

TS-x32PXU

TS-432PXU

TS-432PXU-RP

TS-832PXU

TS-832PXU-RP

TS-1232PXU-RP

User Guide

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1. Preface

About This Guide

This guide provides information on the QNAP TS-x32PXU NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

This document is intended for consumers and storage administrators. This guide assumes that the user has a basic understanding of storage and backup concepts.

Document Conventions

Symbol	Description
	Notes provide default configuration settings and other supplementary information.
	Important notes provide information on required configuration settings and other critical information.
	Tips provide recommendations or alternative methods of performing tasks or configuring settings.
	Warnings provide information that, when ignored, may result in potential loss, injury, or even death.

2. Product Overview

This chapter provides basic information about the QNAP device.

About the TS-x32PXU

Designed for an SMB IT environment, the TS-x32PXU is a rackmount NAS powered by a quad-core 1.7 GHz processor. It features two 10 Gigabit Ethernet SFP+ ports and two 2.5 Gigabit Ethernet ports, which provides high network bandwidth to streamline file access, backup, media transfer, and team collaboration. The NAS supports PCIe expandability that adds M.2 SSD caching and 2.5 Gigabit Ethernet and 5 Gigabit Ethernet bandwidth. The TS-x32PXU RP models are equipped with a redundant power supply to ensure maximum service uptime.

Hardware Specifications



Warning

- If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third-party invalidates the warranty.
- QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.
- For details, see the [QNAP Warranty Terms and Conditions](#).



Tip

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

Ordering P/N	Drive bays	Memory	Power supply
TS-432PXU-2G	4	2 GB	Single
TS-432PXU-RP-2G			Redundant
TS-832PXU-4G	8	4 GB	Single
TS-832PXU-RP-4G			Redundant
TS-1232PXU-RP-4G	12	4 GB	Redundant

Component	TS-432PXU TS-432PXU-RP	TS-832PXU TS-832PXU-RP	TS-1232PXU-RP
Processor			
CPU	Annapurna Labs AL324		
Frequency	4-core 1.7 GHz		
Architecture	ARM 64-bit		
Encryption engine	Supported		
Memory			
Pre-installed memory	2 GB RAM: 1 x 2 GB UDIMM DDR4	4 GB RAM: 1 x 4 GB UDIMM DDR4	

Component	TS-432PXU TS-432PXU-RP	TS-832PXU TS-832PXU-RP	TS-1232PXU-RP
Memory slots	1 x Long-DIMM DDR4  Note • 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.		
Maximum memory	16 GB RAM: 1 x 16 GB		
Storage			
Drive bays	4 x 3.5-inch SATA 6 Gbps	8 x 3.5-inch SATA 6 Gbps	12 x 3.5-inch SATA 6 Gbps
	 Note The drive bays are backward compatible with SATA 3 Gbps.		
Drive compatibility	3.5-inch bays: • 3.5-inch SATA hard disk drives • 2.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives		
SSD cache acceleration support	Supported		
Hot-swapping	Supported		
Network			
10 Gigabit Ethernet ports	2 x 10 GbE SFP+		
2.5 Gigabit Ethernet ports	2 x 2.5 GbE RJ45  Important Avoid connecting these ports to Power Sourcing Equipment or a Power over Ethernet port as it may cause damage to the surge protection feature.		
Wake-on-LAN	Yes (2.5 GbE RJ45)		
External I/O Ports & Expansion Slots			
PCIe slots	1 x PCIe 2.0 x2  Note PCIe bandwidth limitations may restrict the performance of the add-on cards.		
USB ports	4 x USB 3.2 Gen 1 Type-A		
Interface			
Buttons	• Power • Reset		
Dimensions			

Component	TS-432PXU TS-432PXU-RP	TS-832PXU TS-832PXU-RP	TS-1232PXU-RP
Form factor	1U Rackmount	2U Rackmount	
Dimensions (H x W x D)	44 x 439 x 499 mm (1.73 x 17.28 x 19.64 in)	89 x 482 x 534 mm (3.50 x 18.97 x 21.02 in)	
Net weight	• TS-432PXU: 6.53 kg (14.39 lbs) • TS-432PXU-RP: 8.12 kg (17.90 lbs)	• TS-832PXU: 9.45 kg (20.83 lbs) • TS-832PXU-RP: 10.94 kg (24.11 lbs)	11.34 kg (25.00 lbs)
Others			
Power supply unit	• TS-432PXU: 250W, 100-240V AC, 50/60 Hz • TS-432PXU-RP: 2 x 250W, 100-240V AC, 50/60 Hz	• TS-832PXU: 250W, 100-240V AC, 50/60 Hz • TS-832PXU-RP: 2 x 250W, 100-240V AC, 50/60 Hz	2 x 250W, 100-240V AC, 50/60 Hz
System battery	CR2032 lithium battery (3V)		
Sound level	• TS-432PXU: 38 db(A) • TS-432PXU-RP: 39 db(A)	• TS-832PXU: 24.9 db(A) • TS-832PXU-RP: 30.6 dB(A)	32.2 db(A)
Fans	System: 2 x 40 mm, 12V DC fan	System: 2 x 70 mm, 12V DC fan	
Operating temperature	0°C to 40°C (32°F to 104°F)		
Relative humidity	• Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F)		

**Tip**

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

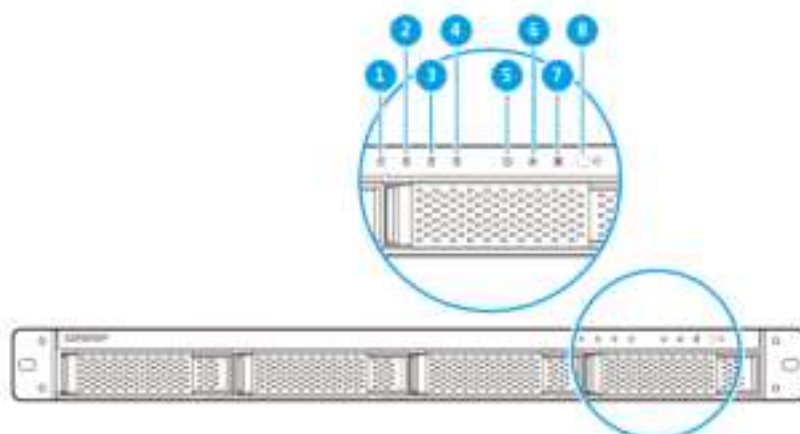
Package Contents

Item	Quantity
TS-x32PXU	1
Power cord	1 - TS-432PXU-RP, TS-832PXU-RP, TS-1232PXU-RP: 2
Ethernet cable	1 x Cat5e
Screws for 3.5-inch drives	- TS-432PXU, TS-432PXU-RP: 16 - TS-832PXU, TS-832PXU-RP: 32 - TS-1232PXU-RP: 48

Item	Quantity
Screws for 2.5-inch drives	• TS-432PXU, TS-432PXU-RP: 12 • TS-832PXU, TS-832PXU-RP: 24 • TS-1232PXU-RP: 36
Handle kit	TS-432PXU, TS-432PXU-RP • 2 x handles • 2 x angle brackets • 8 x screws
Quick Installation Guide (QIG)	1

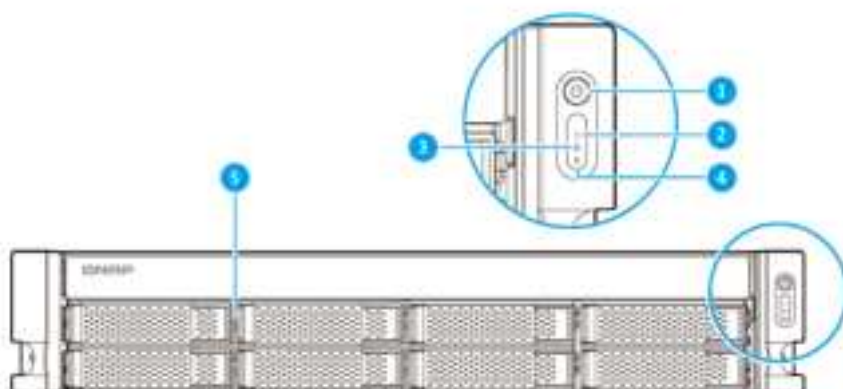
Components

Front Panel

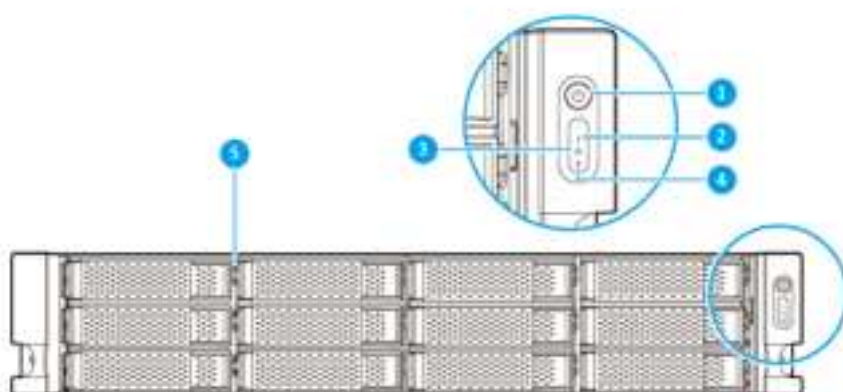


TS-432PXU, TS-432PXU-RP

No.	Component	No.	Component
1	Drive 1 LED	5	Status LED
2	Drive 2 LED	6	LAN LED
3	Drive 3 LED	7	Expansion unit LED
4	Drive 4 LED	8	Power button



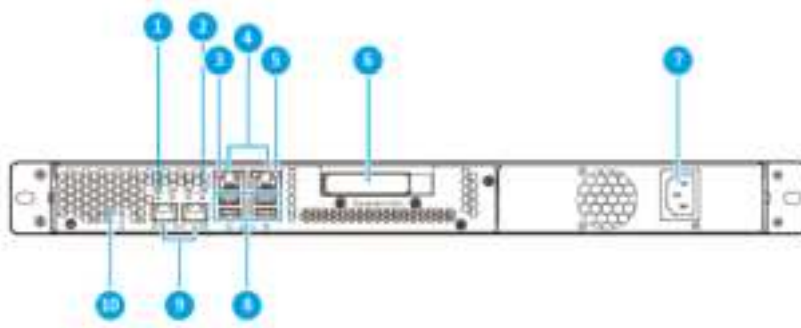
TS-832PXU, TS-832PXU-RP



TS-1232PXU-RP

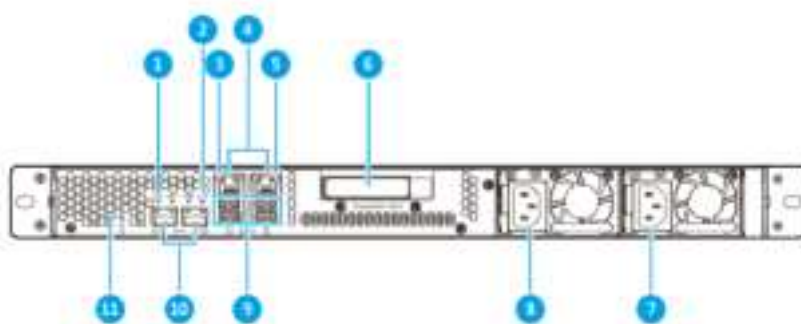
No.	Component	No.	Component
1	Power button	4	Expansion unit LED
2	Status LED	5	Drive LED
3	LAN LED	-	-

Rear Panel



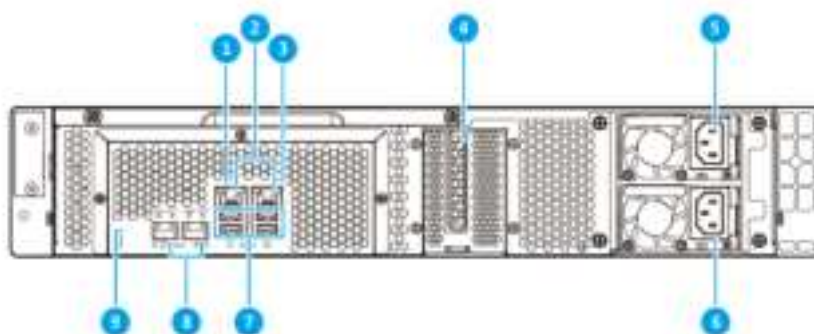
TS-432PXU

No.	Component	No.	Component
1	10 Gigabit Ethernet SFP+ link LED	6	PCIe slot
2	10 Gigabit Ethernet SFP+ activity LED	7	Power supply unit
3	2.5 Gigabit Ethernet speed LED	8	USB 3.2 Gen 1 Type-A ports
4	2.5 Gigabit Ethernet ports	9	10 Gigabit Ethernet SFP+ ports
5	2.5 Gigabit Ethernet activity LED	10	Reset button



TS-432PXU-RP

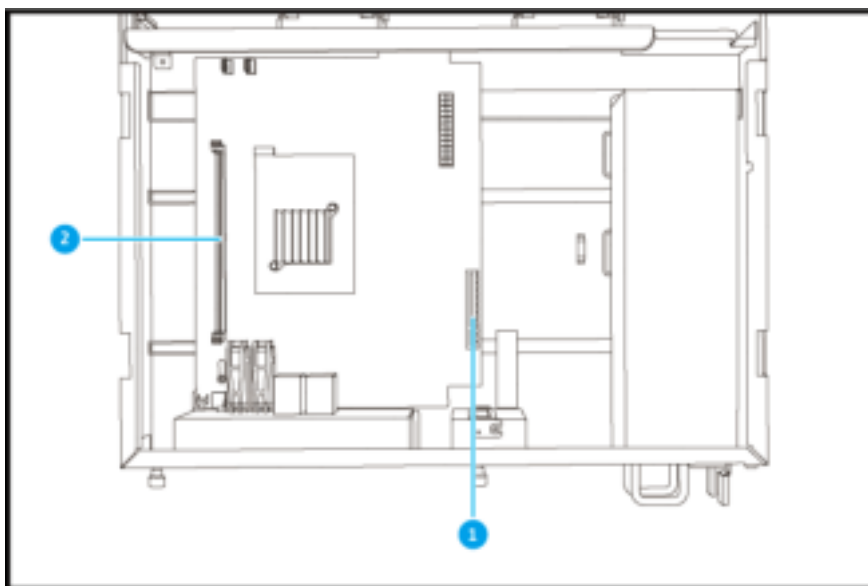
No.	Component	No.	Component
1	10 Gigabit Ethernet SFP+ link LED	7	Power supply unit 1
2	10 Gigabit Ethernet SFP+ activity LED	8	Power supply unit 2
3	2.5 Gigabit Ethernet speed LED	9	USB 3.2 Gen 1 Type-A ports
4	2.5 Gigabit Ethernet ports	10	10 Gigabit Ethernet SFP+ ports
5	2.5 Gigabit Ethernet activity LED	11	Reset button
6	PCIe slot	-	-



TS-832PXU, TS-832PXU-RP, TS-1232PXU-RP

No.	Component	No.	Component
1	2.5 Gigabit Ethernet speed LED	6	Power supply unit 2
2	2.5 Gigabit Ethernet ports	7	USB 3.2 Gen 1 Type-A ports
3	2.5 Gigabit Ethernet activity LED	8	10 Gigabit Ethernet SFP+ ports
4	PCIe low-profile cover	9	Reset button
5	Power supply unit 1	-	-

System Board

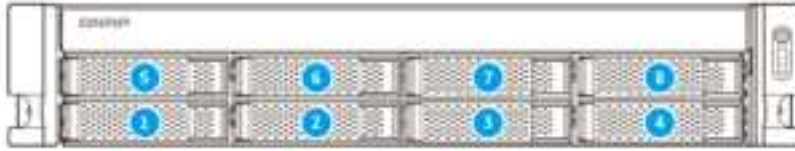


No.	Component	No.	Component
1	PCIe 2.0 x2	2	Memory slot

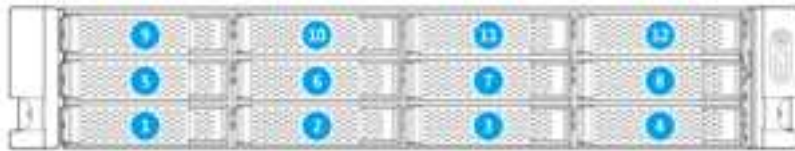
Drive Numbering



TS-432PXU, TS-432PXU-RP



TS-832PXU, TS-832PXU-RP



TS-1232PXU-RP

Safety Information

The following instructions help ensure personal safety and environmental safety. Read these instructions carefully before performing any operations.

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.
-



Devices with redundant power supply may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords from the device before installing or replacing system components.

System Battery

- 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.

Installation Requirements

Category	Item
Environment	• Room temperature: 0°C to 40°C (32°F to 104°F) • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) • Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals • Free from objects that may obstruct NAS ventilation or apply pressure to the NAS or power cord

Category	Item
Hardware and peripherals	- Storage drives  Note For the list of compatible drive models, go to https://www.qnap.com/compatibility. - Network cable
Tools	- Phillips #1 or #2 screwdriver - Anti-static wrist strap

Setting Up the NAS



Important

Read all safety requirements and information in [Safety 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 the drives.
For details, see the following topics:

- [Installing 3.5-inch Hard Drives on 3.5-inch Trays](#)
- [Installing 2.5-inch Hard Drives and Solid-State Drives on 3.5-inch Trays](#)

For a list of compatible drives and expansion cards, go to <https://www.qnap.com/en/compatibility/>.

3. Connect the NAS to the network.
4. Optional: Install expansion cards.
For details, see [Installing Expansion Cards](#).
5. Optional: Install memory modules.
For details, see [Replacing Memory Modules](#)
6. Optional: Connect the expansion units.
For details, see the following topics:

- [Connecting USB Expansion Units](#)
- [Connecting SATA JBOD Expansion Units](#)

7. Connect the power cord and all applicable cables.
8. Power on the NAS.
9. Install QTS.
For details, see [QTS Installation](#).

3. Installation and Configuration

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

Hardware Installation

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

Installing Drives

The TS-x32PXU is compatible with 3.5-inch hard drives, 2.5-inch hard drives, and 2.5-inch solid-state drives.

Installing 3.5-inch Hard Drives on 3.5-inch Trays



Warning

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

•



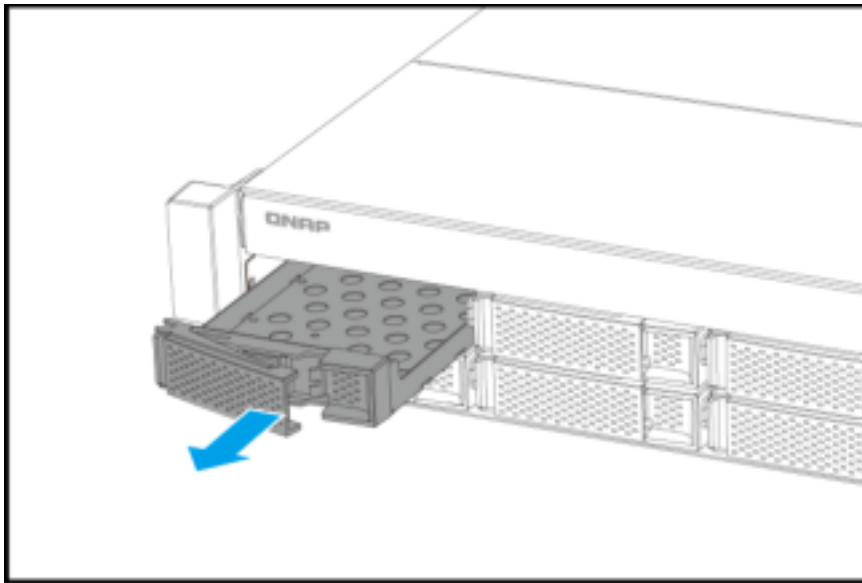
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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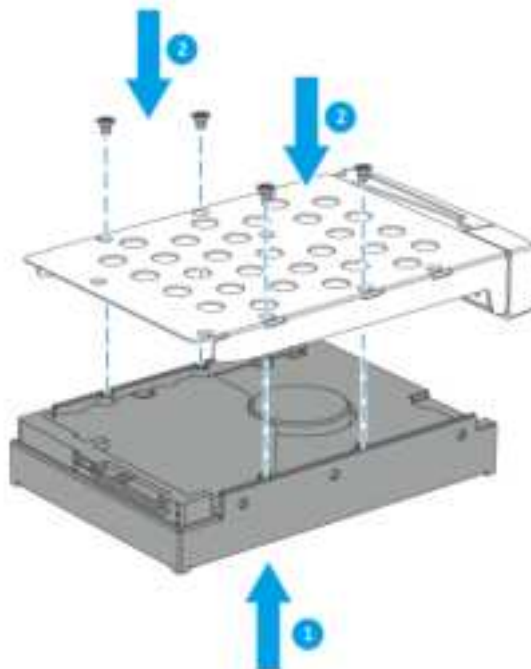
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the NAS.
2. Remove the drive tray.
 - a. Pull the tray handle outward.
 - b. Pull the tray out.



3. Install a drive on the tray.

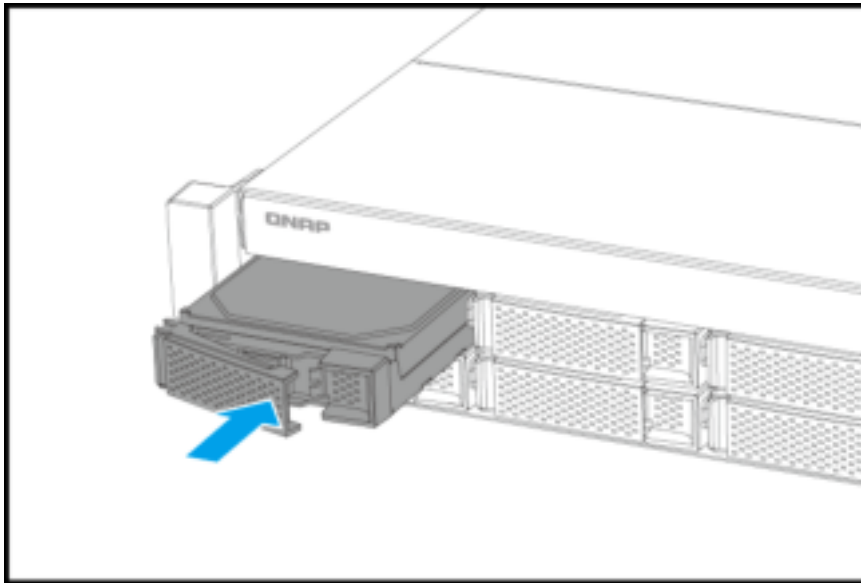
- a. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- b. Attach the screws to lock the drive to the tray.



4. Load the tray into the bay.

- a. Insert the tray into the bay.

- b. Push the handle.



5. Power on the NAS.

Installing 2.5-inch Hard Drives and 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.

•



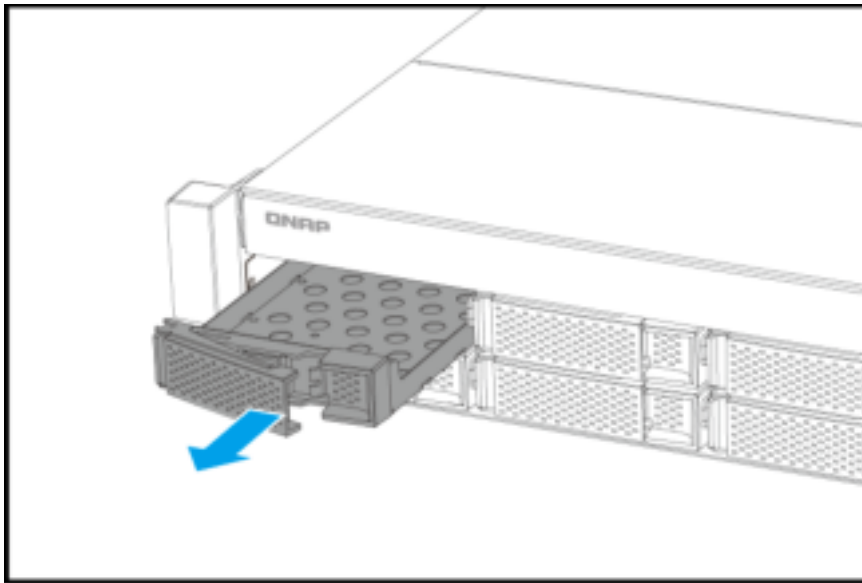
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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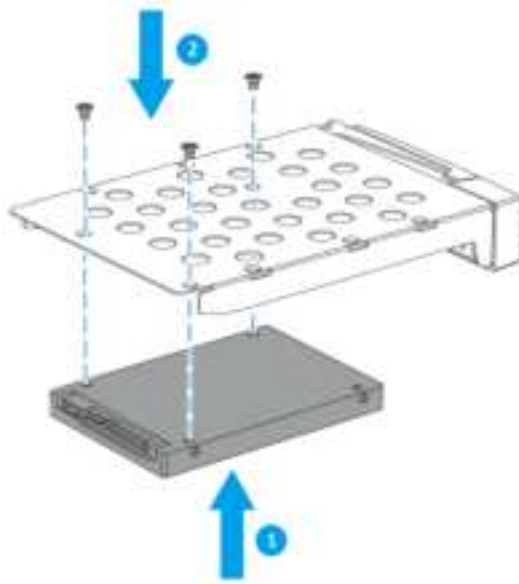
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the NAS.
2. Remove the drive tray.
 - a. Pull the tray handle outward.
 - b. Pull the tray out.



3. Install a drive on the tray.

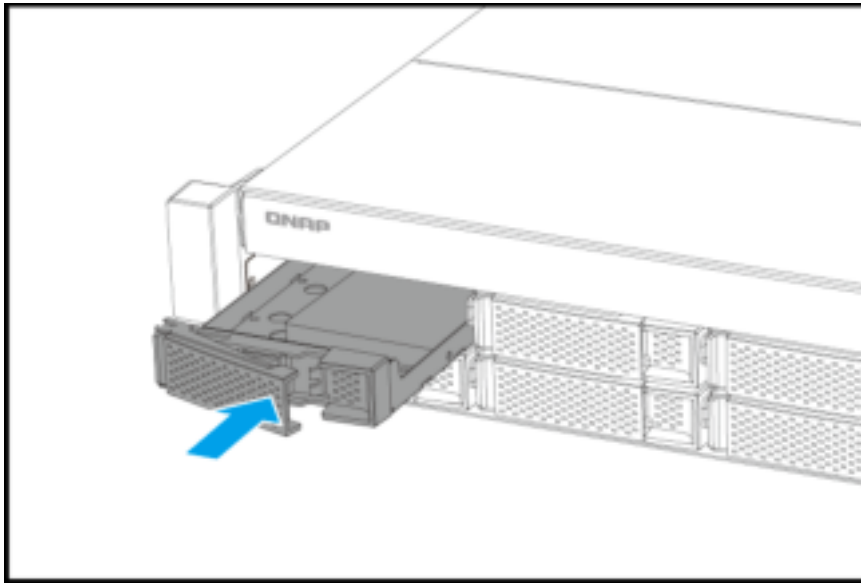
- a. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- b. Attach the screws.



4. Load the tray into the bay.

- a. Insert the tray into the bay.

- b. Push the handle.



5. Power on the NAS.

Installing Expansion Cards

Installing Expansion Cards on the TS-432PXU or the TS-432PXU-RP



Warning

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

•



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

•



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



Note

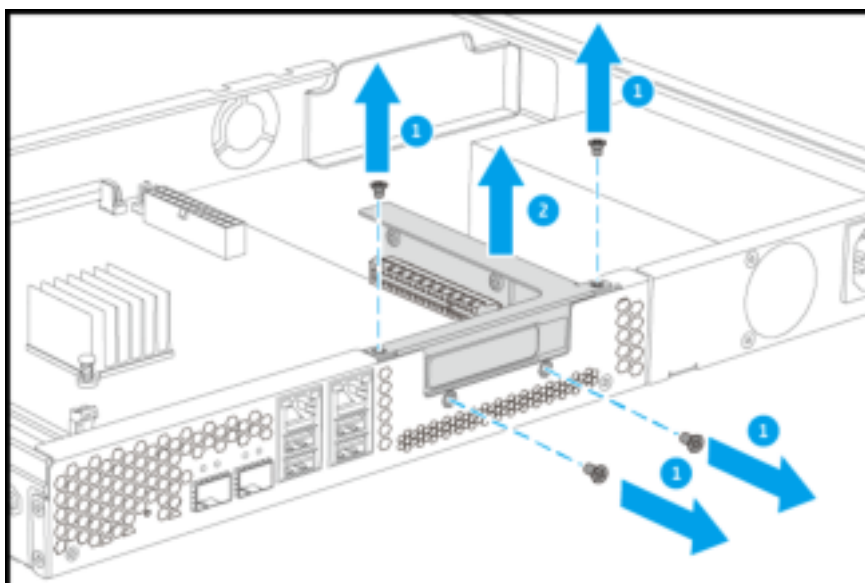
This process applies only to the TS-432PXU and the TS-432PXU-RP. For details on the TS-832PXU, TS-832PXU-RP, and TS-1232PXU-RP, see [Installing Expansion Cards on the TS-832PXU, TS-832PXU-RP or the TS-1232PXU-RP](#).

1. Check the expansion cards and brackets supported by your model on the QNAP website.
 - a. Go to www.qnap.com/compatibility.

- b. Click **Search by NAS**.
 - c. Specify the number of bays and the specific model of your NAS.
 - d. Under **Category**, select the component or device type.
 - e. Locate a specific component or device model in the list.
 - f. Optional: Click the corresponding **Note** icon to view more information.
2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the case cover.
 - a. Remove the screws.
 - b. Lift the cover off the device.



- 6. Remove the PCIe bracket.**
 - a. Remove the screws that secure the bracket to the chassis.**

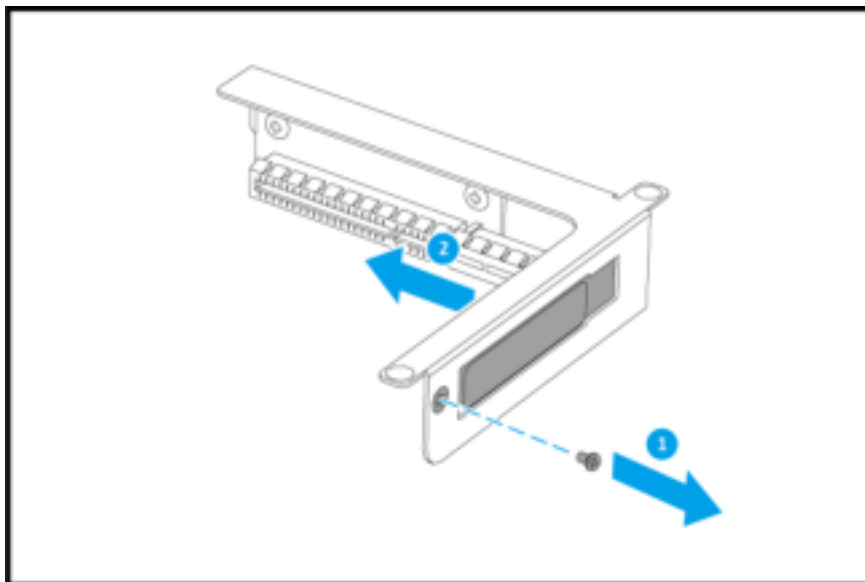


b. Remove the bracket from the chassis.

7. Remove the PCIe cover.

a. Remove the screw that secures the cover to the bracket.

b. Pull the cover away from the slot.

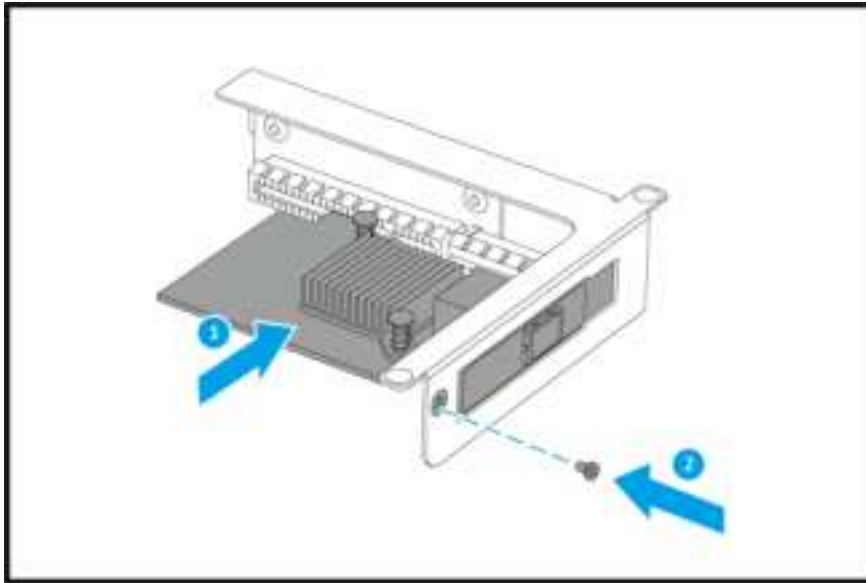


8. Install the expansion card.

a. Hold the card by the edges.

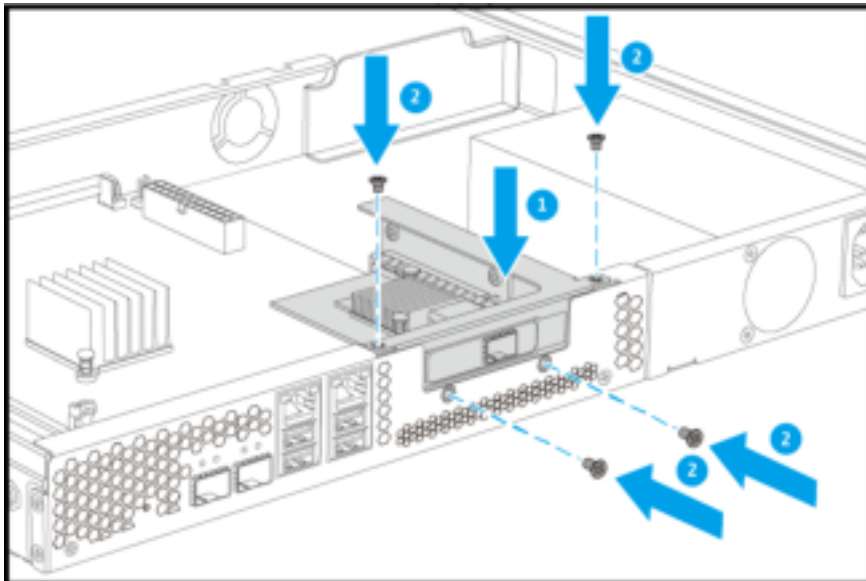
b. Insert the card into the slot.

c. Attach the screw.



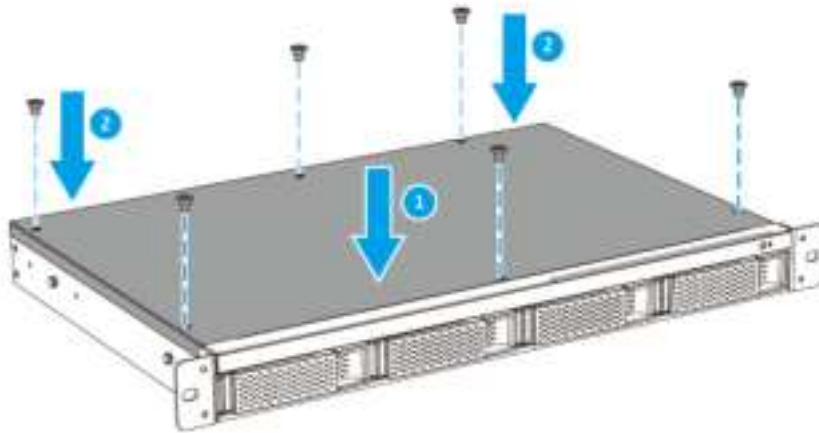
9. Insert the PCIe bracket.

- a. Insert the PCIe connector on the bracket into the PCIe slot on the system board.
- b. Attach the screws that secure the bracket to the chassis.



10. Attach the top cover.

- a. Place the cover on the NAS.
- b. Attach the screws connecting the top cover to the chassis.



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

Installing Expansion Cards on the TS-832PXU, TS-832PXU-RP or the TS-1232PXU-RP



Warning

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

•



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

•



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

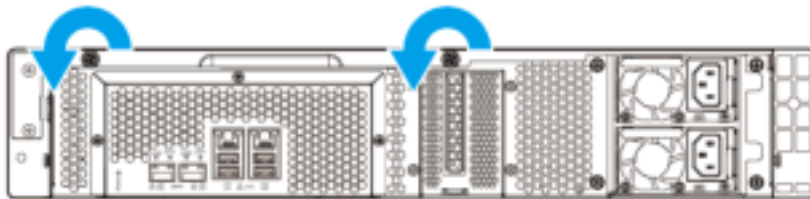


Note

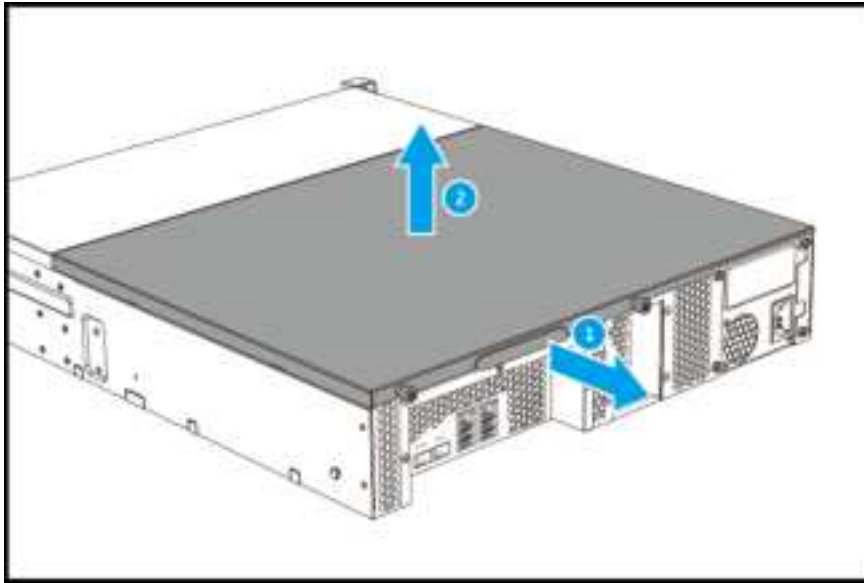
This process applies only to the TS-832PXU, TS-832PXU-RP, and TS-1232PXU-RP. For details on the TS-432PXU and the TS-432PXU-RP, see [Installing Expansion Cards on the TS-432PXU or the TS-432PXU-RP](#).

1. Check the expansion cards and brackets supported by your model on the QNAP website.

- a. Go to www.qnap.com/compatibility.
 - b. Click **Search by NAS**.
 - c. Specify the number of bays and the specific model of your NAS.
 - d. Under **Category**, select the component or device type.
 - e. Locate a specific component or device model in the list.
 - f. Optional: Click the corresponding **Note** icon to view more information.
2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the case cover.
 - a. Loosen the screws.

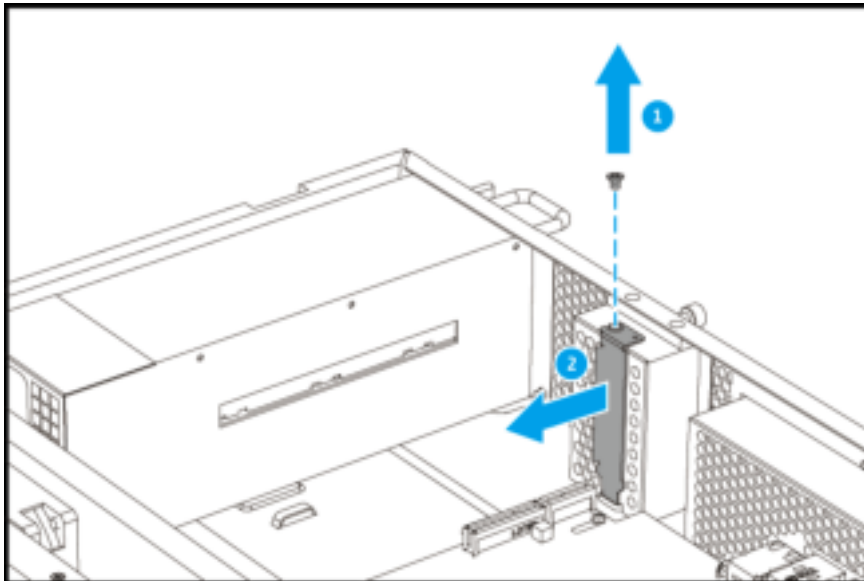


- b. Slide the cover back.
 - c. Lift the cover off the device.



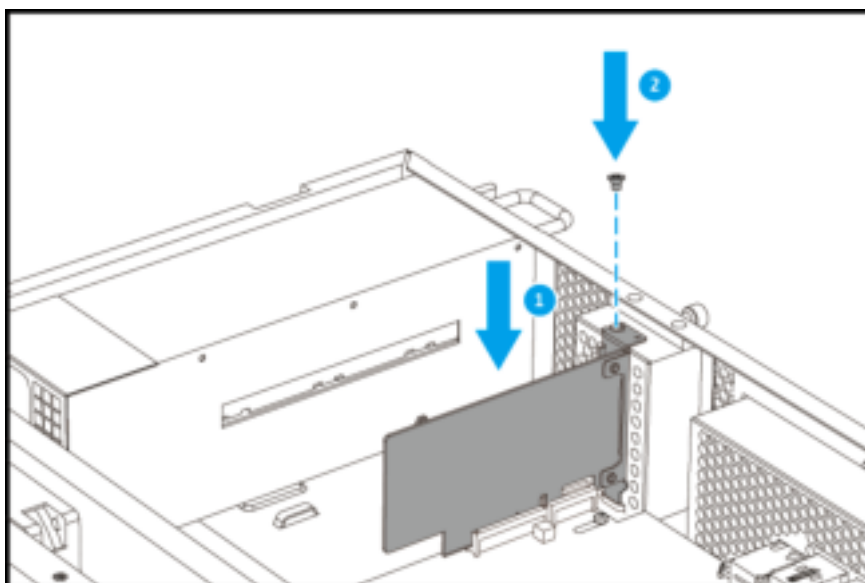
6. Remove the PCIe cover.

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



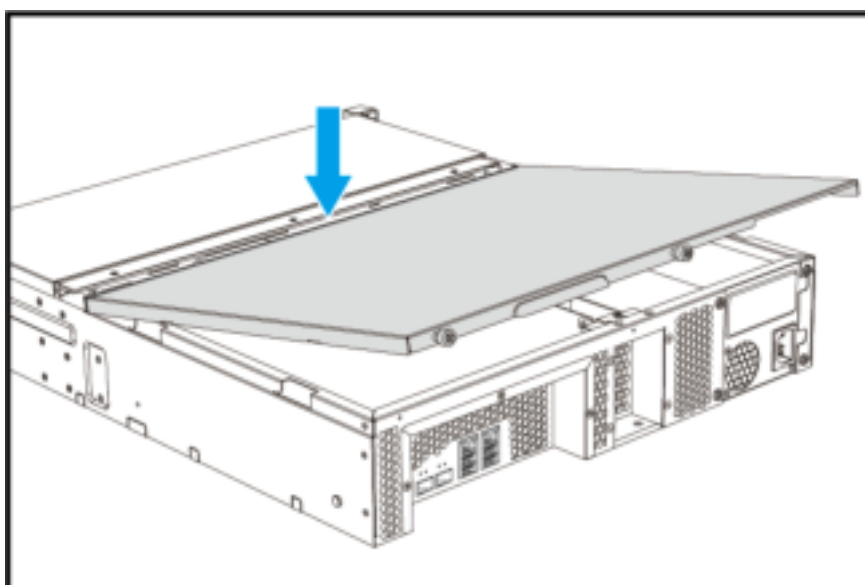
7. Install the expansion card.

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

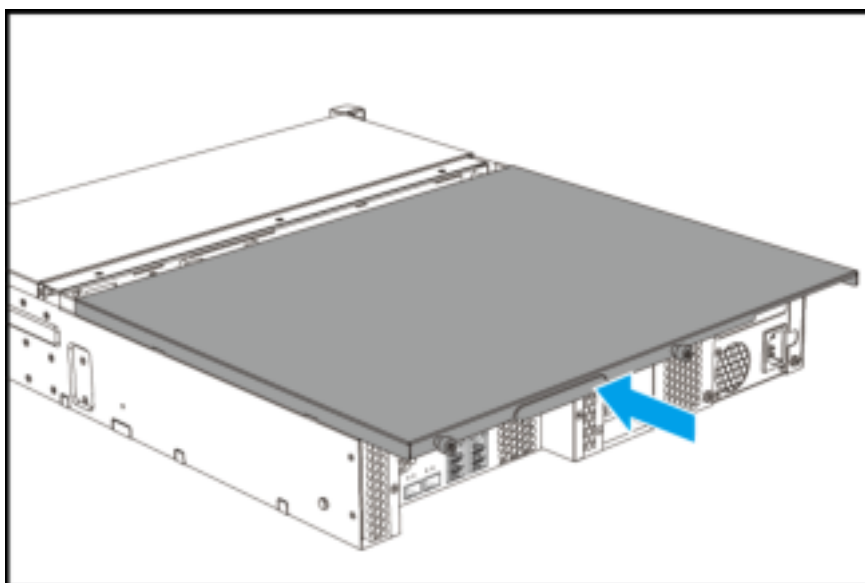


8. Attach the case cover.

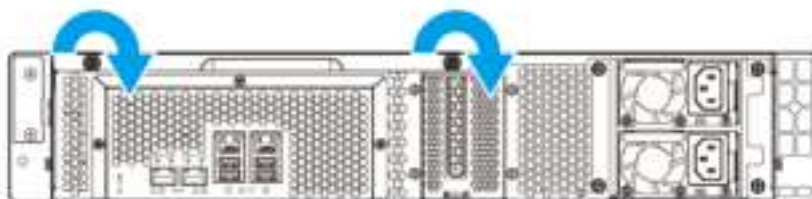
- a.** Place the cover on the device.



- b.** Slide the cover forward.



c. Tighten the screws.



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

Installing Handles

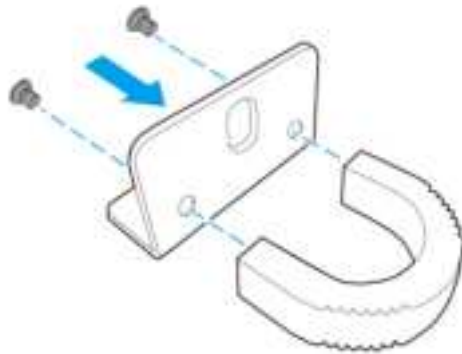
Installing handles enables you to better grip and secure the NAS.



Note

Handles on the TS-432PXU and the TS-432PXU-RP require manual installation.

1. Power off the NAS.
2. Install a handle on an angle bracket.
 - a. Align the openings on the handle with the two round screw holes on the angle bracket.
 - b. Attach the screws to lock the handle to the angle bracket.

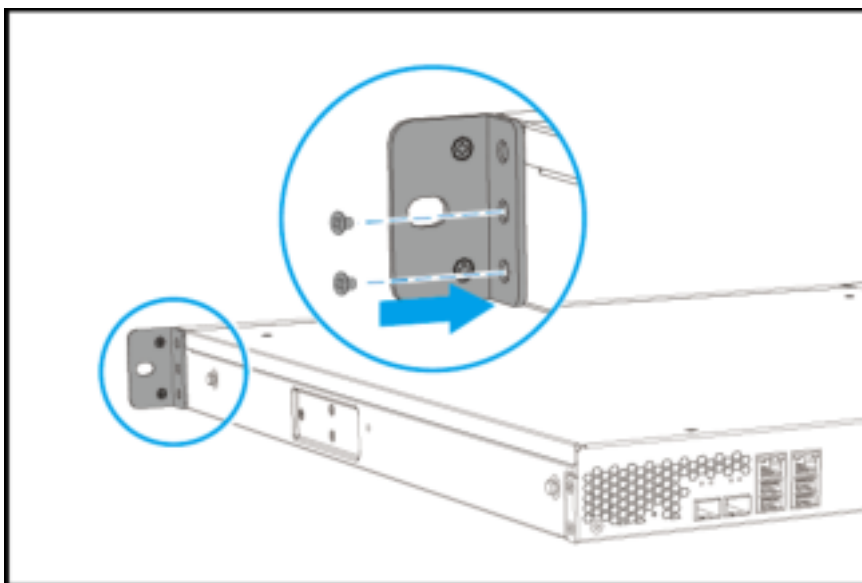


3. Install the angle bracket on the device.
 - a. Align the holes on the angle bracket with the holes on the chassis.

**Note**

Ensure that the handle faces the same direction as the front panel.

- b. Attach the screws.



4. Install a second handle on the other side of the chassis.
5. Power on the NAS.

Replacing Memory 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.

•



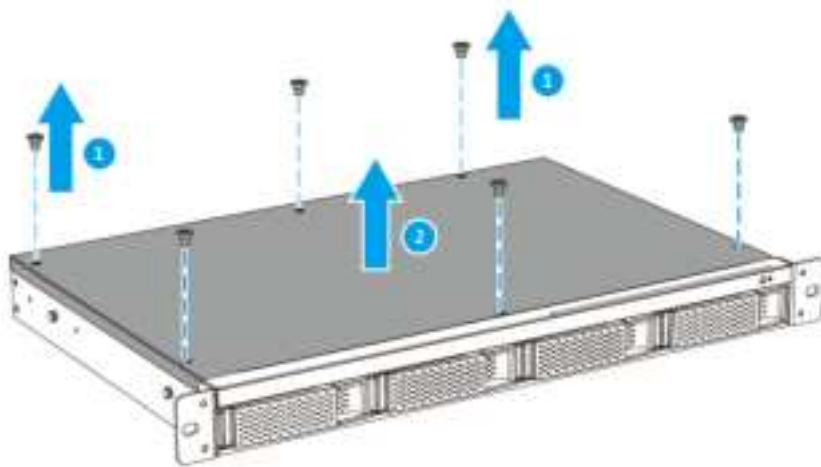
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

•



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

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
 - TS-432PXU, TS-432PXU-RP
 1. Remove the screws.
 2. Lift the cover off the NAS.

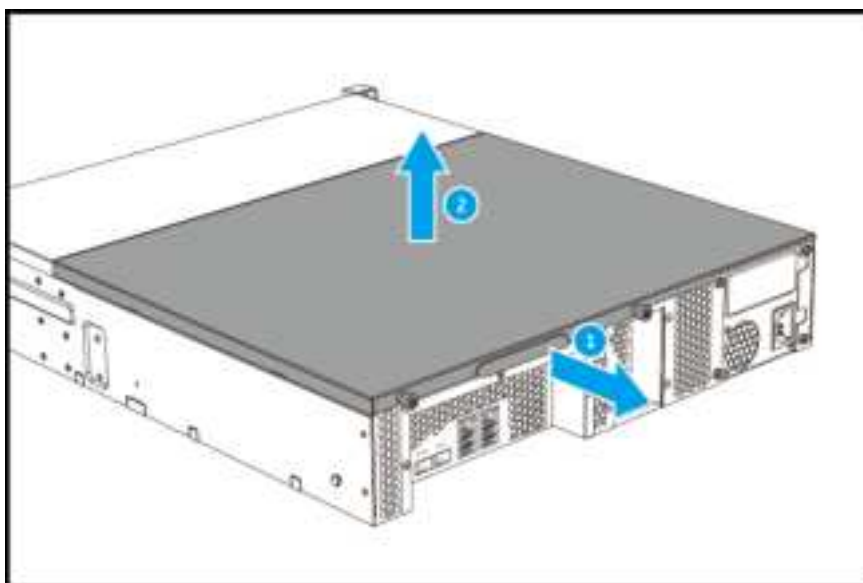


- TS-832PXU, TS-832PXU-RP, TS-1232PXU-RP

1. Loosen the screws.



2. Slide the cover away from the NAS using the handle.
3. Lift the cover off the NAS.



5. Remove an existing module.

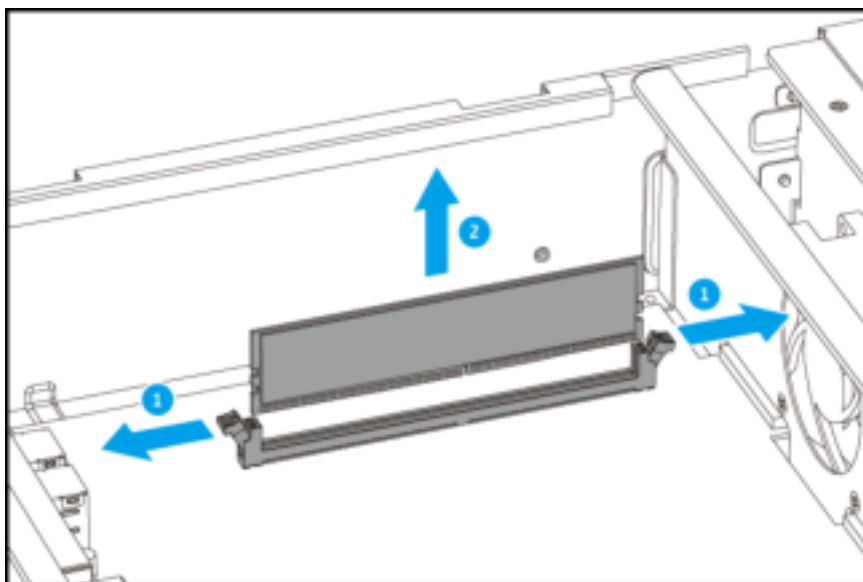
- a. Push the retention clips outward simultaneously to release the module.



Warning

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

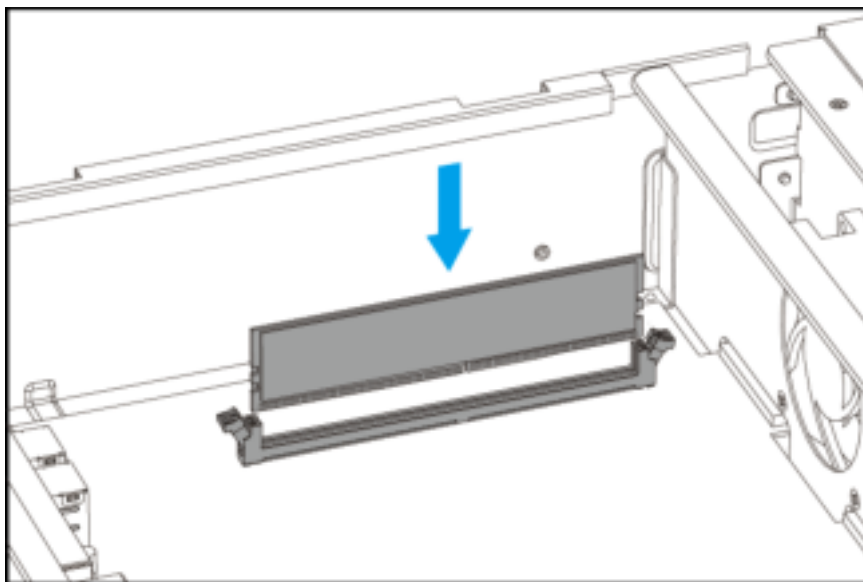
- b. Hold the module by the edges.
- c. Carefully slide the module out of the slot.



6. Install a new module.

- a. Align the notch with the ridge in the slot.

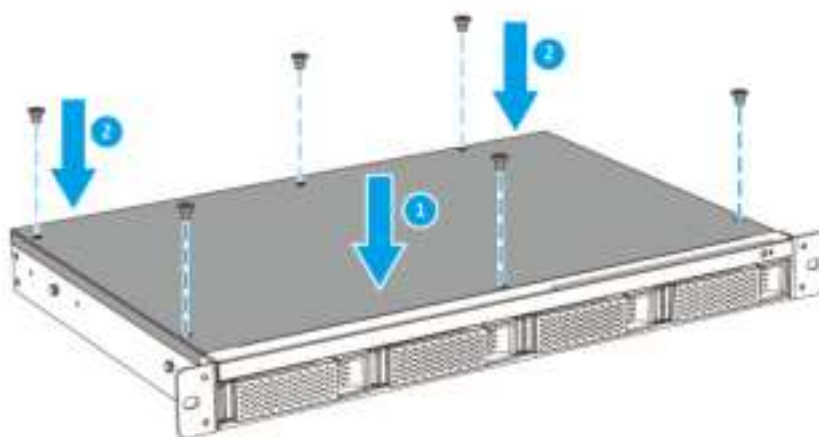
- b. Insert the module into the slot.
- c. Verify that the metal connectors are completely inserted into the slot.
- d. Carefully press down on the module until the retention clips lock the module into place.



7. Attach the case cover.

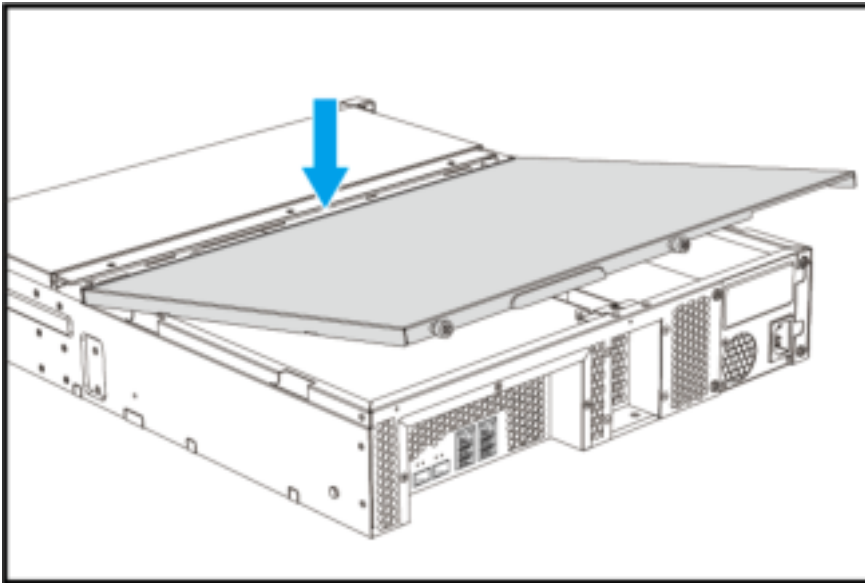
- TS-432PXU, TS-432PXU-RP

1. Place the cover on the NAS.
2. Attach the screws connecting the case cover to the chassis.

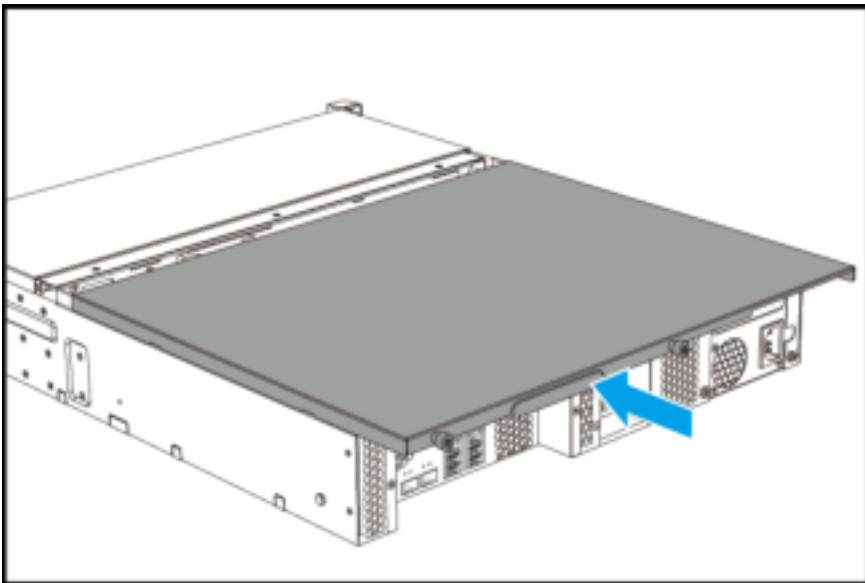


- TS-832PXU, TS-832PXU-RP, TS-1232PXU-RP

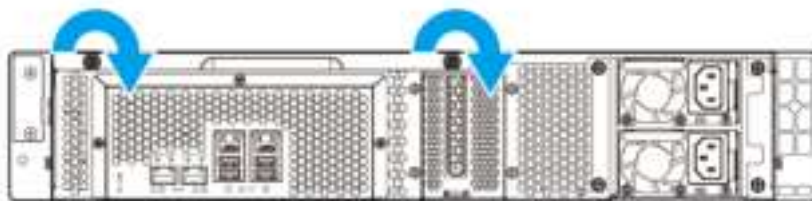
1. Place the cover on the NAS.



2. Slide the cover forward.



3. Tighten the screws.



8. Connect all cables and external attachments.
9. Power on the NAS.
10. 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 Units

The TS-x32PXU supports SATA JBOD expansion units 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 <http://www.qnap.com/go/compatibility-expansion>.

Expansion Unit Model	Description	Required Accessories
TL-D400S	• Uses a SFF-8088 interface. • Supports SATA HDD/SSD	• 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter
TL-D800S	• Uses a SFF-8088 interface • Supports SATA HDD/SSD	• 2 x SFF-8088 connector cables • QXP-800eS-A1164 host bus adapter

Expansion Unit Model	Description	Required Accessories
TL-D1600S	• Uses a SFF-8088 to SFF-8644 interface • Supports SATA HDD/SSD	• 4 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS host bus adapter
TL-R400S	• Uses a SFF-8088 interface • Supports SATA HDD/SSD	• 1 x SFF-8088 connector cable • QXP-400eS-A1164 host bus adapter • RAIL-B02
TL-R1200S-RP	• Uses a SFF-8088 to SFF-8644 interface • Supports SATA HDD/SSD	• 3 x SFF-8088 to SFF-8644 connector cables • QXP-1600eS host bus adapter • RAIL-B02
TR-002	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA drives	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004U	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA drives	• USB 3.2 Gen 1 Type-A to Type-C cable • RAIL-B02
TL-D800C	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	• USB 3.2 Gen 2 Type-A to Type-C cable • Optional: QNAP QXP-10G2U3A USB 3.2 Gen 2 PCIe card
TL-R1200C-RP	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	• USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02 • Optional: QNAP QXP-10G2U3A USB 3.2 Gen 2 PCIe card

Connecting USB Expansion Units

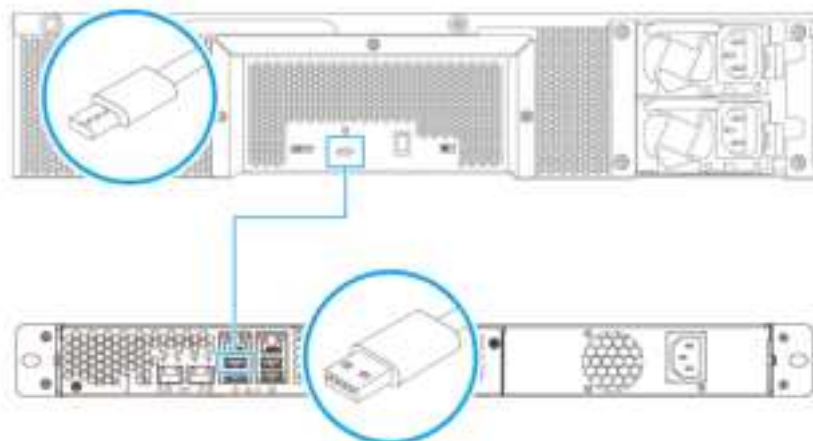
To connect the TS-x32PXU to USB expansion units, USB Type-A to USB Type-C cables are required.

For required accessories details, see [Installing Expansion Units](#).

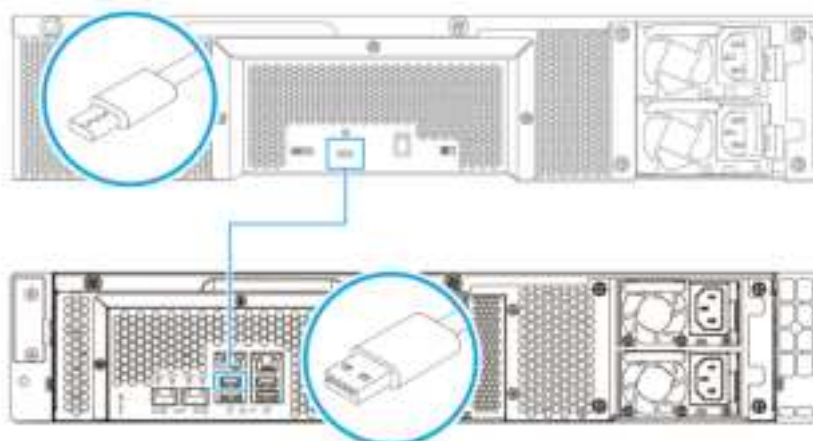
1. Connect the expansion unit to the NAS.
 - a. Connect the USB cable to a USB 3.2 Gen 1 Type-A port on the NAS.

**Note**

Install a QNAP QXP-10G2U3A USB 3.2 Gen 2 PCIe card on the expansion unit to get USB 3.2 Gen 2 capability.
For details on which expansion unit supports the expansion card, see [Installing Expansion Units](#).

**Note**

This shows the connection between the TL-R1200C-RP and the TS-432PXU.

**Note**

This shows the connection between the TL-R1200C-RP and the TS-1232PXU-RP.

2. Power on the expansion units.

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

Connecting SATA JBOD Expansion Units

To connect the TS-x32PXU to SATA JBOD expansion units, a host bus adapter must be installed on the NAS.

For required accessories details, see [Installing Expansion Units](#).

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

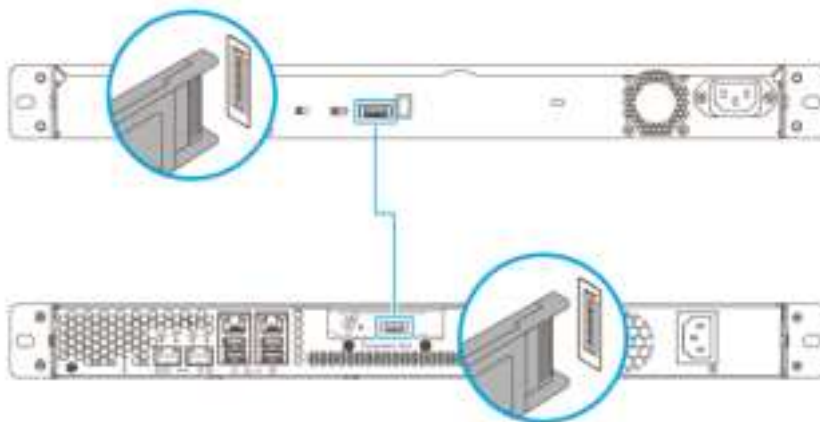


Note

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.

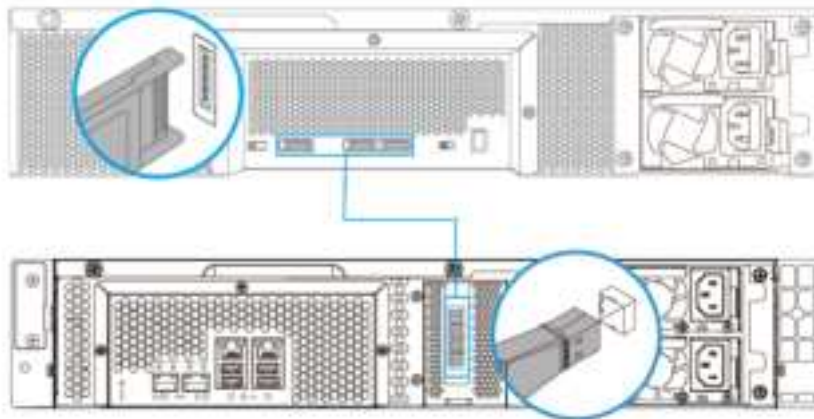
For details, see [Installing Expansion Units](#).

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



Note

This shows the connection between the TL-R400S and the TS-432PXU.



Note

This shows the connection between the TL-1200S and the TS-1232PXU-RP.

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

Hot-Swapping Redundant Power Supply Units

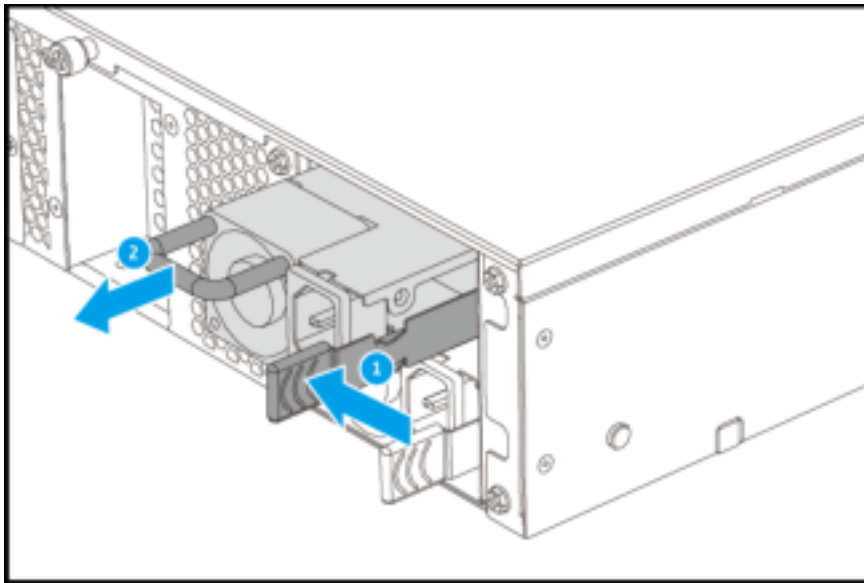


Warning

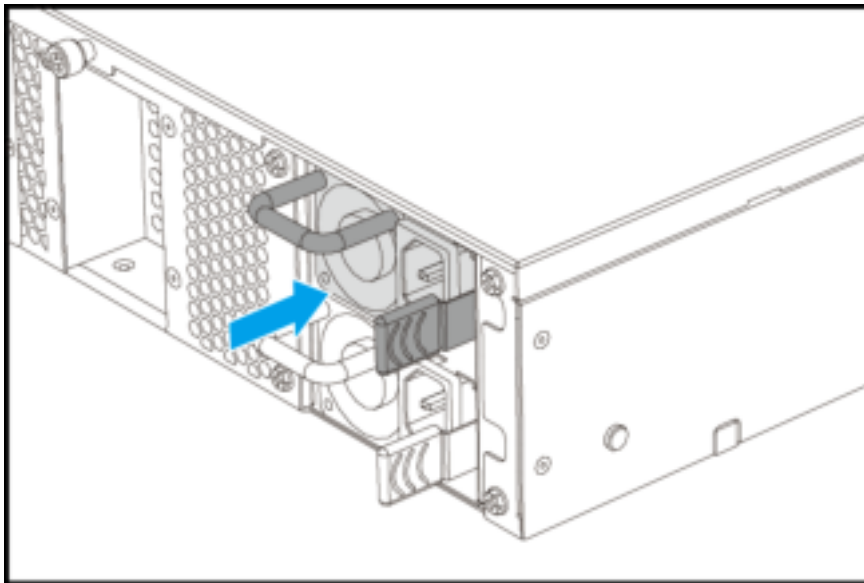


The NAS may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords before installing or replacing system components.

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet and the PSU that you are replacing.
3. Firmly press the latch toward the handle and then pull the PSU out.



4. Insert the new PSU.



5. Connect the power cord to the PSU and the electrical outlet.
6. Power on the NAS.
7. Enable alerts for PSU failures.
 - a. Log on to QTS as administrator.
 - b. Go to **Control Panel > System > Hardware > General** .
 - c. Select **Enable Redundant Power Supply Mode**.
 - d. Click **Apply All**.

Rail Kits



Note

- Rail kits are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to <http://shop.qnap.com>.
- Information on rail kit installation can be found in the installation guide included in the rail kit package.

Model	Compatible Rail Kit
• TS-432PXU • TS-432PXU-RP • TS-832PXU • TS-832PXU-RP • TS-1232PXU-RP	RAIL-B02

QTS Installation

Method	Description	Requirements
Qfinder Pro installation (Recommended)	If the NAS is connected to your local area network, you can do the following: • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard.	• Computer • Network cable • Qfinder Pro installer
Cloud installation	If the NAS is connected to the internet, you can do the following: • Scan the QR code on the NAS. • 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.	• Computer or mobile device • myQNAPcloud account • Cloud Key

Installing QTS Using Qfinder Pro



Warning

Installing 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 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.
5. 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**.
6. Click **Start Smart Installation Guide**.
7. 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.
 - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
8. Click **Next**.
9. 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.

10. Click **Next**.
11. Select **Obtain an IP address automatically (DHCP)**.
12. Click **Next**.
13. Select the types of devices that you will use to access shared folders on the NAS.
14. Click **Next**.
15. Review the settings.
16. Click **Apply**.
A confirmation message appears.

**Warning**

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

17. Click **Confirm**.
QTS is installed.

Installing QTS Using the Cloud Key

**Warning**

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

1. Power on the NAS.
2. Connect the NAS to the internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
 - On your computer, go to <http://install.qnap.com/>.
 - 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**.

**Note**

If your NAS is not listed, follow the instructions on the web page to specify the Cloud Key on the NAS.

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.

**Note**

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

6. Specify the myQNAPcloud device name for the NAS.

**Note**

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

7. Click **Next**.
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**.
9. Click **Start Smart Installation Guide**.

10. 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.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

11. Click **Next**.

12. 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.

13. Click **Next**.

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

15. Click **Next**.

16. Select the types of devices that you will use to access shared folders on the NAS.

17. Click **Next**.

18. Review the settings.

19. Click **Apply**.

A confirmation message appears.



Warning

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

20. Click **Confirm**.

QTS is installed.

4. Basic Operations

This chapter describes basic NAS operations.

Power Button

Operation	User Action	Result
Power on	Press the button once.	The device powers on.
Power off	Press and hold the button for 1.5 seconds.	The device powers off.
Force power off	Press and hold the button for 10 seconds.	 Important Use this method only when the device is unresponsive. The device powers off.

Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default: - System administrator password: The default password is the first MAC address in uppercase letters without special characters. For example, if the first MAC address is 00-08-9B-F6-15-75, then the admin password will be 00089BF61575.  Tip You can find the first MAC address using Qfinder Pro. A label attached to the device also lists the address as MAC1. - TCP/IP configuration: - Obtain IP address settings automatically via DHCP - Disable jumbo frames - If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)". - System port: 8080 (system service port) - Security level: Low (Allow all connections) - LCD panel password: (blank) - VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

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](#).

LED	Status	Description
System Status	Flashes green and red alternately every 0.5 seconds	• The 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	• The drive is invalid. • The disk volume has reached its full capacity. • The disk volume is about to reach its full capacity. • The system fan is not functioning. • An error occurred when accessing (read/write) the data. • A bad sector is detected on the hard drive. • The device is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read). • A hardware self-test error occurred.
	Flashes red every 0.5 seconds	The device is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
	Flashes green every 0.5 seconds	• The device is not configured. • A drive is not formatted.
	Green	The device is ready.
	Off	All drives are in standby mode.

LED	Status	Description
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occurred.
	Flashes green	Data is being accessed.
	Green	The drive is ready.
	Off	No drive was detected.
LAN	Orange	The network connection is operating.  Note The LAN LED can only detect the device's in-built Ethernet port connections. It cannot detect network expansion cards' Ethernet port connection status.
	Flashes orange	The device is being accessed from the network.
	Off	The device is not connected to a network.
10 Gigabit Ethernet (SFP+) link	Green	The network connection is operating at 10 Gbps
	Off	There is no network connection.
10 Gigabit Ethernet (SFP+) activity	Orange	A network connection has been established.
	Flashes orange	Data is being transmitted.
	Off	There is no network connection.
2.5 Gigabit Ethernet speed	Green	The network connection is operating at 2.5 Gbps.
	Orange	The network connection is operating at 1 Gbps.
	Off	- The network connection is operating at 100 Mbps. - There is no network connection.
2.5 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	There is no network connection.
Expansion	Orange	A QNAP JBOD or RAID expansion unit has been detected.
	Off	No JBOD expansion unit has been detected.

Audio Alert

Duration	Frequency	Description
Short beep (0.5 seconds)	1	• The NAS is starting up. • The NAS is resetting configurations (reset button). • The NAS is resetting configurations and rebooting (reset button). • The operating system was updated. • The device is waking up from sleep mode. • The USB device has been removed (USB One-Touch copy button). • The device is starting USB One-Touch copy.
	3	• Cannot detect installed disk. The user tried to copy the NAS data to the external storage device from the front USB port, but the data cannot be copied.

Duration	Frequency	Description
Long beep (1.5 seconds)	3 (every 5 minutes)	• A power error occurred. • The system fan is not functioning. • The fan module has been removed. • The installed fan module is compatible. • A system fan error occurred. • The NAS is powered on. • The NAS has completed firmware update.
	2	• The storage pool is about to reach full capacity. • The storage pool has reached full capacity. • A storage pool status error occurred. • The disk volume is about to reach its full capacity. • The disk volume has reached its full capacity. • The USB device is being removed (USB one-touch copy button). • A volume status error occurred. • The drives are in degraded mode. • The user started the drive rebuilding process. • A drive is plugged in or out. • The iSCSI is about to reach full capacity.
	1	• The NAS was powered off by force shutdown (hardware shutdown). • The NAS was powered on successfully and is ready.
Long and short beeps	1 long and 2 short beeps	The JBOD expansion unit has been removed.

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.

Recovering Unintentionally Removed Healthy Drives

Disk Volume	RAID Recovery Support	Number of Disks	Maximum Number of Removed Drives
Single	No	1	N/A
JBOD	Yes	≥ 2	
RAID 0	Yes		
RAID 1	Yes	2	1
RAID 5	Yes	≥ 3	3
RAID 6	Yes	≥ 4	
RAID 10	No	≥ 4 (Must be an even number)	
RAID 50	Yes	≥ 6	One disk per subgroup fails.
RAID 60	Yes	≥ 8	Two disks per subgroup fail.

Hot-swapping Failed Drives

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

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

RAID Type	Number of Disks	Situation
RAID 60	≥ 8	Two disks per subgroup fail.

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD**.
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Remove the failed drive from the NAS.
6. Wait for 20 seconds or until the NAS 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 Space**.
11. Locate the volume that contains the new drive and then verify that the status is *Rebuilding*.

Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	https://docs.qnap.com
Compatibility List	https://www.qnap.com/compatibility/
NAS Migration Compatibility	https://www.qnap.com/en/nas-migration
Expansion Unit Compatibility	http://www.qnap.com/go/compatibility-expansion
Service Portal	https://service.qnap.com
Product Support Status	https://www.qnap.com/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 Link

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

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

QNAP ID

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

Qfinder Pro

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

QTS

QNAP NAS operating system

7. Notices

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

Limited Warranty

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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.

Should you return any components of the package of QNAP products such as NAS (Network Attached Storage) for refund or maintenance, make sure they are carefully packed for shipping. Any form of damages due to improper packaging will not be compensated.

All the features, functionality, and other product specifications are subject to change without prior notice or obligation. Information contained herein is subject to change without notice.

Further, the ® or ™ symbols are not used in the text.

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Version 3, 29 June 2007

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FCC Class A Notice



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