



QNAP

TS-855X

TS-855X

User Guide

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1. Product Overview

This chapter provides basic information about the QNAP device.

About the TS-855X

The TS-855X is a robust and reliable SMB NAS powered by an Intel® Atom® C5125 processor, and features two PCIe slots, two M.2 SSD slots, one 10 GBASE-T port, and two 2.5 GbE ports. The TS-855X can help your business achieve reliable service-level agreement performances, including mission-critical file servers, virtualization servers, collaborative video editing, or efficient data backup and recovery applications.

Hardware specifications



Warning

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

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

For details, see the [QNAP Warranty Terms and Conditions](#).



Tip

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

Ordering P/N	CPU	Memory	Power supply
TS-855X-8G	Intel ® Atom® C5125	8 GB	Single










Important



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

Component	TS-855X-8G
Processor	
CPU	Intel ® Atom® C5125
Frequency	8-core 2.8 GHz
Architecture	x86 64-bit
Encryption engine	AES-NI
Memory	
Pre-installed memory	8 GB RAM: 1 x 8 GB DDR4 UDIMM

Component	TS-855X-8G
Memory slots	4 x U-DIMM DDR4  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.  Note This device supports ECC memory modules.
Maximum memory	128 GB RAM: 4 x 32 GB
Flash memory	5 GB (dual-boot OS protection)
Storage	
Drive bays	<ul style="list-style-type: none"> • 6 x 3.5-inch SATA 6 Gbps • 2 x 2.5-inch SATA 6 Gbps  Tip The drive bays are backward compatible with SATA 3 Gbps drives.
Drive compatibility	3.5-inch bays: <ul style="list-style-type: none"> • 3.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives 2.5-inch bays: <ul style="list-style-type: none"> • 2.5-inch SATA solid-state drives  Note You can purchase tray bases from QNAP or an authorized reseller. For details, go to https://shop.qnap.com/ .
M.2 SSD slots	2 x PCIe Gen 3 x4 NVMe
M.2 SSD form factor	2280
SSD cache acceleration support	Supported.
Hot-swapping	The device supports hot-swapping drives except for the following: <ul style="list-style-type: none"> • M.2 SSDs • SSD cache drives • SSDs using PCIe expansion slots
Network	
10 Gigabit network interface	1 x 10G BASE-T

Component	TS-855X-8G
2.5 Gigabit network interface	2 x 2.5 GbE RJ45  Note The 2.5 Gigabit Ethernet port supports the following network connectivity speeds: 2.5 GbE, 1 GbE, 100 Mb, and 10 Mb.
Wake-on-LAN	Yes (GbE RJ45)
External I/O Ports & Expansion Slots	
PCIe slots	2 x PCIe Gen3 x4
USB ports	<ul style="list-style-type: none"> • Front: <ul style="list-style-type: none"> • 1 x USB 3.2 Gen 1 Type-A  Note This USB port supports One Touch Copy. <ul style="list-style-type: none"> • Rear: <ul style="list-style-type: none"> • 1 x USB 2.0 Gen 1 Type-A • 2 x USB 3.2 Gen 1 Type-A
Interface	
Display panel	Monochrome backlit LCD display
Buttons	<ul style="list-style-type: none"> • Power • Reset • USB One Touch Copy
Dimensions	
Form factor	Tower
Dimensions (H x W x D)	224.8 x 292.7 x 319.8 mm (8.85 x 11.52 x 12.59 in)
Net weight	8.5 kg (18.74 lbs)
Others	
Power supply unit	250W, 100-240V AC, 50/60 Hz
System battery	CR2032 lithium battery (3V, 225 mAh)
Fans	<ul style="list-style-type: none"> • System: 2 x 80 mm, 12V DC fan • CPU: 1 x 90 mm, 12V DC smart fan  Note The preinstalled CPU fan is connected to fan connector 2. An additional CPU fan can be installed using fan connector 1. For details, see .
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



Note

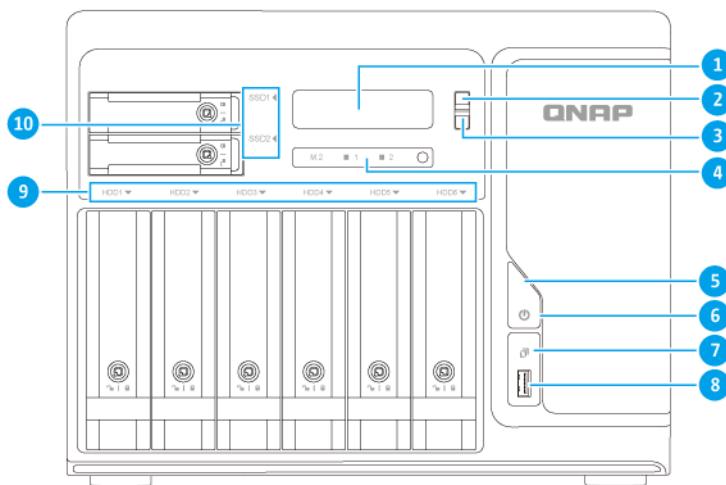
For the list of compatible drive models, go to <https://www.qnap.com/compatibility>.

Package contents

Item	Quantity
TS-855X NAS	1
Power cord	1
Ethernet cables	2 x 1GbE (Cat 5e)
Drive tray keys	2
Screws for 2.5-inch drives	24
Screws for 3.5-inch drives	32
Heatsinks	2
Quick Installation Guide (QIG)	1

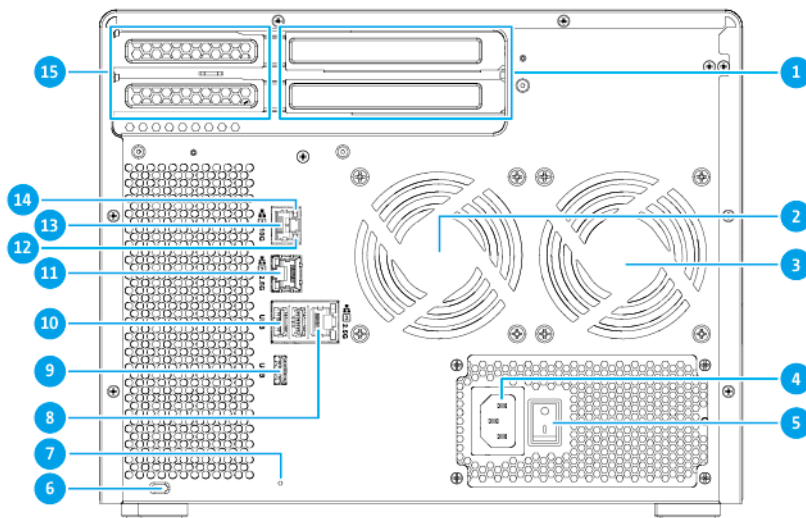
Components

Front panel



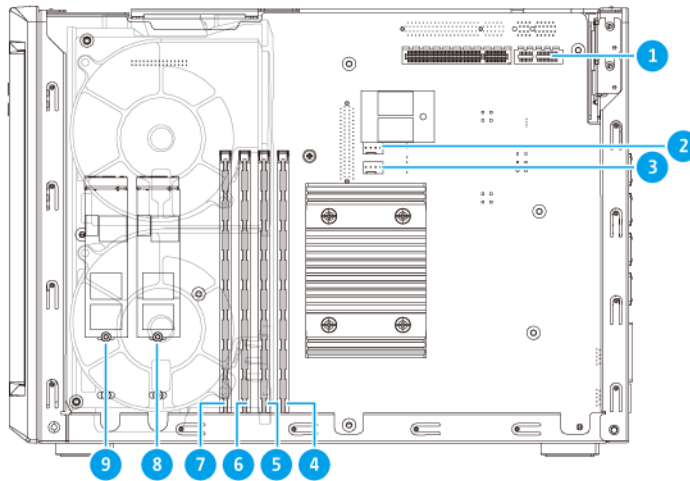
No.	Component	No.	Component
1	LCD panel	6	Power LED
2	LCD enter button	7	USB One Touch Copy button
3	LCD select button	8	USB 3.2 Gen 1 One Touch Copy Type-A port
4	M.2 SSD LEDs	9	Drive LEDs
5	Power button	10	SSD LEDs


Rear panel



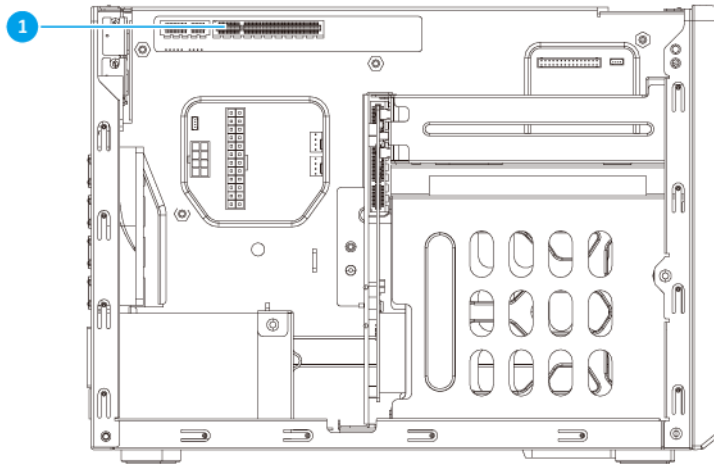
No.	Component	No.	Component
1	PCIe full-height covers	9	USB 2.0 Type-A ports
2	Fan 2	10	USB 3.2 Gen 1 Type-A ports
3	Fan 1	11	2.5 Gigabit Ethernet port (RJ45)
4	Power input	12	2.5 Gigabit Ethernet speed LED
5	PSU power switch	13	10GBASE-T port (RJ45)
6	Kensington security slot	14	2.5 Gigabit Ethernet activity LED
7	Reset button	15	PCIe low-profile covers
8	2.5 Gigabit Ethernet port (RJ45)	-	

Right panel



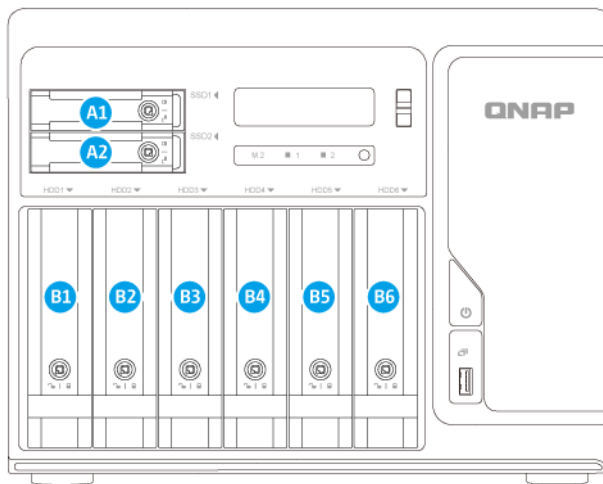
No.	Component	No.	Component
1	PCIe slot 2 (PCIe 3.0 x4)	6	Memory slot 2
2	Fan connector 1	7	Memory slot 1
3	Fan connector 2	8	M.2 SSD slot 2
	 Note The preinstalled CPU fan is connected to this connector.		
4	Memory slot 4	9	M.2 SSD slot 1
5	Memory slot 3	-	-

Left panel



No.	Component	No.	Component
1	PCIe slot 1 (PCIe 3.0 x4)	-	-

Drive numbering



Drive Label	Drive Type	Compatible Drives
A1 to A2	2.5-inch SATA	2.5-inch SATA 6 Gbps solid-state drives
B1 to B6	3.5-inch SATA	<ul style="list-style-type: none"> 3.5-inch SATA 6 Gbps hard disk drives 2.5-inch SATA 6 Gbps solid-state drives

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 • Restricted access <ul style="list-style-type: none"> • The NAS 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, trained, and authorized NAS administrators with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the NAS.
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"> • Phillips #1 or #2 screwdriver • Anti-static wrist strap

Setting up the NAS



Important

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

1. Place your NAS device in an environment that meets the requirements.
For details, see [Installation requirements](#).
2. Install drives.
For details, see the following topics:
 - [Installing 3.5-inch hard drives on 3.5-inch trays](#)
 - [Installing 2.5-inch solid-state drives on 3.5-inch trays](#)
 - [Installing 2.5-inch solid-state drives on 2.5-inch trays](#)
 - [Installing M.2 solid-state drives](#)

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

3. Optional: Replace or install additional memory modules. For details, see [Replacing memory modules](#).

- 4.** Optional: Install expansion cards.
For details, see [Installing expansion cards](#).
- 5.** Connect the NAS to the network.
- 6.** Optional: Connect expansion units.
For details, see the following topics:
 - [Connecting SATA expansion units](#)
 - [Connecting USB expansion units](#)
- 7.** Connect the power cord and all applicable cables.
- 8.** Power on the NAS.
For details, see [Front panel](#).
- 9.** Install QuTS hero.
For details, see .
- 10.** Log on to QuTS hero.

2. Installation and Configuration

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

Hardware installation

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

Drive installation

The TS-855X series is compatible with 3.5-inch hard drives, 2.5-inch solid state drives, and M.2 SSD 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.

•



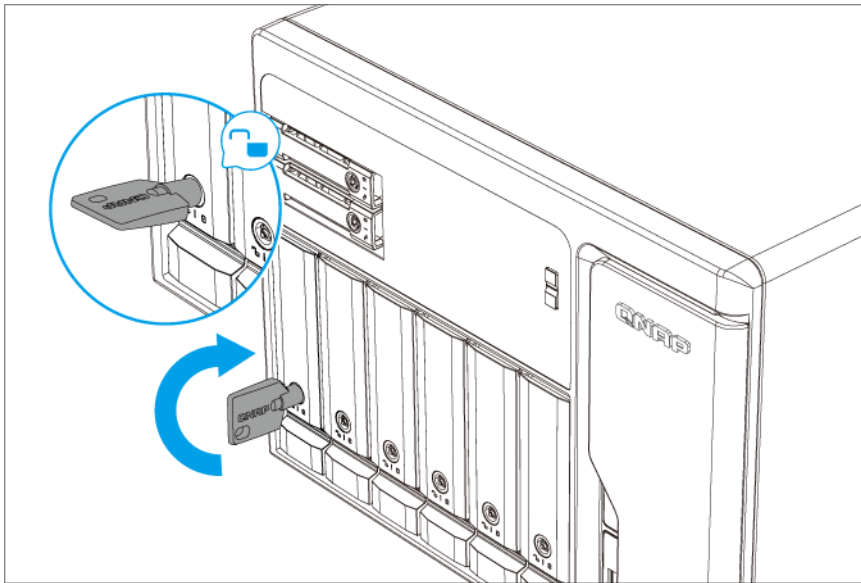
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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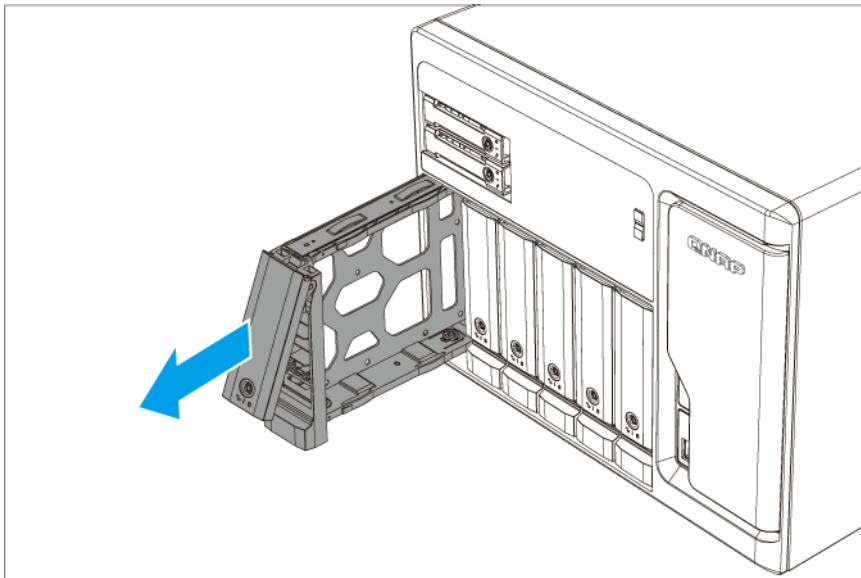


Other moving components: Keep your hands and other body parts away from other moving components.

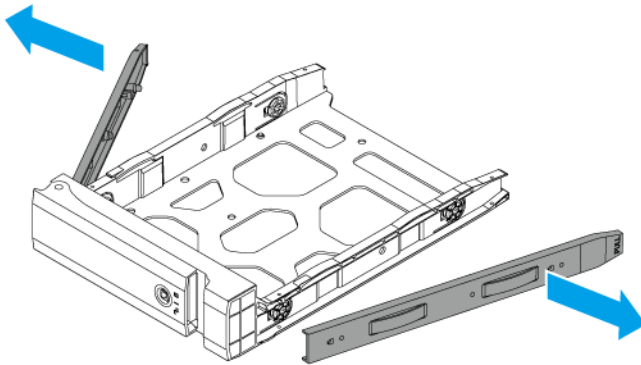
1. Power off the NAS.
2. Remove the drive tray.
 - a. Unlock the tray.



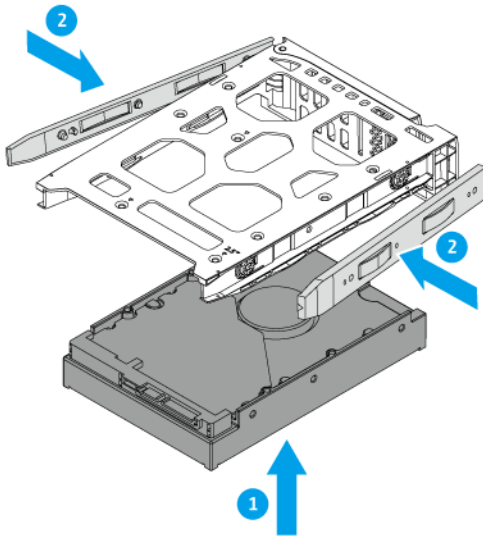
- b.** Slide the lock down.
- c.** Pull the handle to release the tray.
- d.** Pull the tray out.



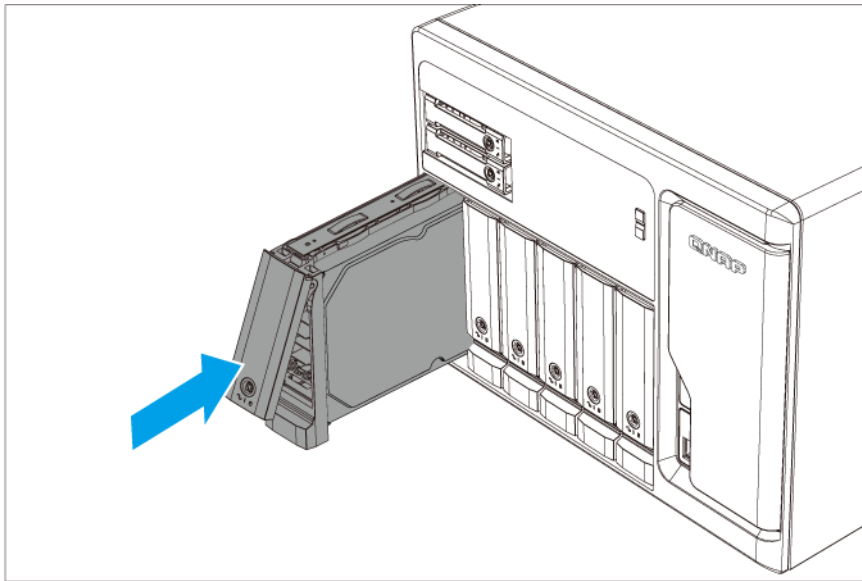
- 3.** Install a drive on the tray.
 - a.** Remove the fastening panels from the sides of the drive tray.



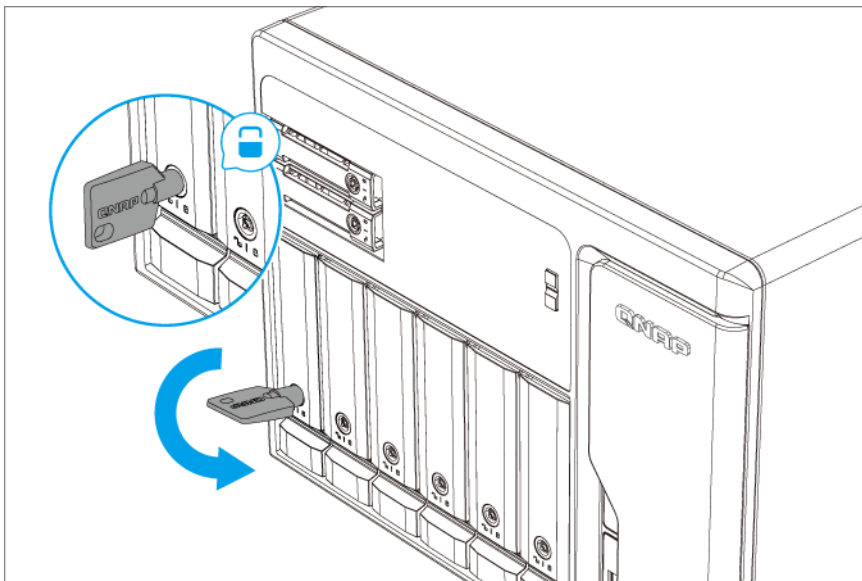
- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the fastening panels to lock the drive to the tray.



- 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. Slide the lock up.
- d. 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.

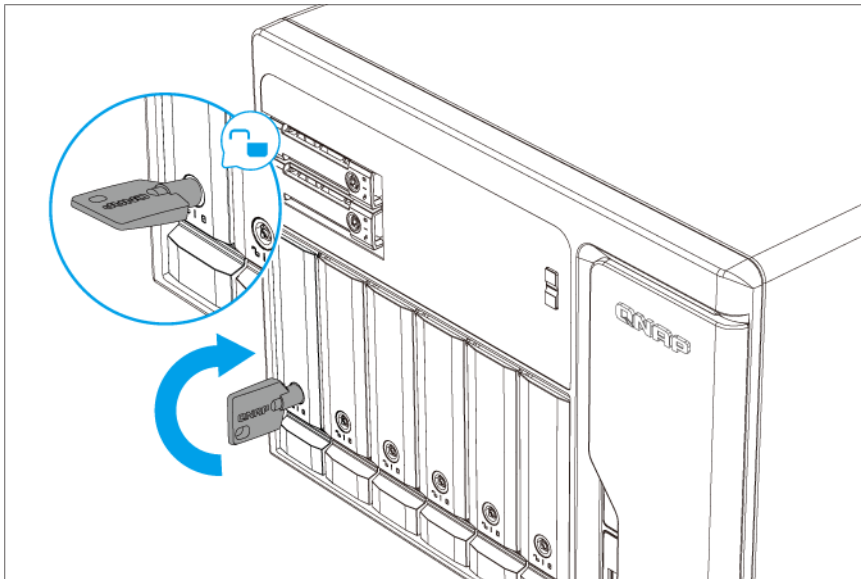


Moving fan blades: Keep your hands and other body parts away from moving fan blades.

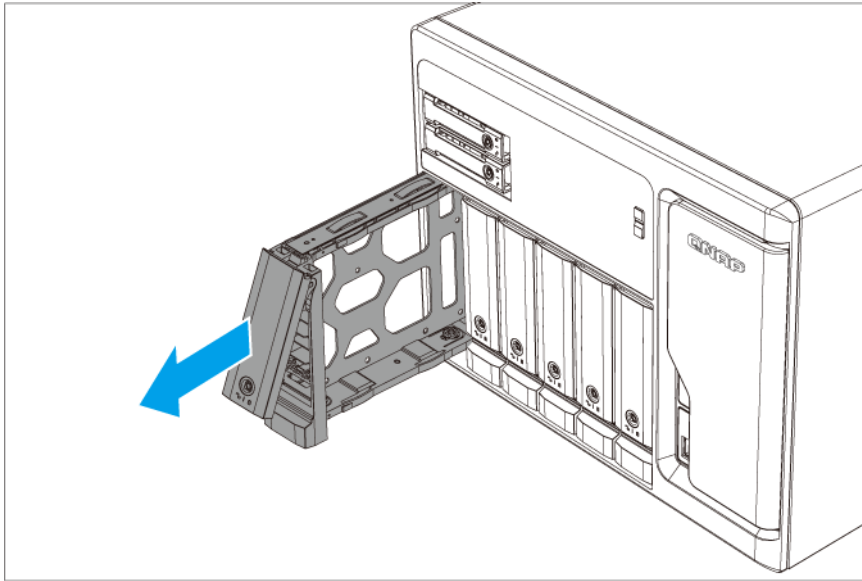


Other moving components: Keep your hands and other body parts away from other moving components.

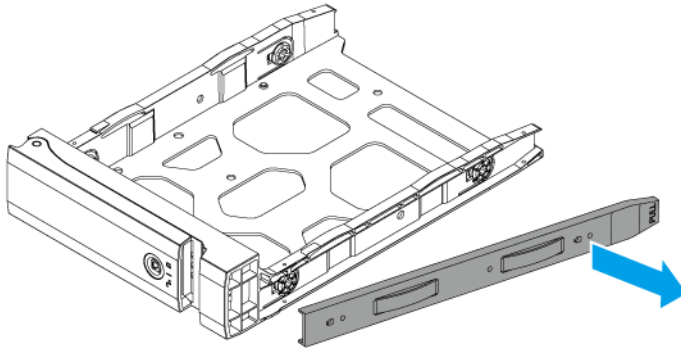
1. Power off the NAS.
2. Remove the drive tray.
 - a. Unlock the tray.



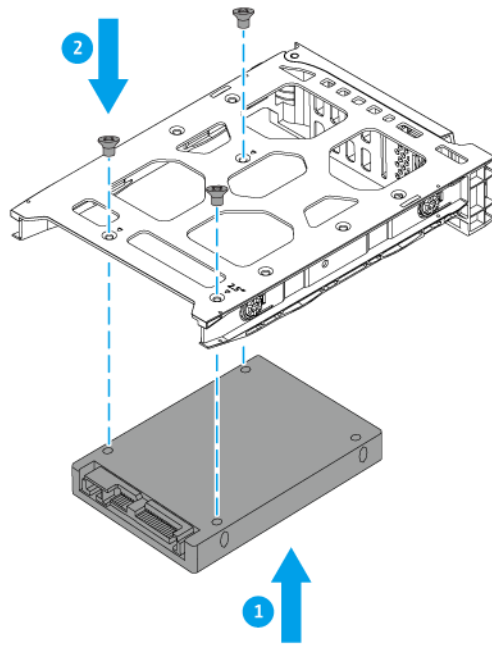
- b. Slide the lock down.
- c. Pull the handle to release the tray.
- d. Pull the tray out.



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

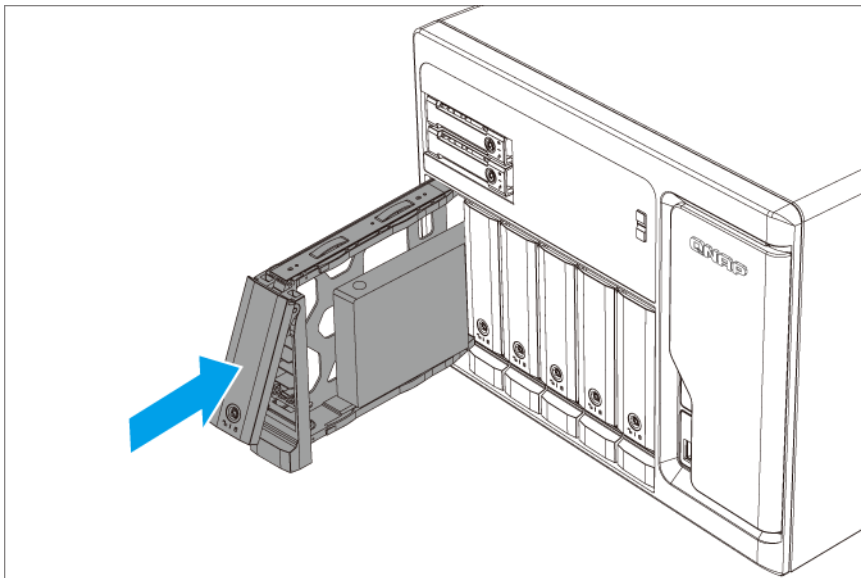


- b.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- c.** Attach the screws.

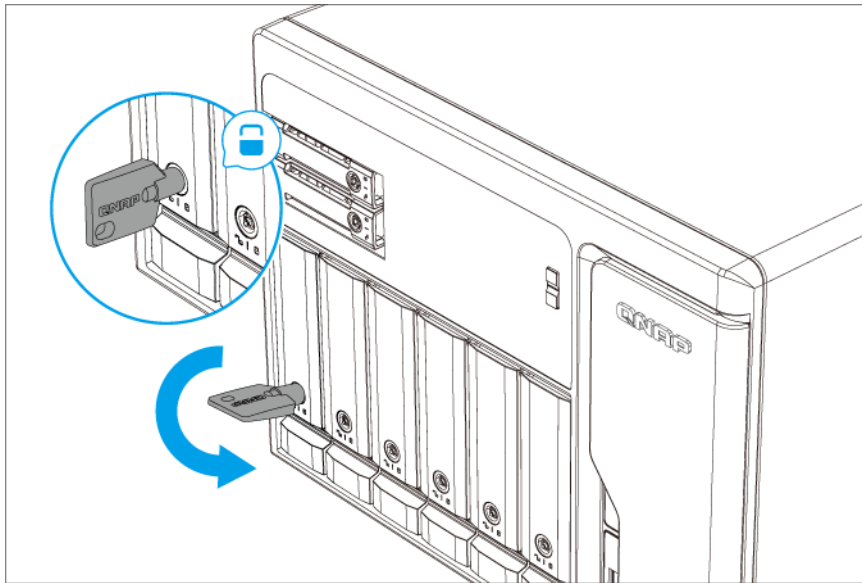


4. Load the tray into the bay.

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



- b. Push the handle.**
- c. Slide the lock up.**
- d. Lock the tray.**



5. Power on the NAS.

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



Warning

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

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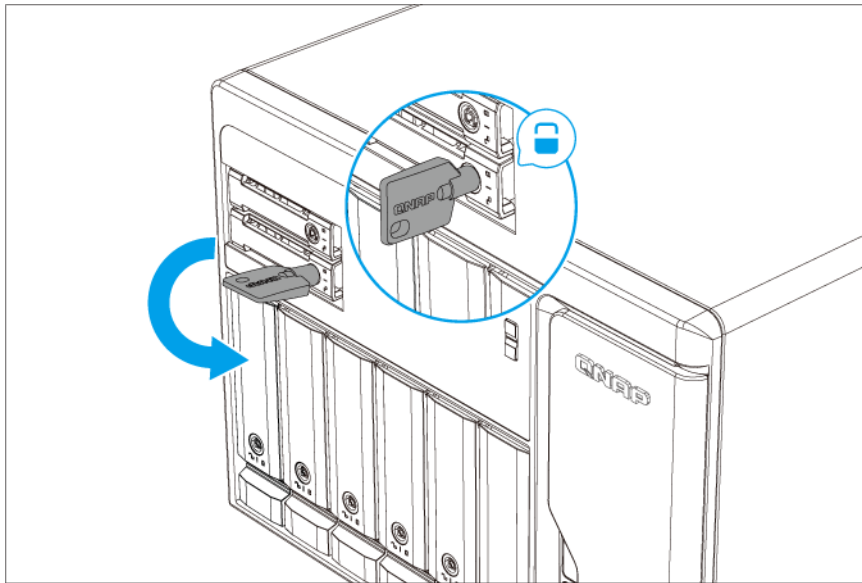
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

•



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. Unlock the tray.
 - b. Slide the lock to the right.
 - c. Pull the handle to release the tray.



- b. Push the handle.
- c. Slide the lock up.
- d. Lock the tray.

5. Power on the NAS.

Installing M.2 solid-state drives

The TS-855X 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.

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

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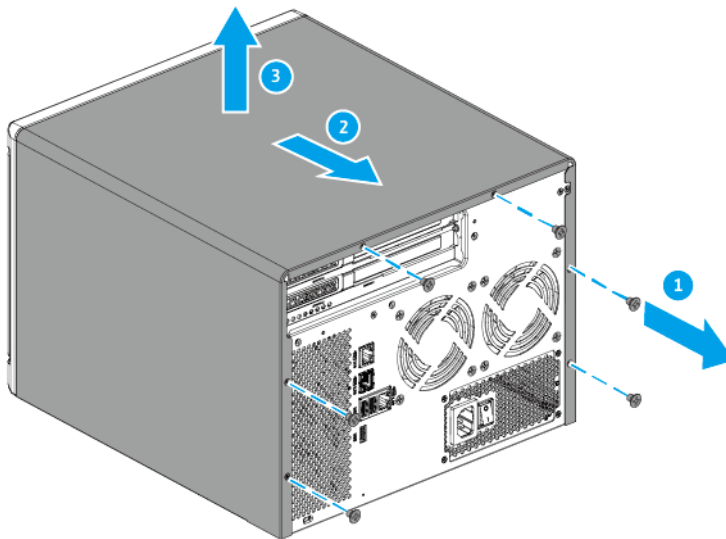


Other moving components: Keep your hands and other body parts away from other moving components.

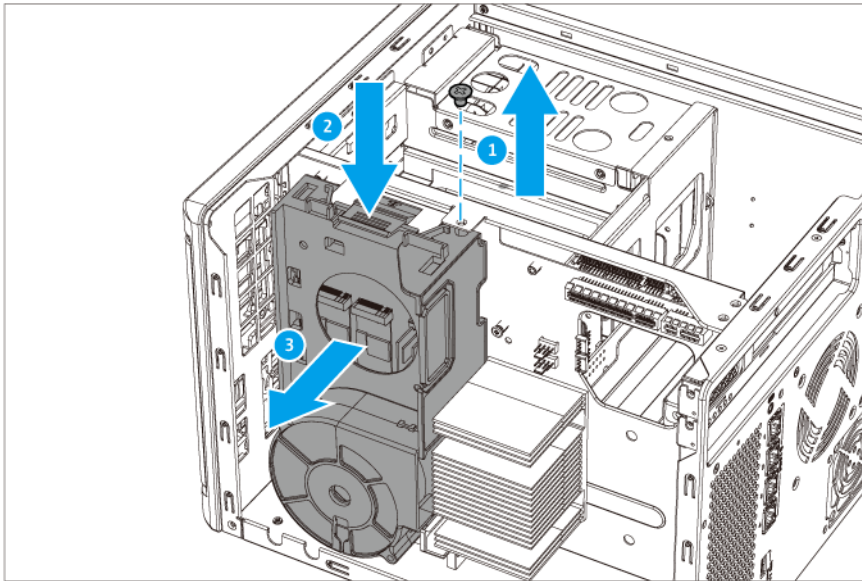
**Note**

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

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



5. Remove the fan module.
 - a. Disconnect the fan cable from the system board.
 - b. Remove the screw that secures the module to the chassis.
 - c. Press the clip and then pull the module away from the system board.



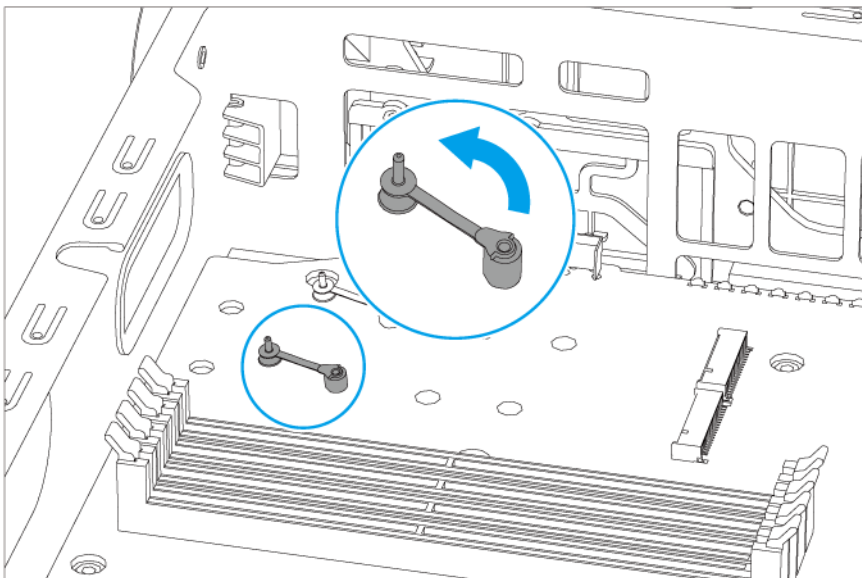
6. Install a heatsink on the M.2 SSD.
 - a. Locate the controller on the M.2 SSD.



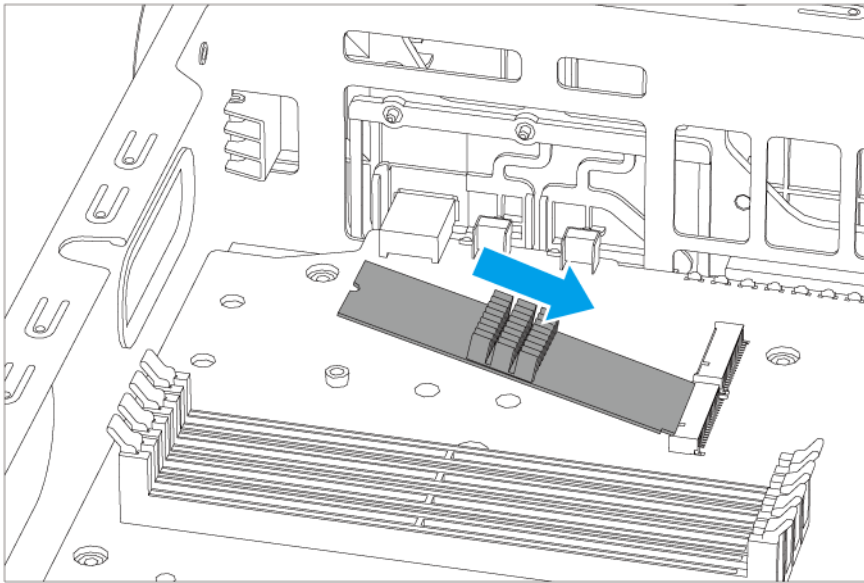
Note

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.

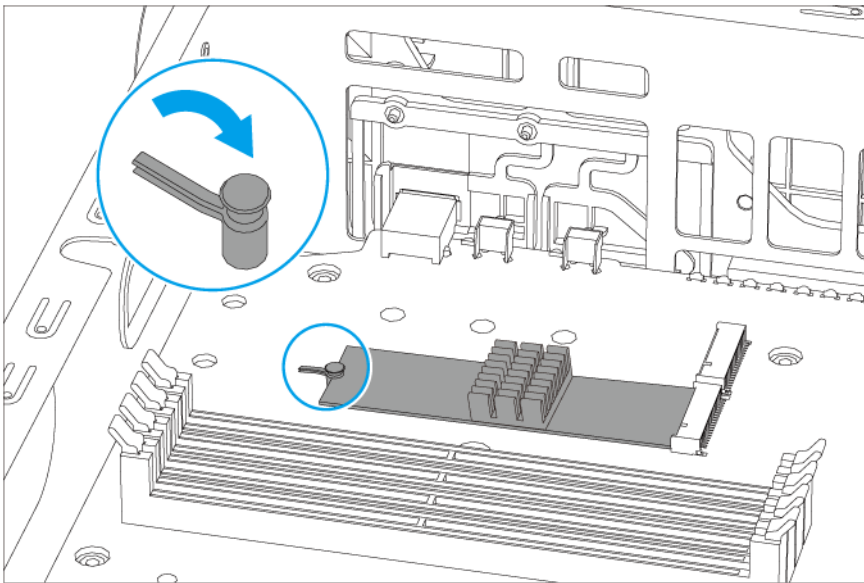
7. Install the M.2 SSD.
 - a. Pull out the pushpin.



- b. Insert the M.2 SSD into the slot.

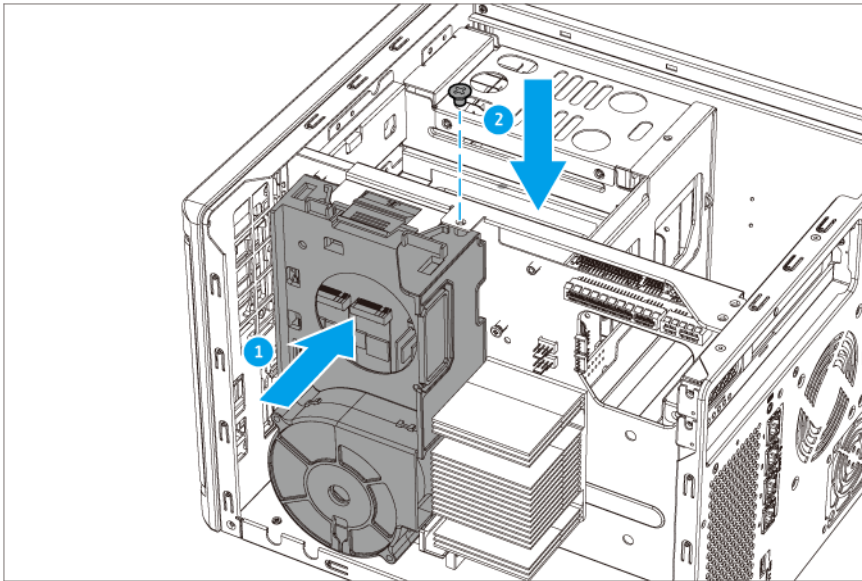


c. Insert the pushpin to secure the drive.



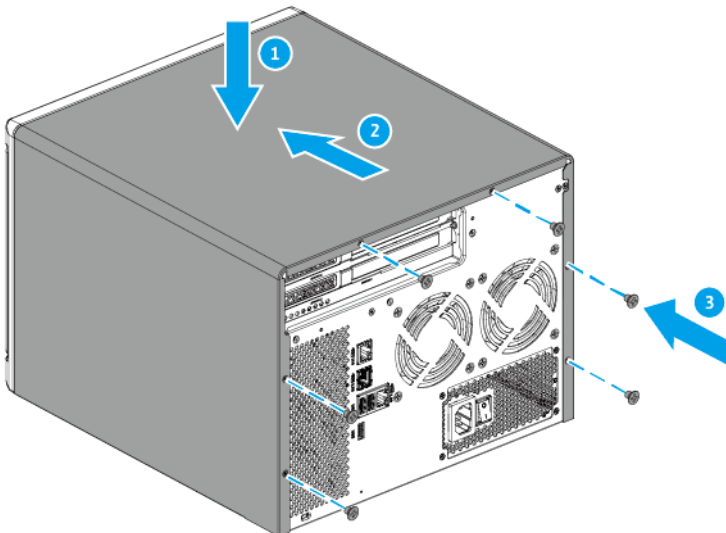
8. Attach the fan module.

- a.** Align the protruding part of the module with the hole on the chassis below the M.2 SSD slot.
- b.** Push the module toward the system board until the clip locks the module into place.
- c.** Attach the screws.



9. Attach the case cover.

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



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

Installing expansion cards

The TS-855X 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 TS-855X series.



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.

-



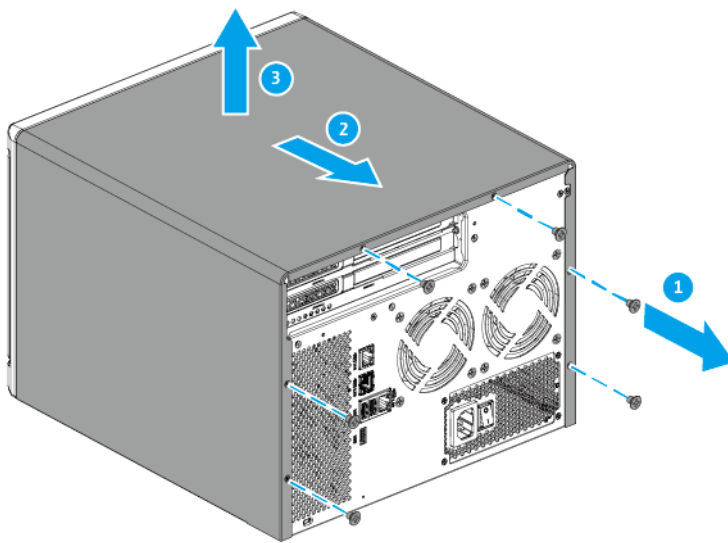
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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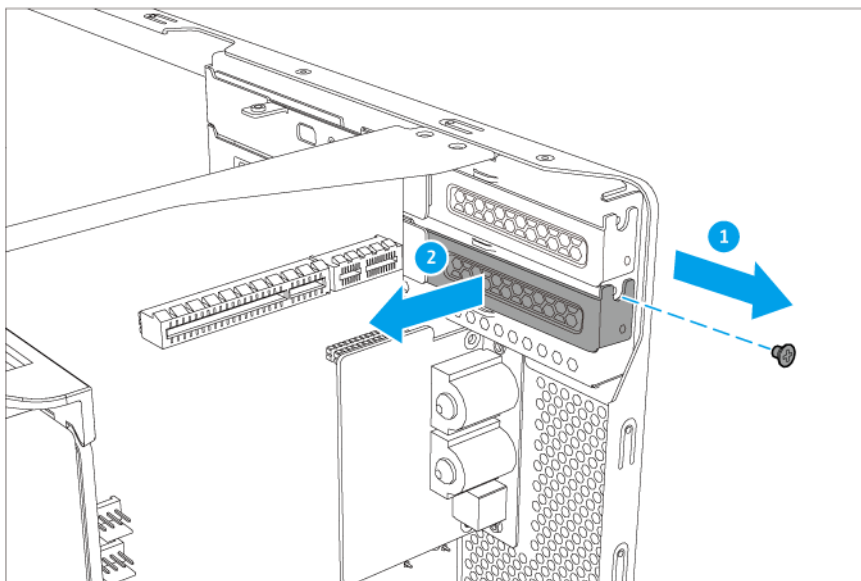
Other moving components: Keep your hands and other body parts away from other moving components.

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

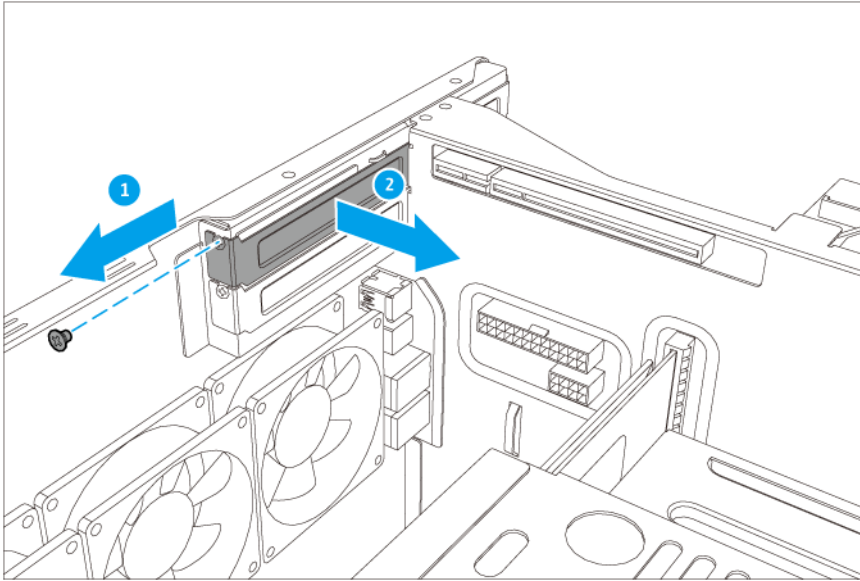


5. Remove the PCIe cover.

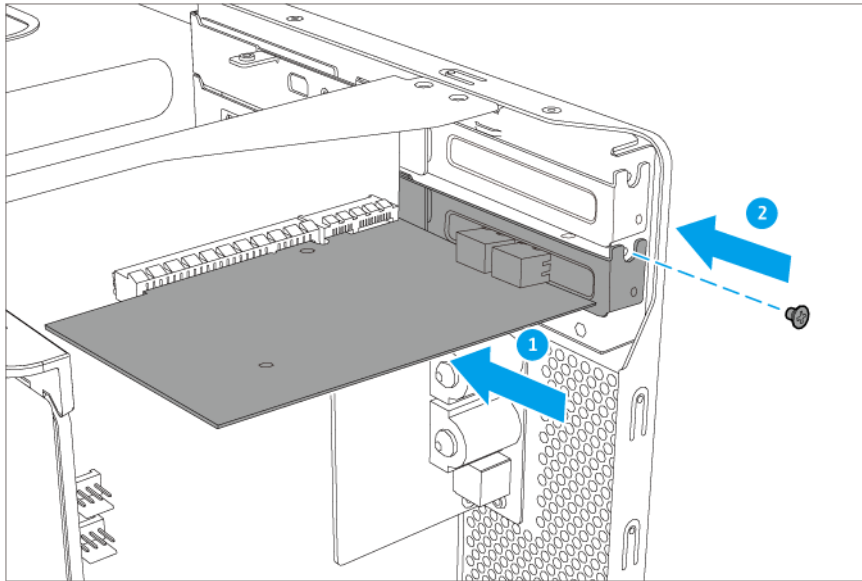
- a.** Remove the screw that secures the cover to the bracket.
 - b.** Pull the cover away from the slot.
- Right Panel



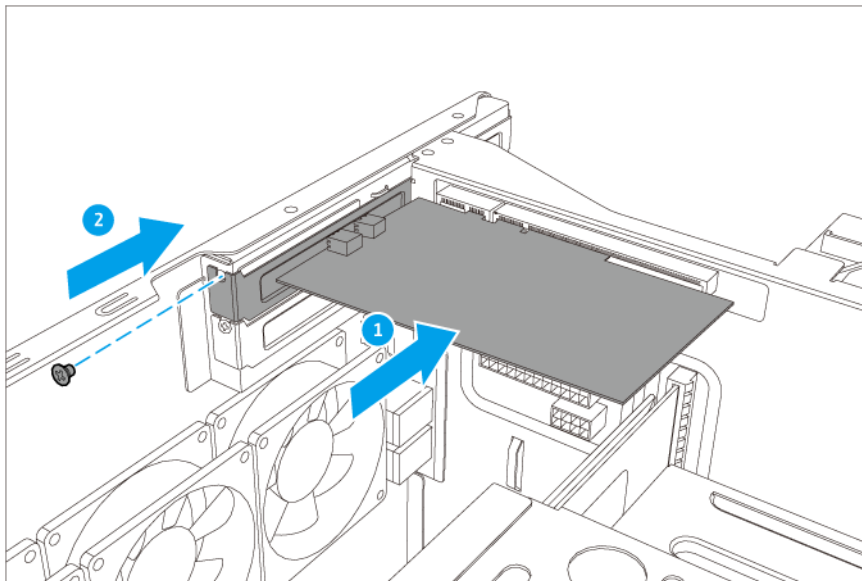
Left Panel



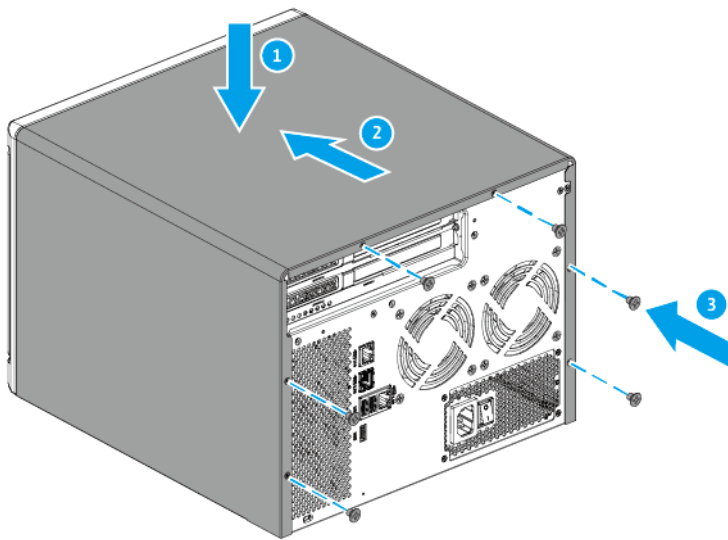
- 6. Optional: Attach the QNAP bracket to the expansion card.**
 - a.** Remove all screws of the existing bracket.
 - b.** Carefully pull the bracket away from the card.
 - c.** Attach the QNAP bracket to the card using the same screws.
 - d.** Verify that the bracket does not move.
- 7. Install the expansion card.**
 - a.** Hold the card by the edges.
 - b.** Insert the card into the slot.
 - c.** Attach the screw.
Right Panel



Left Panel



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



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

Replacing memory modules

The TS-855X series has four memory slots. You can increase the memory capacity of the NAS by upgrading memory modules. For optimal quad-channel performance, replace memory modules in all four slots at the same time.

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.



Important

QNAP recommends installing modules in pairs to run dual-channel mode.

- Ensure that all four modules are identical.
- Install the pairs in sequence and follow the assigned slots for each pair.

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

Module Pair	Slot Number
First pair	Slots 1 and 3
Second pair	Slots 2 and 4



Warning

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

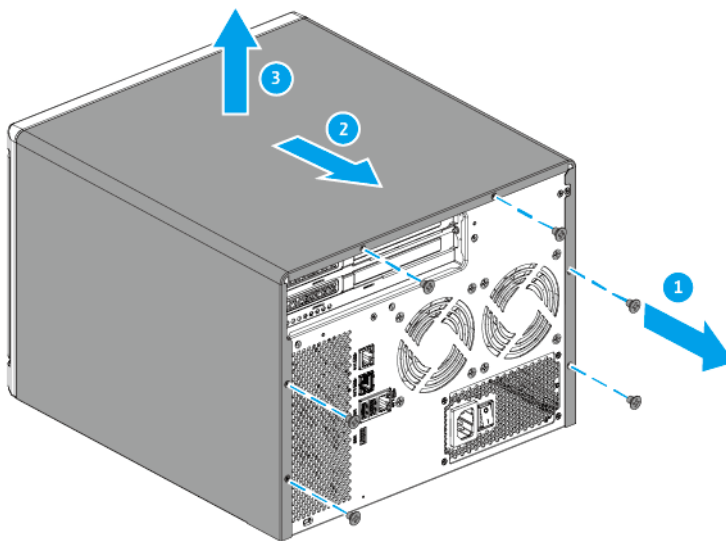


Moving fan blades: Keep your hands and other body parts away from moving fan blades.

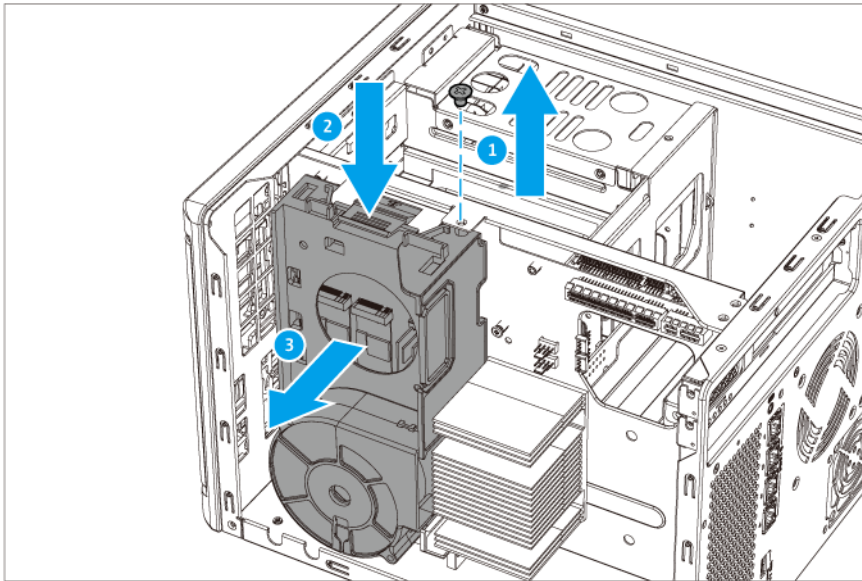


Other moving components: Keep your hands and other body parts away from other moving components.

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



5. Remove the fan module.
 - a. Disconnect the fan cable from the system board.
 - b. Remove the screw that secures the module to the chassis.
 - c. Press the clip and then pull the module away from the system board.



6. Remove an existing module.

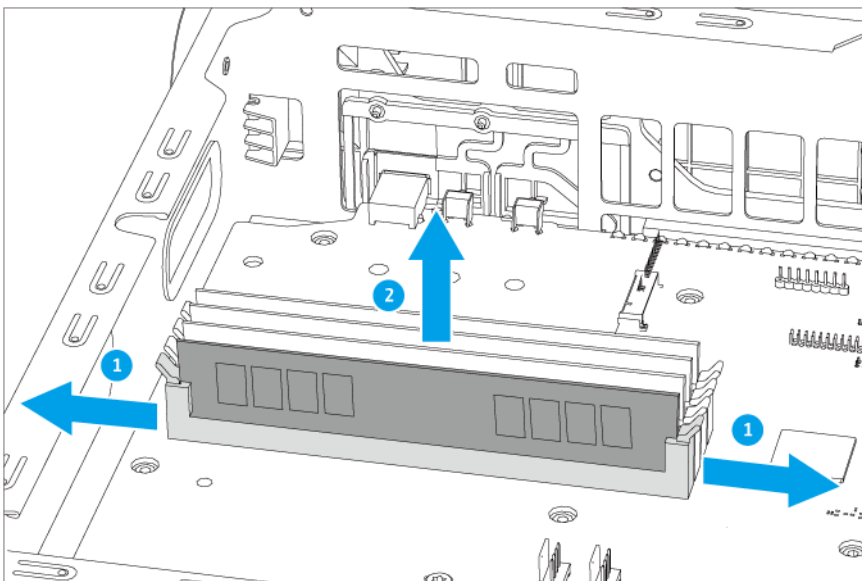
- a. Push the retention clips outward simultaneously to release the module.
- b. Verify that the module has tilted upward and is completely released from the slot.



Warning

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

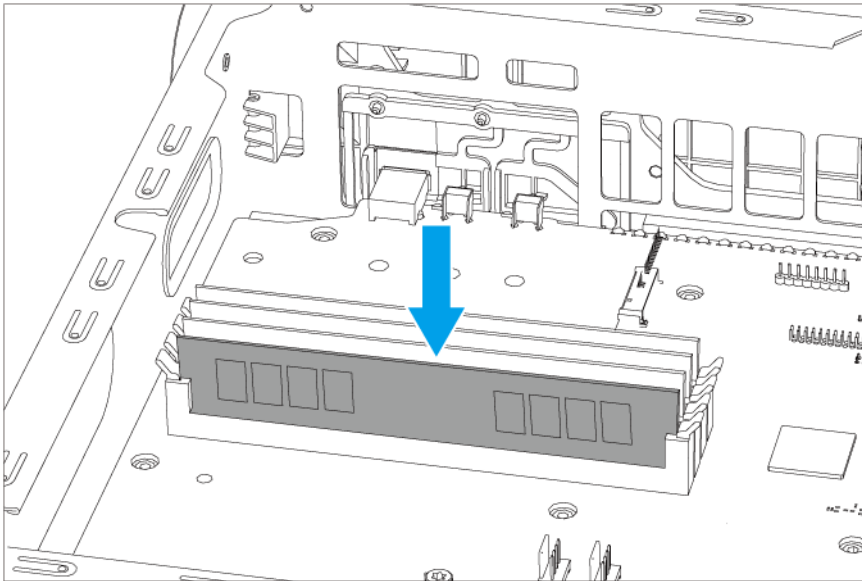
- c. Hold the module by the edges.
- d. Carefully slide the module out of the slot.



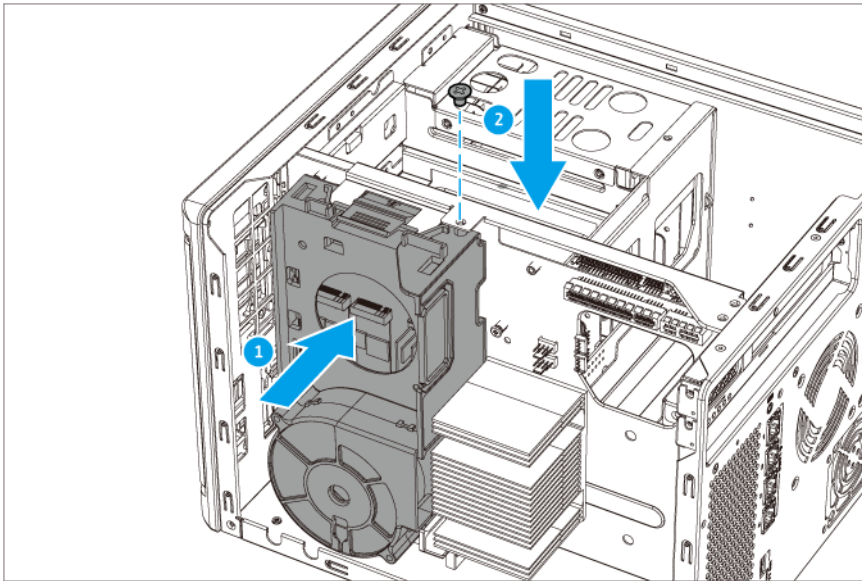
**Warning**

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

7. Install a new module.
 - a. Align the notch with the ridge in the slot.
 - b. Insert the module into the slot.

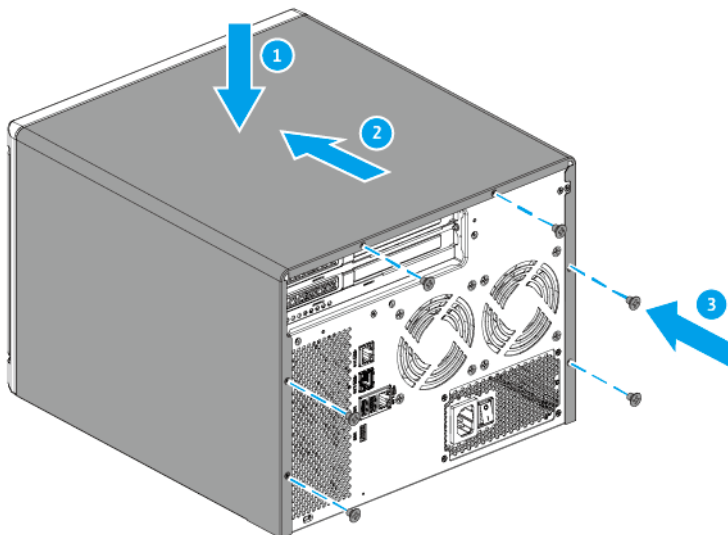


- c. Verify that the metal connectors are completely inserted into the slot.
 - d. Carefully press down on the module until the retention clips lock the module into place.
8. Attach the fan module.
 - a. Align the protruding part of the module with the hole on the chassis below the M.2 SSD slot.
 - b. Push the module toward the system board until the clip locks the module into place.
 - c. Attach the screws.



9. Attach the case cover.

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



Expansion unit installation

The TS-855X series supports SATA and USB expansion units. Refer to the following table for details.

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

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

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

Expansion Unit Model	Description	Required Accessories
TL-D400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter
TL-D800S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 2 x SFF-8088 connector cables • QXP-800eS-A1164 host bus adapter
TL-D1600S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 4 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter
TL-R400S	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter • RAIL-B02
TL-R1200S-RP	<ul style="list-style-type: none"> • Uses a SATA 6 Gbps (SFF-8088) interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 3 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS-A1164 host bus adapter • RAIL-B02
TR-002	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SSD 	<ul style="list-style-type: none"> • 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/SSD 	<ul style="list-style-type: none"> • USB 3.2 Gen 1 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/SSD 	<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/SSD 	<ul style="list-style-type: none"> • 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/SSD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02

Connecting SATA expansion units

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

The TS-855X series supports one SATA expansion unit and is compatible with the following models:

- TL-D400S
- TL-D800S
- TL-D1600S
- TL-R400S
- TL-R1200S-RP

1. Power off the NAS.
2. Install a host bus adapter on the PCIe slot.

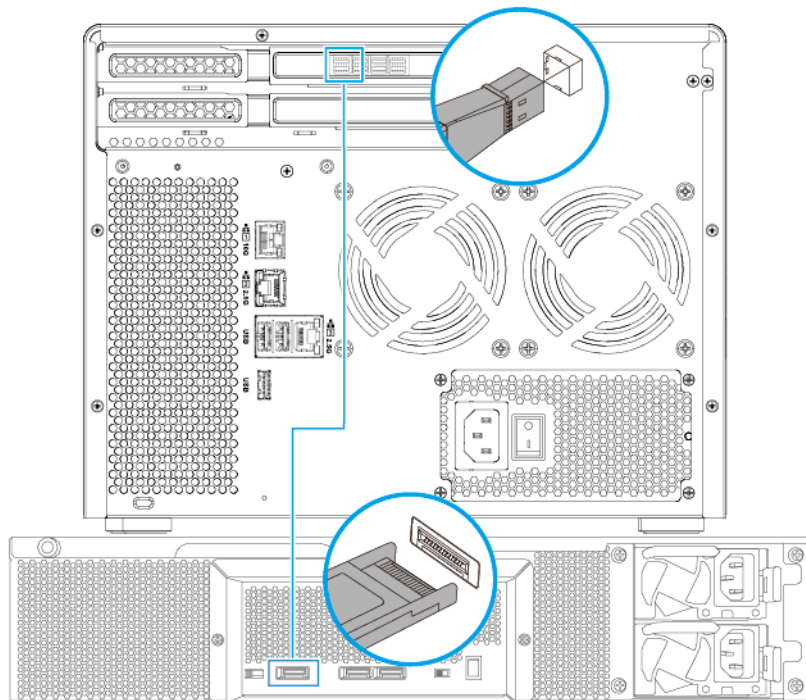


Note

For details, see [Installing expansion cards](#).

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

3. Connect the expansion unit to the NAS.



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

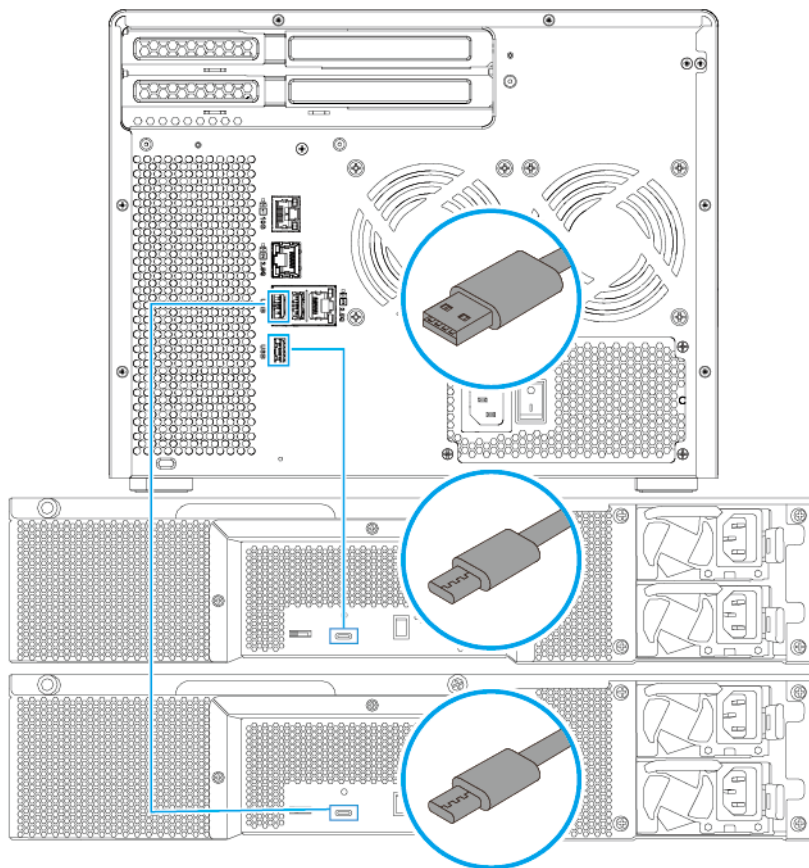
Connecting USB expansion units

The TS-855X series supports a maximum of two USB expansion units and is compatible with the following models:

- TR-002
- TR-004
- TR-004U
- TL-D800C
- TL-R1200C-RP

1. Connect the expansion unit to the NAS.

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



2. Power on the expansion units.

3. Verify that the expansion units are recognized by the NAS.

- 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 TS-855X series uses the QNAP QuTS hero operating system. You can install QuTS hero 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 QuTS hero using Qfinder Pro.</p>	<ul style="list-style-type: none"> • Computer • Network cable • Qfinder Pro installer
Cloud installation	<p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> • Scan the QR code on the NAS. • Log into your myQNAPcloud account. • Use myQNAPcloud Link to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Initializing QuTS hero using the cloud installation website.</p>	<ul style="list-style-type: none"> • Computer or mobile device • Network cable • myQNAPcloud account • Cloud Key

Initializing QuTS hero using Qfinder Pro

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



Warning

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

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



Note

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

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

**Note**

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

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

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

7. Install firmware using any of the following methods:

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

8. Specify the following information

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

**Important**

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

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

9. Click **Next**.

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

**Tip**

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

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

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

13. Click **Next**.

14. Review the settings.

15. Click **Apply**.

A confirmation message appears.



Warning

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

16. Click **Initialize**.

QuTS hero initialization starts. It may take a few minutes to complete the process.

After the initialization, you can click **Go to NAS Management** to start using QuTS hero and configuring other settings.

Initializing QuTS hero using the cloud installation website

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



Warning

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

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

The web page lists all the uninitialized QNAP NAS devices on the local network.

4. Find your NAS from the list and then click **Initialize**.



Tip

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

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.



Note

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

6. Specify the myQNAPcloud device name for the NAS.

**Note**

- The myQNAPcloud device name is used when remotely accessing the NAS.
- For security purposes, the myQNAPCloud Link remote connection service will be disabled on your NAS after initialization. You can enable it by connecting to QuTS hero through LAN and then installing myQNAPCloud Link.

7. Click Next.

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

8. Perform any of the following actions.

- To check for the latest available version, click **Start**.
The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the **Smart Installation Guide**.
- To install the out-of-the-box version, click **Skip**.
- If the screen shows a different operating system, click **QuTS hero**.
The NAS restarts and the smart installation screen shows QuTS hero as the operating system to install.

9. Click Start Smart Installation Guide.

The **Install Firmware** window appears.

10. Install firmware using any of the following methods:

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

11. Specify the following information

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

**Important**

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

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

12. Click **Next**.

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

**Tip**

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

14. Click **Next**.

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

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

16. Click **Next**.

17. Review the settings.

18. Click **Apply**.

A confirmation message appears.

**Warning**

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

19. Click **Initialize**.


QuTS hero initialization starts. It may take a few minutes to complete the process.

After the initialization, you can click **Go to NAS Management** to start using QuTS hero and configuring other settings.

3. Basic Operations

This chapter describes basic NAS operations.

Power button



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

Reset button



Important

- The default "admin" account is automatically enabled after the system reset.
- To protect your device from brute force attacks, QNAP recommends disabling the default "admin" account after a system reset. To disable the account, change the default admin password, log out of QTS, and then log in to QTS with another admin account.

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> • System administrator password: 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 10 seconds.	<p>The default factory settings are restored.</p> <p> Tip 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 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 volumes

Viewing TCP/IP settings

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

- IP address
 - Subnet mask
 - Default gateway
 - Primary DNS
 - Secondary DNS
1. Press **Enter** or **Select**.
The panel displays the NAS name and QuTS hero version.
 2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
 3. Press and hold **Enter**.
The panel displays the IP address of the first network adapter.
 4. Press and hold **Select** to view the next TCP/IP screen.
Repeat this step as necessary.

Configuring TCP/IP settings

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

- IP address
 - Subnet mask
 - Default gateway
 - Primary DNS
 - Secondary DNS
1. Press **Enter** or **Select**.
The panel displays the NAS name and QTS version.
 2. Press and hold **Enter** for two seconds.
The panel displays `Main Menu 1. TCP/IP`.
 3. Press and hold **Enter**.
The panel displays the IP address of the first network adapter.
 4. Press **Select** repeatedly until the panel displays `Enter Network Settings`.
 5. Press and hold **Enter**.
The panel displays the configurable network settings.

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

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

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



Important

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

The system saves the settings.

Viewing drive information

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

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

Viewing shared folders information

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

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

Viewing system information

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

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

Powering off the NAS

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

Restarting the NAS

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

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.


System Message	Description
HDD Failure	Drive has failed.
Vol [number] Full	Volume [number] 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"> A drive is being formatted. The device is being initialized. The operating system is being updated. RAID rebuilding is in progress. Online RAID Capacity Expansion is in progress. Online RAID Level Migration is in progress. The firmware is being updated. <p> Important When updating the firmware, do not remove the power cord or USB cable, and do not force-exit the application.</p>
Red	<ul style="list-style-type: none"> A drive is invalid. A shared folder has reached its full capacity. A shared folder is about to reach its full capacity. A system fan is not functioning. An error occurred when accessing (read/write) the data. A bad sector is detected on 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.

Status	Description
Flashes green every 0.5 seconds	<ul style="list-style-type: none"> The device is not configured. A drive is not formatted.
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.

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.

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.
Off	<ul style="list-style-type: none"> The network connection is operating at 100 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.
Off	No USB device is detected.

Audio alerts

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> The NAS is starting up. The NAS is shutting down. The NAS is being reset (reset button).
Short beep (0.5 seconds)	3	<ul style="list-style-type: none"> The user tried to copy the NAS data to the external storage device from the front USB port, but the data cannot be copied. The NAS has completed a firmware update.
Long beep (1.5 seconds)	3 (every 5 minutes)	A system fan is not functioning.
	2	<ul style="list-style-type: none"> A storage pool is about to reach full capacity. A storage pool has reached 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. 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)	<ol style="list-style-type: none"> 1. One member drive fails. 2. Two member drives in two different pairs fail.
RAID 50	≥ 6	One disk per subgroup fails.
RAID 60	≥ 8	Two disks per subgroup fail.
Triple Mirror	Multiple of 3. (For example, 3, 6, 9, 12 disks and so forth.)	One or two member drives fail.
RAID-TP	≥ 5	One, two, or three member drives fail.

1. Log on to QuTS hero.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD** .
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Remove the failed drive from the device.
6. Wait for 20 seconds or until the device beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.

The NAS beeps twice.

10. Go to **Main Menu > Storage & Snapshots > Storage > Storage/Snapshots** .

11. Locate the shared folder that contains the new drive and then verify that the status is **Rebuilding**.

Recovering unintentionally removed healthy drives

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

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
RAID 0	Yes	≥ 2	N/A
RAID 1	Yes	2	1
RAID 5	Yes	≥ 3	1
RAID 6	Yes	≥ 4	2
RAID 10	No	≥ 4 (Must be an even number)	One disk per subgroup fails.
RAID 50	Yes	≥ 6	One disk per subgroup fails.
RAID 60	Yes	≥ 8	Two disks per subgroup fail.
Triple Mirror	Yes	Multiple of 3. (For example, 3, 6, 9, 12 disks and so forth.)	2
RAID-TP	Yes	≥ 5	3

Support and other resources

QNAP provides the following resources:

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

5. Glossary

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

myQNAPcloud Link

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

QuTS hero

QNAP NAS operating system featuring ZFS file system

Qfinder Pro

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

Cloud Key

Unique 8-digit code assigned to each NAS device

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Version 3, 29 June 2007

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

**Note**

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

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

**Important**

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

VCCI notice

VCCI-B

BSMI notice

D33B77
RoHS

SJ/T 11364-2006



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

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

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