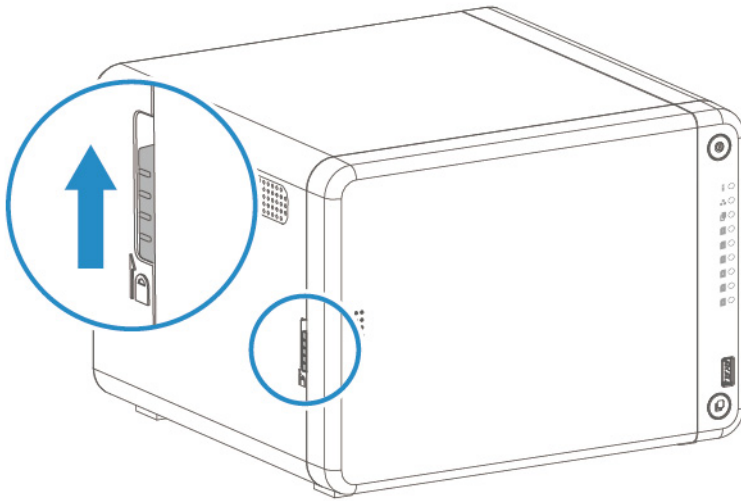
• **Other moving components:** Keep your hands and other body parts away from other moving components.



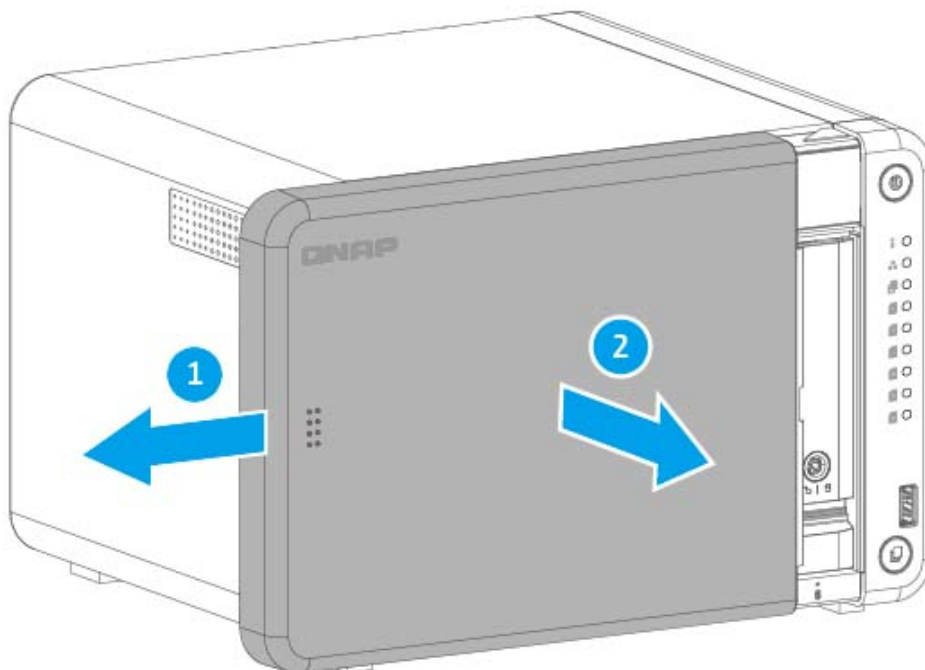
Important

- The NAS has two M.2 SSD slots. For a list of compatible M.2 SSDs, go to <https://www.qnap.com/compatibility>.
- 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.
- Heatsinks are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to <https://shop.qnap.com/>.

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
 - a. Locate the locking mechanism on the left side of the NAS.
 - b. Slide the lock up to release the front cover.

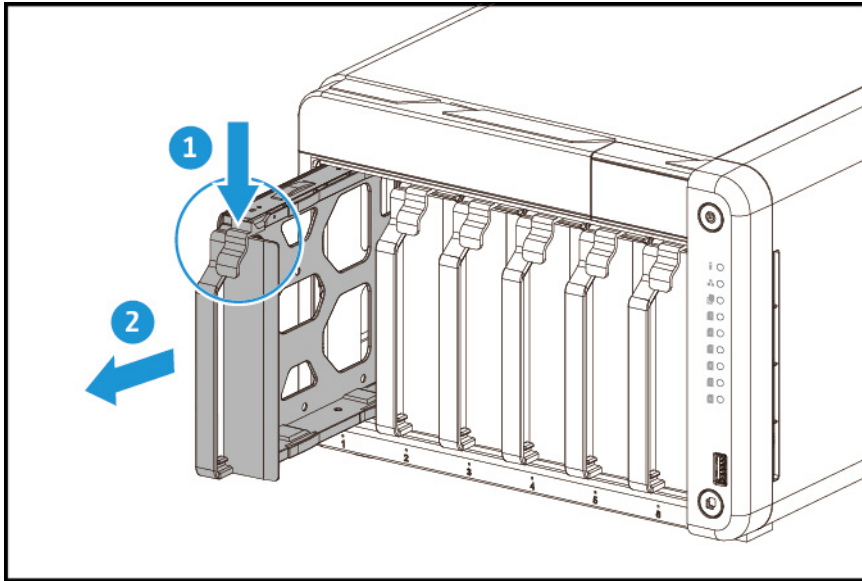


- c. Slide the front cover to the left and then pull.



5. Remove each drive tray.

- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



6. Optional: Install a heatsink on the M.2 SSD.

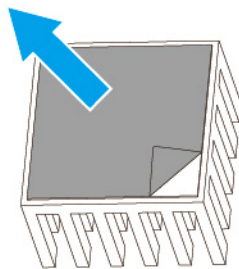
- a.** Locate the controller on the M.2 SSD.



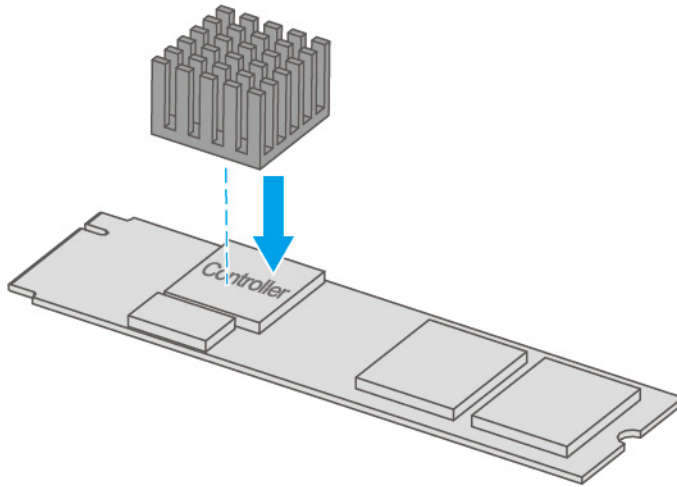
Note

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

- b.** Remove the protective film from the heatsink.



- c.** Install the heatsink on the controller.



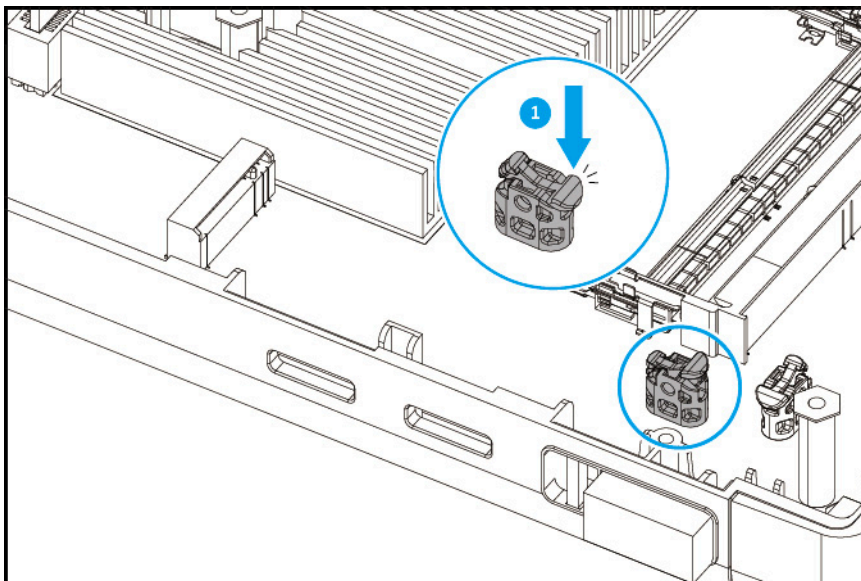
7. Install the M.2 SSD.



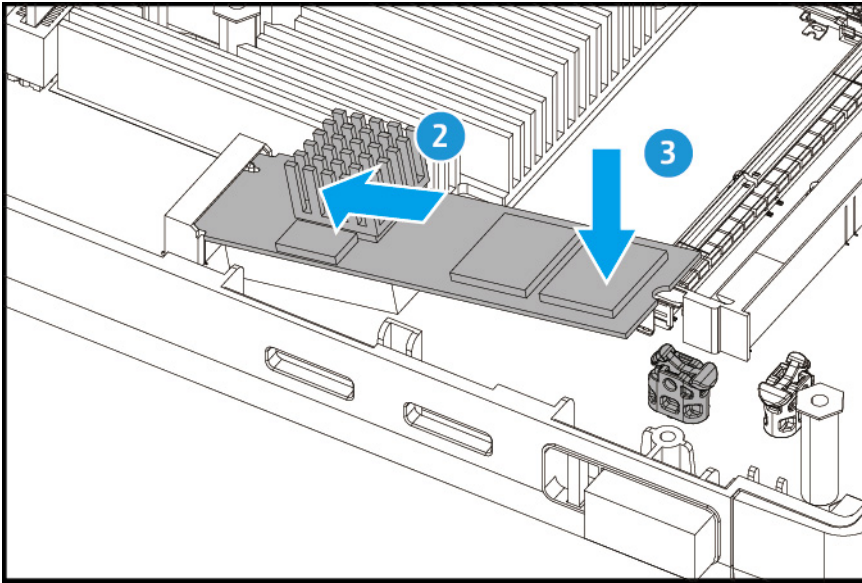
Note

The following installation images do not include the chassis.

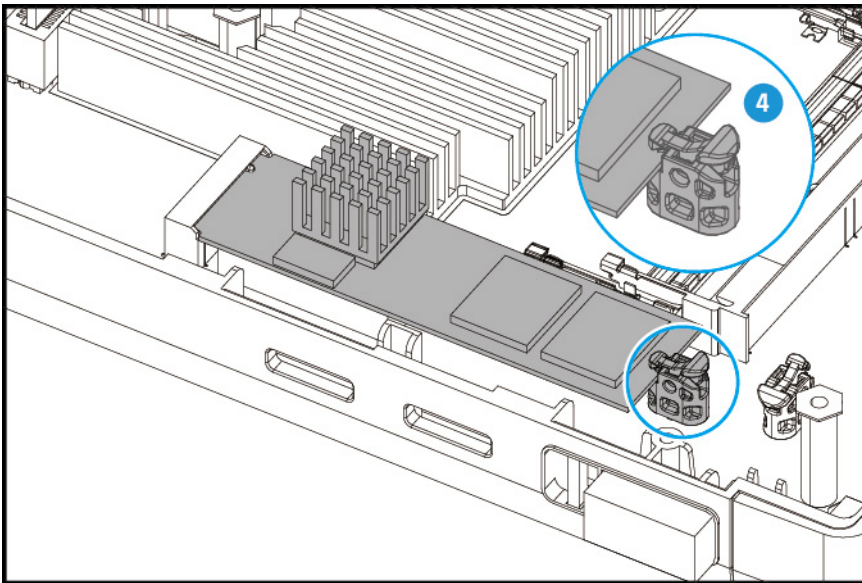
- a. Unlock the M.2 spacer by pushing down on its edge.



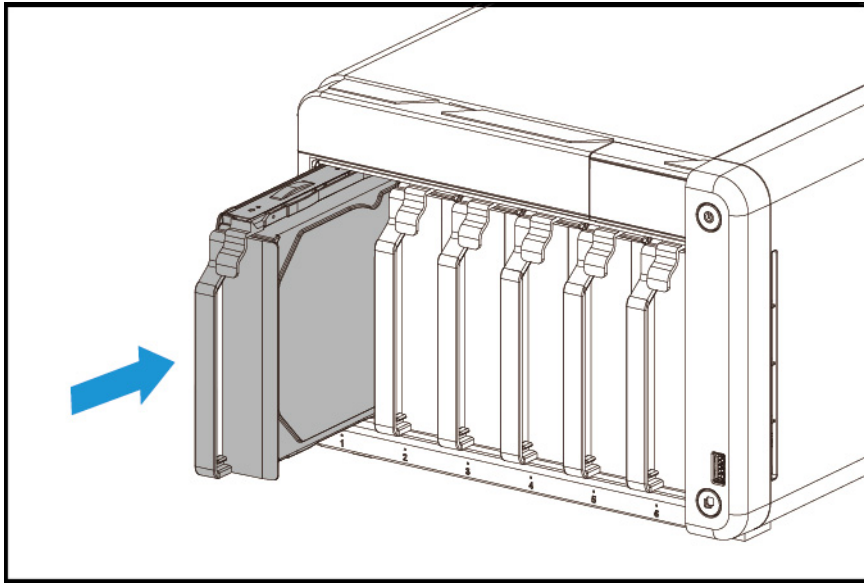
- b. Insert the M.2 SSD into the slot.
- c. Carefully press the M.2 SSD down until the spacer locks the drive into place.



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

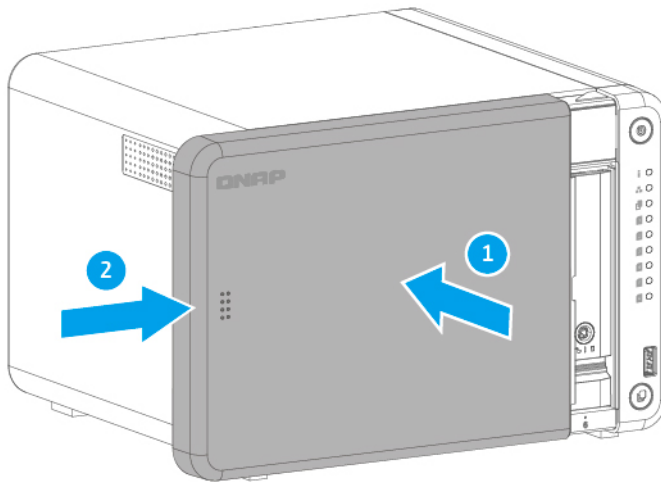


8. Optional: Install an additional M.2 SSD.
9. Slide each drive tray back into the NAS.

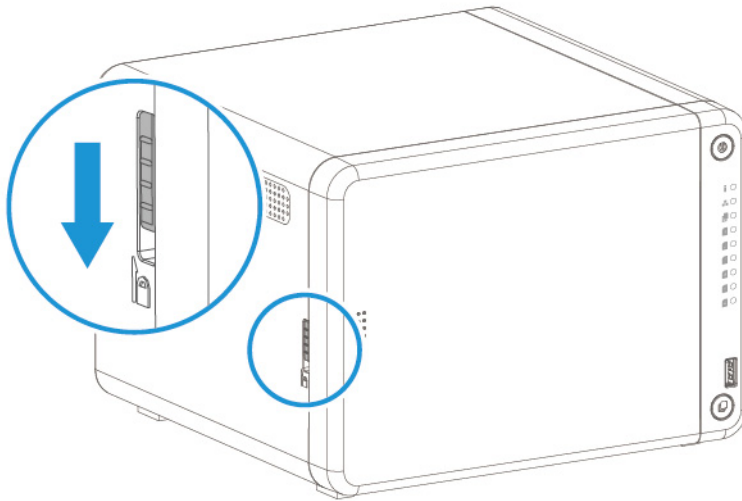


10. Attach the front cover.

- a.** Align the front cover with the grooves on the case and then slide to the right.



- b.** Slide the lock down to secure the front cover.



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

Replacing memory modules (TS-462-2G, TS-464-4G, TS-664-4G)

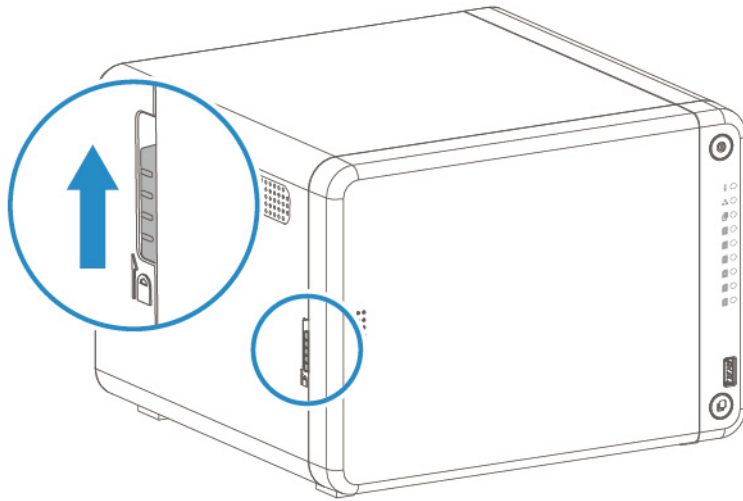
The TS-462-2G, TS-464-4G, and TS-664-4G have two memory slots. You can increase the memory capacity of the NAS by upgrading the memory modules. When using two modules, use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.



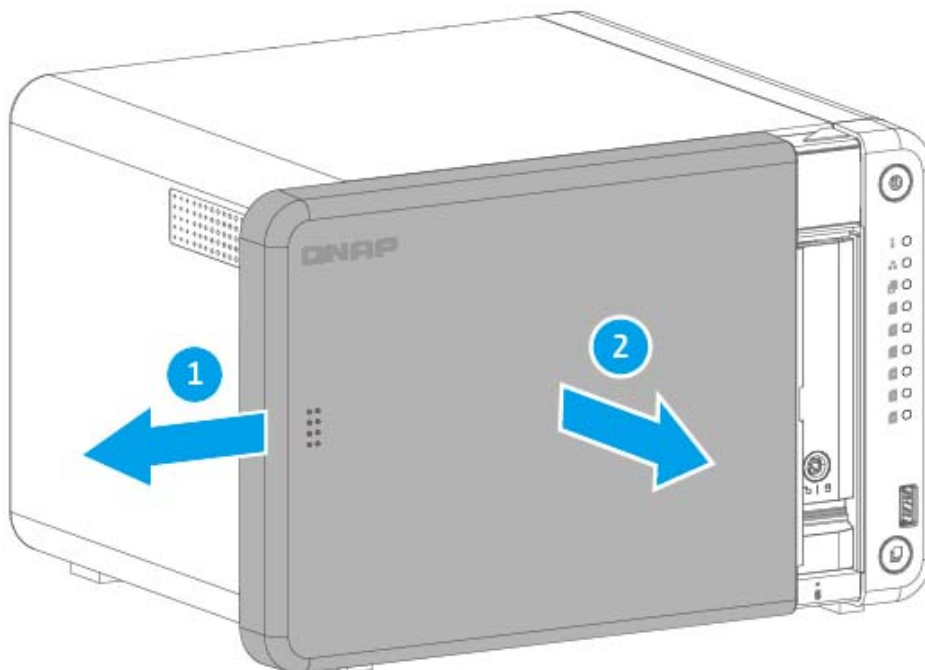
Warning

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

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
 - a. Locate the locking mechanism on the left side of the NAS.
 - b. Slide the lock up to release the front cover.

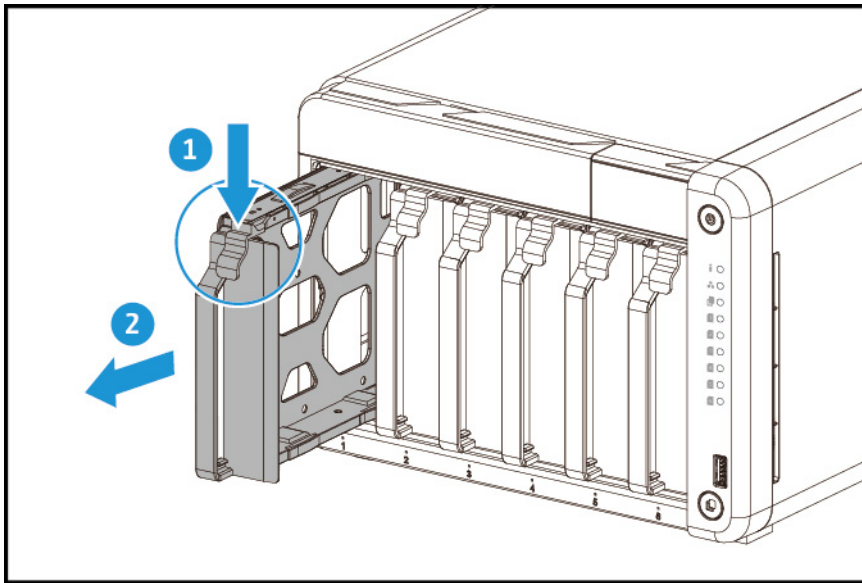


- c. Slide the front cover to the left and then pull.



5. Remove each drive tray.

- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



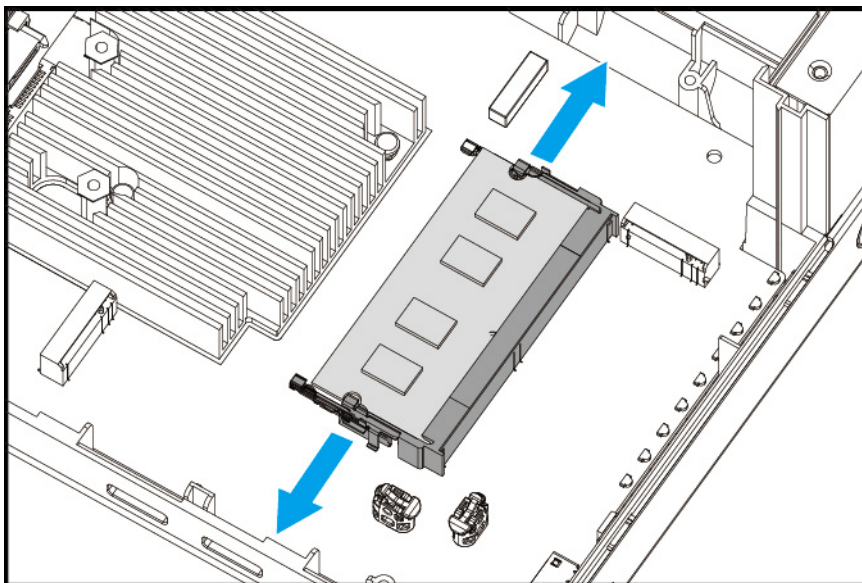
6. Remove an existing module.



Note

The following installation images do not include the chassis.

- 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.

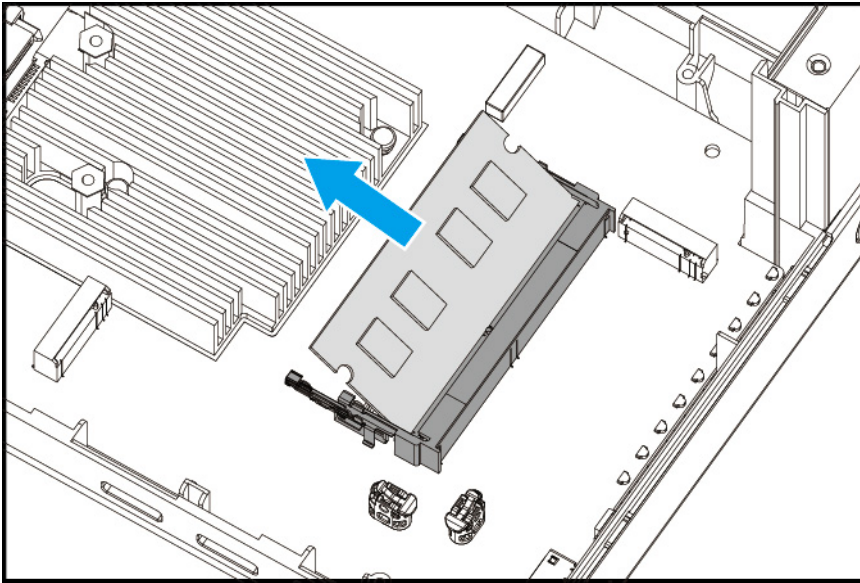


Warning

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.

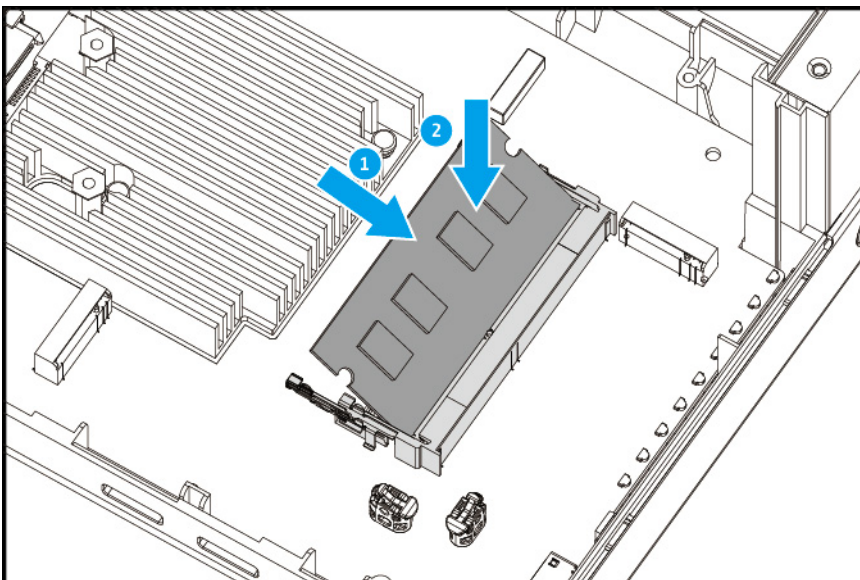


Warning

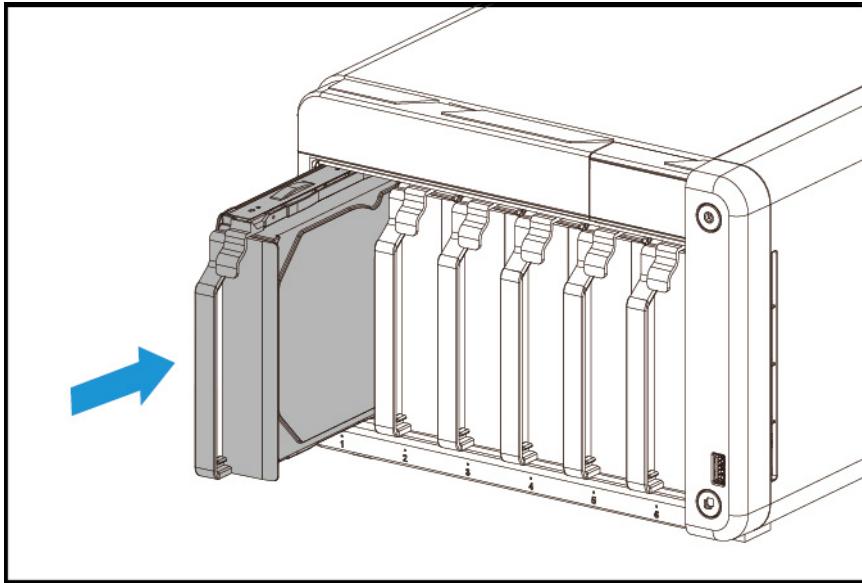
- Do not touch the internal components, particularly the metal connectors.
- Do not bend the module.

7. Install a new module.

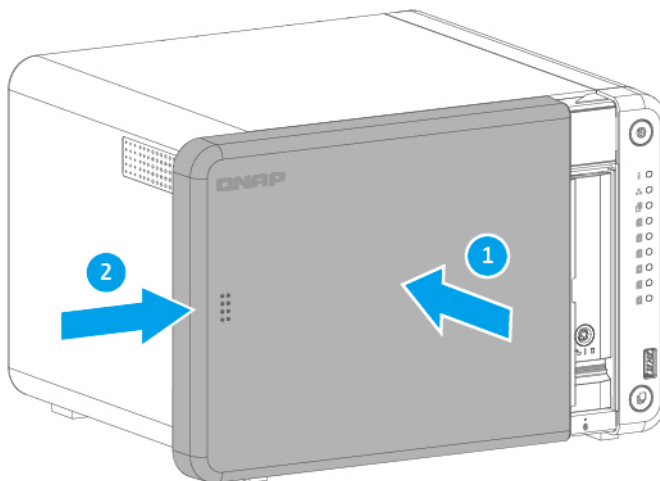
- a. Align the notch with the ridge in the slot.
- b. Insert the module into the slot.
- c. Verify that the metal connectors are completely inserted into the slot.
- d. Carefully press down on the module until the retention clips lock the module into place.



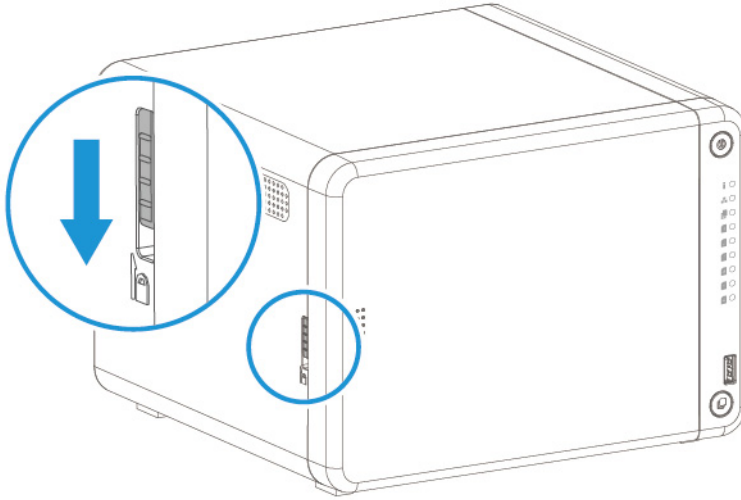
8. Slide each drive tray back into the NAS.



9. Attach the front cover.
 - a. Align the front cover with the grooves on the case and then slide to the right.



- b. Slide the lock down to secure the front cover.



10. Connect all cables and external attachments.
11. Connect the power cord to the electrical outlet.
12. Power on the NAS.
13. Verify that the module is recognized by the NAS.
 - a. Log on to QTS as administrator.
 - b. Go to **Control Panel > System > System Status > Hardware Information** .
 - c. Check the value for **Total memory**.

Installing expansion cards

The NAS supports selected expansion cards. QNAP-branded expansion cards purchased from the company website are shipped with the brackets necessary to fit this NAS.



Warning

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

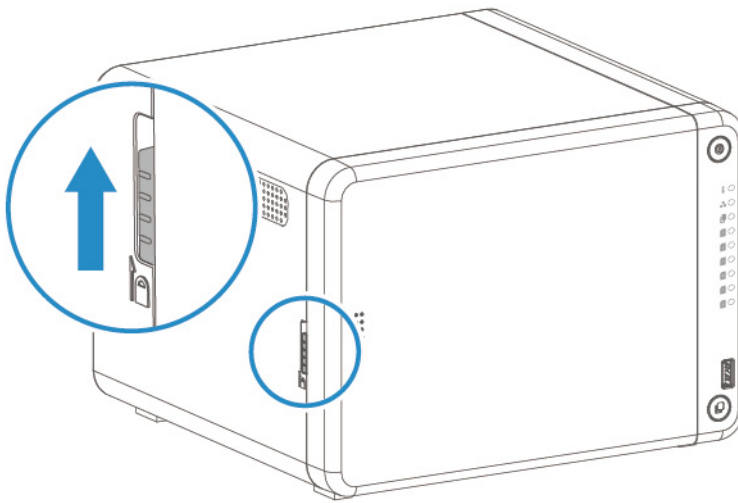


Moving fan blades: Keep your hands and other body parts away from moving fan blades.

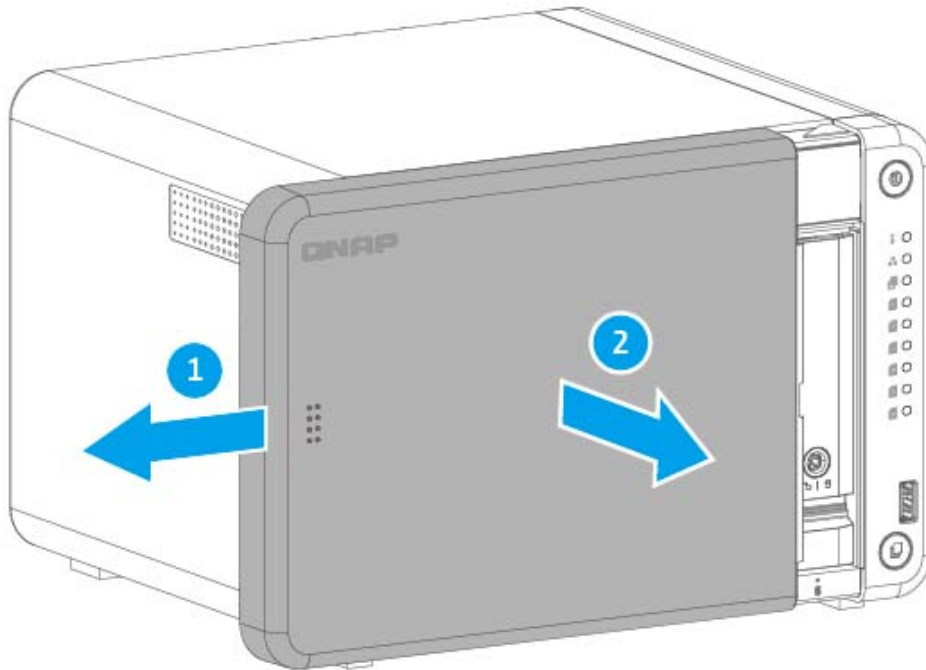


Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
 - a. Locate the locking mechanism on the left side of the NAS.
 - b. Slide the lock up to release the front cover.

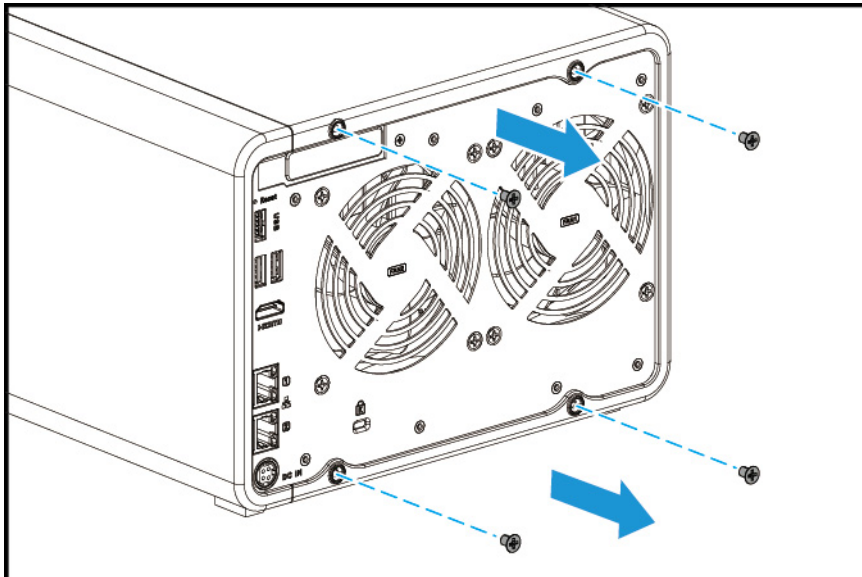


- c. Slide the front cover to the left and then pull.



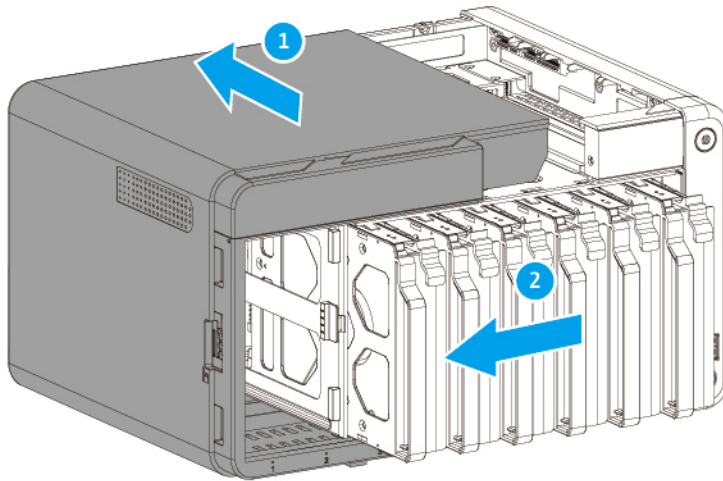
5. Remove the case cover.

- a. Remove the screws that secure the case cover to the chassis.**



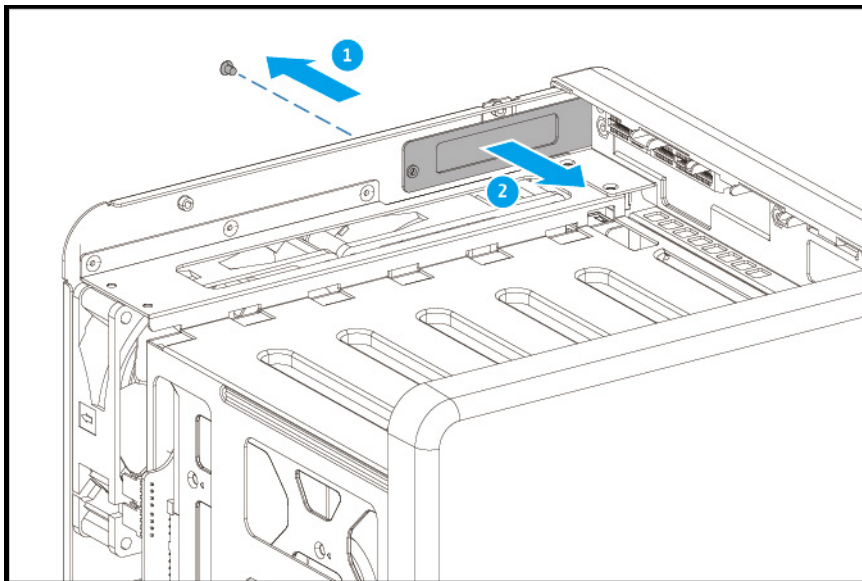
- b. Slide the case cover back.**

- c. Slide the case cover to the left to detach it from the chassis.**



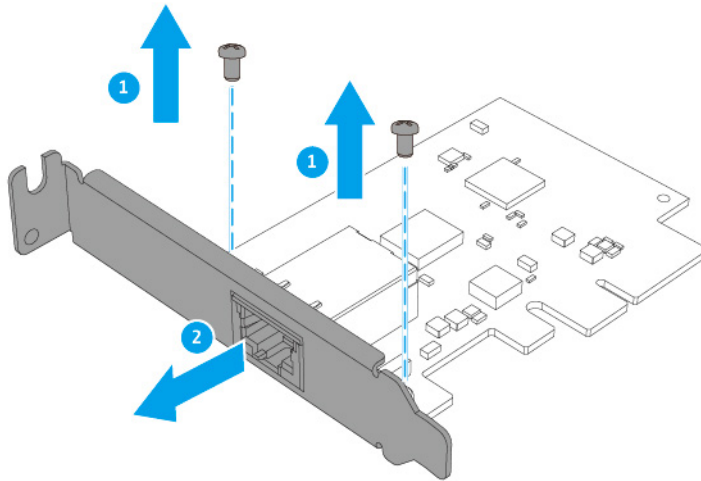
6. Remove the PCIe cover.

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

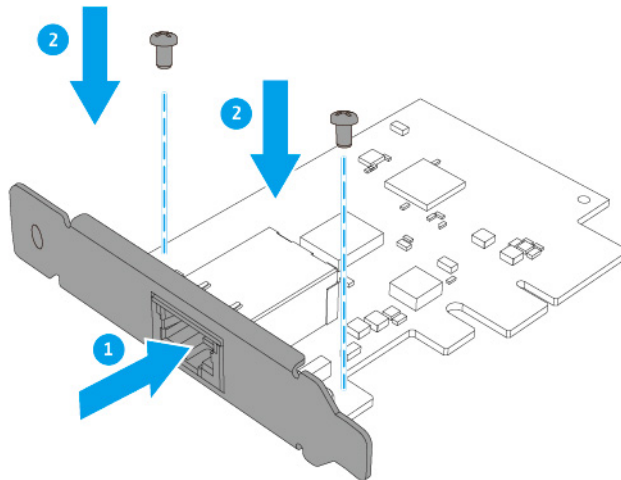


7. Optional: Attach the full-height bracket to the expansion card.

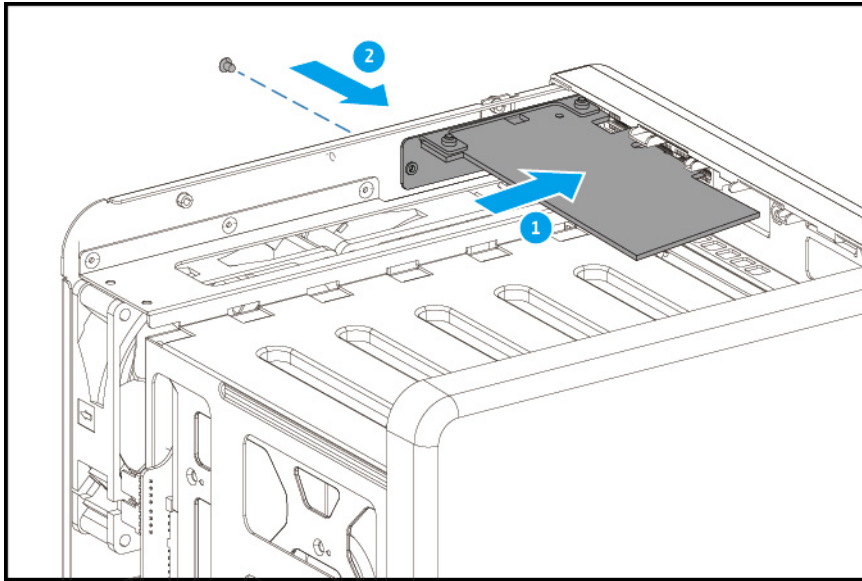
- a.** Remove all screws of the existing bracket.



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

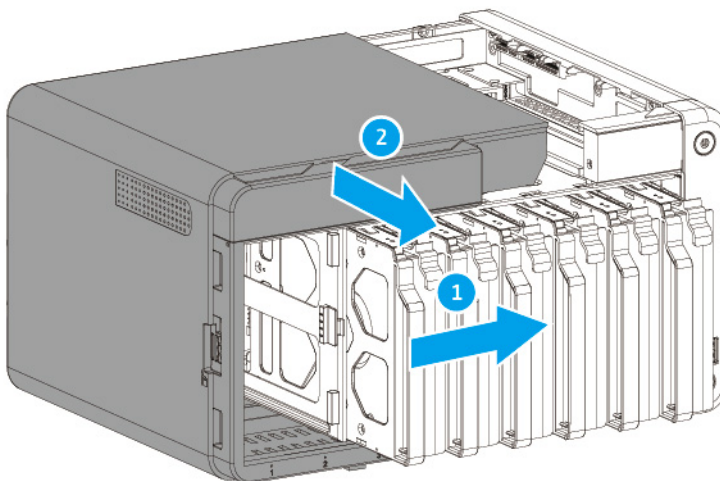


- d.** Verify that the bracket does not move.
- 8.** Install the expansion card.
- a.** Hold the card by the edges.
 - b.** Insert the card into the slot.
 - c.** Attach the screw.

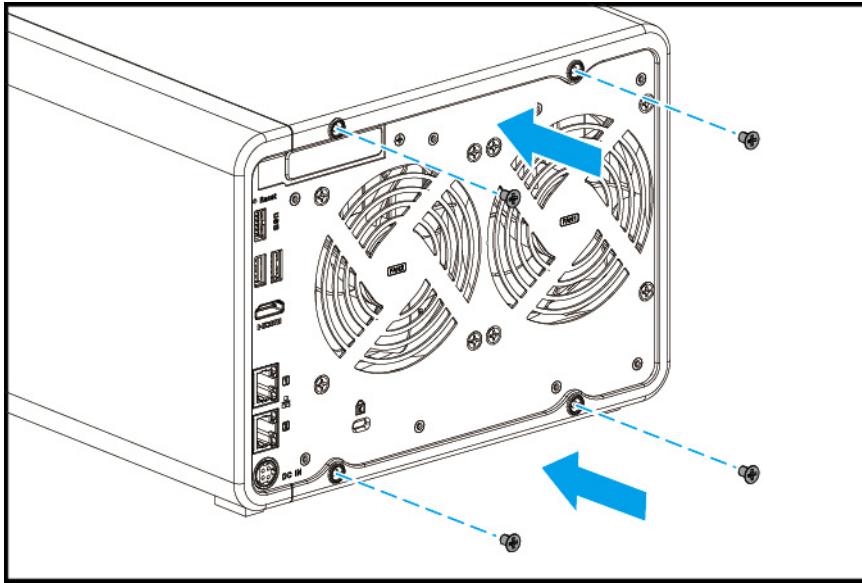


9. Attach the case cover.

- a.** Place the case cover on the NAS.
- b.** Slide the case cover to the left.
- c.** Slide the case cover to the front to secure it to the chassis.

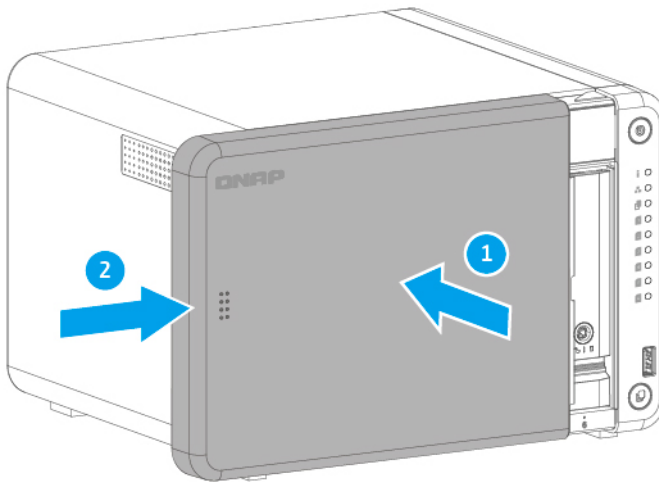


- d.** Attach the screws to the back of the NAS.

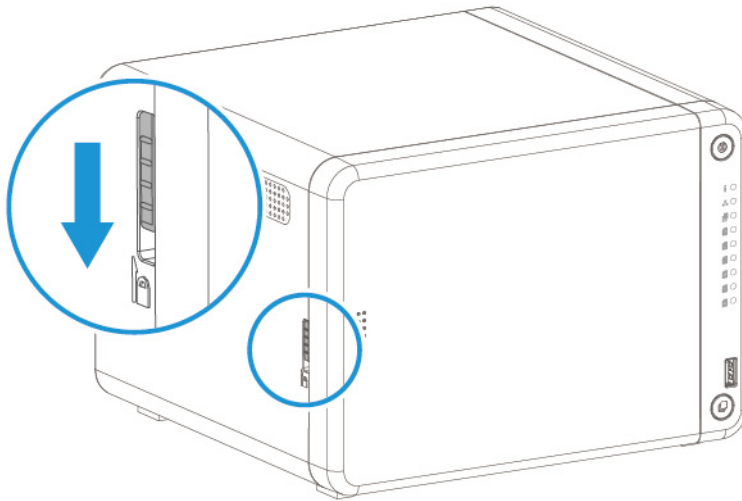


10. Attach the front cover.

- a.** Align the front cover with the grooves on the case and then slide to the right.



- b.** Slide the lock down to secure the front cover.



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

Expansion unit installation

The NAS supports SATA and USB expansion units. For details, 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>.

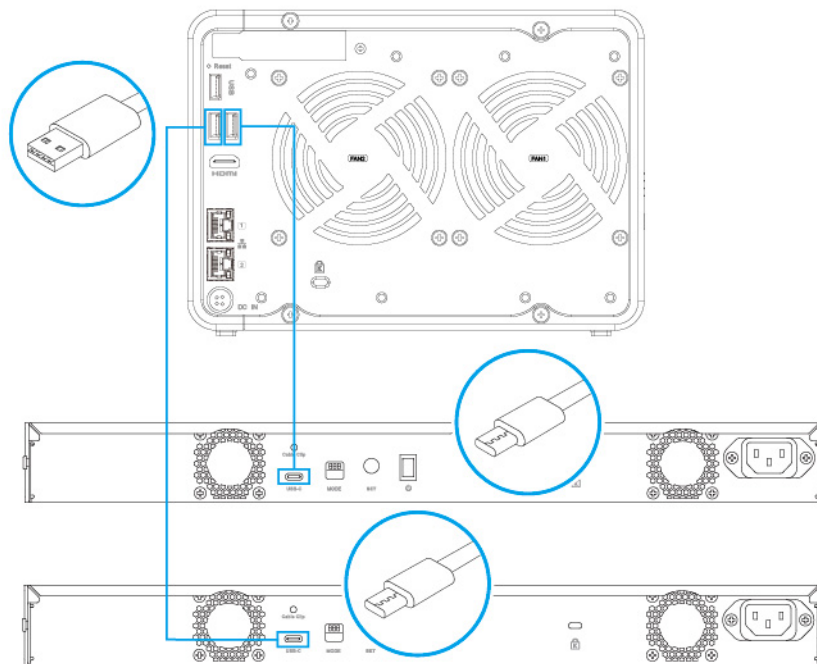
Expansion Unit Model	Description	Required Accessories
TR-002	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004U	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 1 Type-A to Type-C cable • RAIL-B02
TL-D800C	<ul style="list-style-type: none"> • 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
TL-R1200C-RP	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02

Expansion Unit Model	Description	Required Accessories
TL-D400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter
TL-D800S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 2 x SFF-8088 connector cables • QXP-800eS-A1164 host bus adapter
TL-D1600S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 4 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter
TL-R400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter • RAIL-B02
TL-R1200S-RP	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 3 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter • RAIL-B02

Connecting USB expansion units

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

1. Verify that the NAS is powered off.
2. Connect the expansion unit to the NAS.
 - a. Connect the USB cable to the USB Type-C port on the expansion unit.
 - b. Connect the USB cable to a USB 3.2 Gen 2 Type-A port on the NAS.



Note

This image shows the TS-664 connected to two TR-004U USB expansion units.

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

Connecting SATA expansion units

The NAS supports connecting one SATA expansion unit. For required accessories details, see [Expansion unit installation](#).

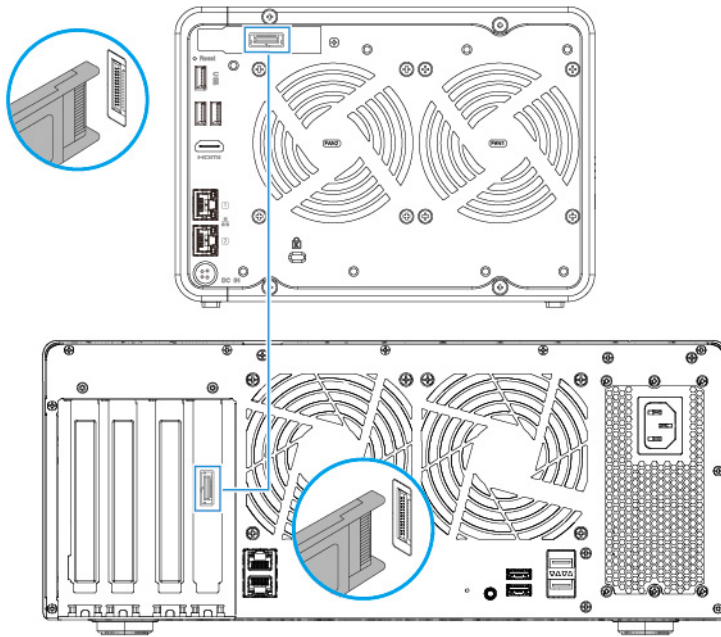
1. Power off the NAS.
2. Install a host bus adapter on the PCIe slot.
For details, see [Installing expansion cards](#).



Note

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

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



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

QTS installation

The NAS uses the QNAP QTS operating system. You can install QTS using any of the following methods.

Method	Description	Requirements
Qfinder Pro installation (Recommended)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QTS using Qfinder Pro.</p>	<ul style="list-style-type: none"> • Computer • Network cable • Qfinder Pro installer

Method	Description	Requirements
Cloud installation	<p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> • Scan the QR code on the NAS. • Specify the Cloud Key. • Log into your myQNAPcloud account. • Use myQNAPcloud Link to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QTS using the cloud installation website.</p>	<ul style="list-style-type: none"> • Computer or mobile device • Network cable • myQNAPcloud account • Cloud Key
Local installation	<p>If the NAS supports HDMI output, you can do the following:</p> <ul style="list-style-type: none"> • Connect the NAS to the required hardware. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QTS using an HDMI connection.</p>	<ul style="list-style-type: none"> • Monitor • HDMI cable • USB keyboard or Remote control (not available on all models)

Initializing QTS using Qfinder Pro

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



Warning

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

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



Tip

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

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



Important

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

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



Note

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

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

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

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

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



Important

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

- **Password:** Specify an administrator password with 1 to 64 characters. The password can contain any ASCII characters.
 - **Confirm Password:** Enter the new administrator password again.
12. Click **Next**.
The **Set the date and time** screen appears.

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



Tip

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

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

14. Click **Next**.

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

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

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

16. Click **Next**.

The **Thunderbolt Connection** page appears.



Note

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

17. Click **Next**.

The **Summary** screen appears.

18. Review the settings.

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



Warning

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

- Click **Initialize**.



Important

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

QTS is initialized.

Initializing QTS using the cloud installation website

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



Warning

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

- Power on the NAS.
- Connect the NAS to the internet.
- 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.

- 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

- Create an account or sign in to myQNAPcloud.



Note

You must return to this page to complete the installation after creating an account.

- Specify the myQNAPcloud device name for the NAS.



Note

- The myQNAPcloud device name is used when remotely accessing the NAS.

- For security purposes, the myQNAPcloud Link remote connection service will be disabled on your NAS after initialization. You can enable it by connecting to QTS through LAN and then installing myQNAPcloud Link.

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



Important

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

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



Note

- This step is only required if the NAS supports installing more than one operating system and the default operating system for installation is not QTS.
- If the screen shows QuTS hero, you may need to click **Skip** first.

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

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

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

13. Click **Next**.
The **Enter the NAS name and administrator's password** screen appears.
14. Specify the following information.
 - **NAS Name:** Specify a name with 1 to 14 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.

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



Important

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

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

15. Click **Next**.

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

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



Tip

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

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

17. Click **Next**.

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

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

Methods	User Actions
Obtain an IP address automatically (DHCP)	Select Obtain an IP address automatically (DHCP) The system automatically detects and configures the IP address settings.

Methods	User Actions
Use static IP address	<ol style="list-style-type: none"> a. Select Use static IP address. The IP address configuration page appears. b. Specify the following IP address configurations: <ul style="list-style-type: none"> • Interface • IP Address • Subnet Mask • Default Gateway • Primary DNS server • Secondary DNS server

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

**Note**

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

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

**Warning**

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

23. Click **Initialize**.

**Important**

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

QTS is initialized.

Initializing QTS using an HDMI connection

You can initialize QTS on an HDMI display if your NAS supports HDMI.

**Warning**

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

1. Connect an HDMI display to the NAS.
2. Connect a USB keyboard to the NAS or prepare the QNAP IR remote control (not available on all models).
3. Power on the NAS.
The **Welcome** screen of the Smart Installation Guide appears.

4. Select **Start Smart Installation Guide**.

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

5. Specify the following information:

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



Important

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

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

6. Click **Next**.

The **Thunderbolt Connection** page appears.



Note

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

7. Click **Next**.

The **Summary** screen appears.

8. Review the settings.

9. Click **Next**.

The **Confirm** screen appears.



Warning

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

10. Click **Next**.



Note


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

QTS is initialized.


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.	The device powers off.  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.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> • 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. <p> Tip You can find the first MAC address with Qfinder Pro or attached to a label on the device listed as MAC1.</p> <ul style="list-style-type: none"> • The admin account is automatically enabled. • TCP/IP configuration: <ul style="list-style-type: none"> • Obtain IP address settings automatically via DHCP • Disable jumbo frames • If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)". • System port: 8080 (system service port) • Security level: Low (Allow all connections) • LCD panel password: (blank) • VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	<p>The default factory settings are restored. To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</p>

USB One Touch Copy button

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

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

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

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 [Front panel](#).

System Status LED

Status	Description
Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> 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.
Red	<ul style="list-style-type: none"> 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).
Green	The device is ready.
Flashes green every 0.5 seconds	<ul style="list-style-type: none"> The device is not configured. A drive is not formatted.

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

Drive LED

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

LAN LED

Status	Description
Orange	The network connection is operating at 1 Gbps.
Flashes orange	The device is being accessed from the network.
Off	The device is not connected to a network.

2.5 Gigabit Ethernet Speed LED

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

2.5 Gigabit Ethernet Activity LED

Status	Description
Orange	A network connection has been established.
Flashes orange	The device is being accessed from the network.
Off	There is no network connection.

USB One Touch Copy LED

Status	Description
Flashes blue every 0.5 seconds	<ul style="list-style-type: none"> 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.

Status	Description
Off	The NAS has finished copying data to or from the USB device connected to the front USB port.

Audio alerts

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

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.

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> <p> 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.</p>

Data and Settings	After NAS Migration
Shared folders	<p>All shared folders and the downloaded files stored in them are retained.</p> <p> Warning To prevent data loss, back up and save encryption keys or passwords of encrypted shared folders in a safe place before migration.</p> <p> Important Folder permissions on the destination NAS must be reconfigured after migration.</p>
Network	<ul style="list-style-type: none"> • If the number of network ports or network port specifications on the destination NAS is different from the source NAS, the following network and virtual settings may change and require reconfiguration: port trunking, virtual machines, Thunderbolt, USB QuickAccess, and more. • You must reconfigure network settings when the source NAS is running on QTS 4.3.5 or earlier versions.
Windows AD configuration	Windows AD configurations must be reconfigured.
Licenses	<p>Licenses are not migrated.</p> <p> Warning To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.</p>
Applications	If the destination NAS has less RAM than the source NAS, the following features and applications might not function: Virtualization Station, Qsirch, and Snapshots.
Services	Only services supported by the destination NAS are available.
Multimedia features	Some multimedia features are disabled by default.

Migrating a NAS



Important

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

For details see the following topics:

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

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



Important

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

- a. Remove the drives from the source NAS.

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

Migrating NAS data using HBS 3

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

Preparing the destination NAS



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

Setting	Description
Password	Specify a password that contains 1 to 16 characters from any of the following groups: <ul style="list-style-type: none"> • Letters: A to Z, a to z • Numbers: 0 to 9 • Special characters: . - _ ~ ! @ # \$ % ^ & () { } • Does not start or end with a space.
Port	Specify a port number to access the RTRR server.

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

Creating a one-way sync job

1. On the source NAS, go to **App Center > HBS 3 > Sync**.
2. Click **Sync Now**.
3. Select **One-way Sync Job**.
The **Create a Sync Job** window appears.
4. Click **Remote NAS**.
5. Click **Add New Account**.
The **Create a Storage Space** window appears.
6. Select the destination NAS as the destination storage space and specify the following:

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

7. Optional: Test the connection.

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

8. Click **Create**.
9. Click **Select**.

10. Select the paired folders.



Important

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

- a. Under the source, click **+**.
A dialog box opens.
- b. Select a folder.
- c. Click **OK**.
The dialog box closes.
- d. Under the destination, click **+**.
A dialog box opens.
- e. Select a folder.
- f. Click **OK**.
- g. Optional: Add more paired folders if necessary.

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

12. Select **Sync now**.

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

14. Optional: Configure job rules.

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

16. Review the job summary.

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



Note

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

Importing local users or group settings to the destination NAS

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

- d. Select **Export user and user group settings**.
 - e. Click **Next**.
The NAS user and user group settings are exported as a file and downloaded onto your computer.
3. Import user settings on the source NAS to the destination NAS.
 - a. On the destination NAS, log on to QTS.
 - b. Go to **Control Panel > Privilege > Users** .
 - c. Click **Create**, and then click **Import/Export Users**.
 - d. Select **Import user and user group settings**.

**Note**

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

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

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 QTS installation, the drives or data may be faulty.

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

Hot-swapping failed drives

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

RAID Type	Number of Disks	Situation
RAID 1	2	One member drive fails.
RAID 5	≥ 3	One member drive fails.
RAID 6	≥ 4	One or two member drives fail.
RAID 10	≥ 4 (Must be an even number)	One or two member drives in two different pairs fail.
RAID 50	≥ 6	One disk per subgroup fails.

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD** .
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Remove the failed drive from the device.
6. Wait for 20 seconds or until the device beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.
The NAS beeps twice.
10. Go to **Main Menu > Storage & Snapshots > Storage > Storage/Snapshots** .
11. Locate the volume that contains the new drive and then verify that the status is `Rebuilding`.

Recovering unintentionally removed hard 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, or RAID 50 group from degraded mode.

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
Single	No	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.

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

QNAP ID

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

QTS

QNAP NAS operating system

7. 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, which may be amended from time to time by QNAP in its discretion.

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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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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

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金属螺帽	0	0	0	0	0	0
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