



QNAP

TS-x53DU

TS-453DU
TS-453DU-RP
TS-853DU-RP
TS-1253DU-RP

User Guide

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1. Preface





About This Guide

This guide provides information about the device 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 TS-x53DU NAS.

About the TS-x53DU

Powered by an Intel® Celeron® J4125 quad-core 2.0 GHz processor, the TS-x53DU supports various disk storage configurations to better meet your virtualization and data storage needs. It supports up to 8 GB of DDR4 memory, and a SATA 6 Gbps hard drive interface.

The TS-x53DU also features two 2.5 Gigabit Ethernet ports, two USB 3.2 Gen 1 ports, two USB 2.0 ports, and a PCIe 2.0 x2 slot for better scalability and flexibility.

Hardware Specifications











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-453DU-4G	4	4 GB	Single
TS-453DU-RP-4G	4	4 GB	Redundant
TS-853DU-RP-4G	8	4 GB	Redundant
TS-1253DU-RP-4G	12	4 GB	Redundant

Component	TS-453DU TS-453DU-RP	TS-853DU-RP	TS-1253DU-RP
Processor			
CPU	Intel® Celeron® J4125		
Frequency	4-core/4-thread 2.00 GHz base/2.70 GHz burst		
Architecture	x86 64-bit		
Encryption engine	AES-NI		
Memory			
Pre-installed memory	4 GB: 1 x 4 GB SODIMM DDR4		
Memory slots	2 x SODIMM DDR4		
	<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;"> </div> <div> <p>Important</p> <ul style="list-style-type: none"> • Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications. • Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting. </div> </div>		
Maximum memory	8 GB RAM: 2 x 4 GB		
Flash memory	4 GB (dual-boot OS protection)		
Storage			

Component	TS-453DU TS-453DU-RP	TS-853DU-RP	TS-1253DU-RP
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 SATA 6 Gbps 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 hard disk drives • 2.5-inch SATA solid-state drives 		
SSD cache acceleration support	The device supports SSD cache acceleration for all drives.		
Hot-swapping	Supported		
Network			
2.5 Gigabit Ethernet Ports	2 x 2.5 GbE RJ45  Note The 2.5 Gigabit Ethernet port provides 4 network connection speeds: 2.5G, 1G, 100M, and 10M.		
Wake-on-LAN	Yes (2.5 GbE RJ45)		
External I/O Ports & Expansion Slots			
PCIe slots	1 x PCIe 2.0 x2  Tip For the list of compatible expansion cards, go to https://www.qnap.com/compatibility .		
USB ports	<ul style="list-style-type: none"> • 2 x USB 2.0 Type-A • 2 x USB 3.2 Gen 1 Type-A 		
HDMI ports	1 x HDMI v1.4b (up to 3840 x 2160 @ 30Hz resolution)		
Interface			
Buttons	<ul style="list-style-type: none"> • Power • Reset 		
Dimensions			
Form factor	1U Rackmount	2U Rackmount	
Dimensions (H x W x D)	<ul style="list-style-type: none"> • TS-453DU 43.3 x 482.6 x 483.9 mm (1.70 x 19.00 x 19.05 in) • TS-453DU-RP 43.3 x 482.6 x 508.7 mm (1.70 x 19.00 x 20.03 in) 	88.7 x 482.2 x 423.8 mm (3.49 x 18.98 x 16.69 in)	

Component	TS-453DU TS-453DU-RP	TS-853DU-RP	TS-1253DU-RP
Net weight	<ul style="list-style-type: none"> TS-453DU: 6.66 kg (14.55 lbs) TS-453DU-RP: 8.12 kg (17.90 lbs) 	8.89 kg (19.60 lbs)	9.43 kg (20.79 lbs)
Others			
Rail compatibility	RAIL-B02		
Power supply unit	<ul style="list-style-type: none"> TS-453DU: 1 x 250W, 100-240V AC, 50-60Hz TS-453DU-RP: 2 x 250W, 100-240V AC, 50-60Hz 	2 x 300W, 100-240V AC, 50-60Hz	2 x 300W, 100-240V AC, 50-60Hz
System battery	CR2032 lithium battery (3V, 225 mAh)  Warning To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.  Important Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.		
Sound level	TS-453DU: 38 db(A) TS-453DU-RP: 37.5 db(A)	23.6 db(A)	24.6 db(A)
	 Note The sound level was tested at a bystander position, which is within one meter of the NAS. The test NAS operated at low speed with the maximum number of drives installed.		
Fans	System: 2 x 40 mm, 12V DC	System: 2 x 80 mm, 12V DC	
	 Warning  To avoid potential injury or damage to components, do not touch the fans while the NAS is connected to a power source.		
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) 		

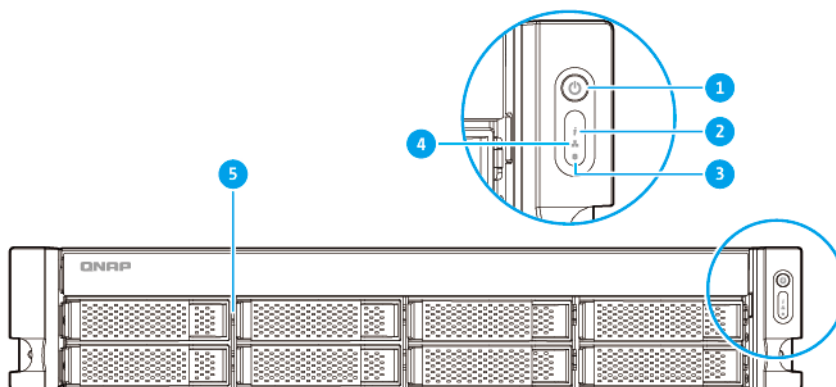
Package Contents

Item	Quantity
TS-x53DU	1
Power cords	<ul style="list-style-type: none"> TS-x53DU models: 1 TS-x53DU-RP models: 2

Item	Quantity
Ethernet cables	1 x CAT5e cable
Screws for 3.5-inch drives	<ul style="list-style-type: none"> • TS-453DU, TS-453DU-RP: 16 • TS-853DU-RP: 32 • TS-1253DU-RP: 48
Screws for 2.5-inch drives	<ul style="list-style-type: none"> • TS-453DU, TS-453DU-RP: 12 • TS-853DU-RP: 24 • TS-1253DU-RP: 36
Handle kit	TS-453DU, TS-453DU-RP: <ul style="list-style-type: none"> • 2 x handles • 2 x angle brackets • 8 x screws
Quick Installation Guide (QIG)	1

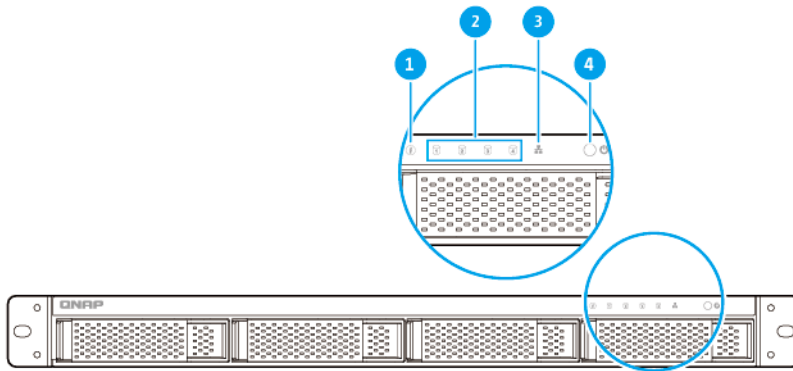
Components

Front Panel



TS-853DU-RP, TS-1253DU-RP

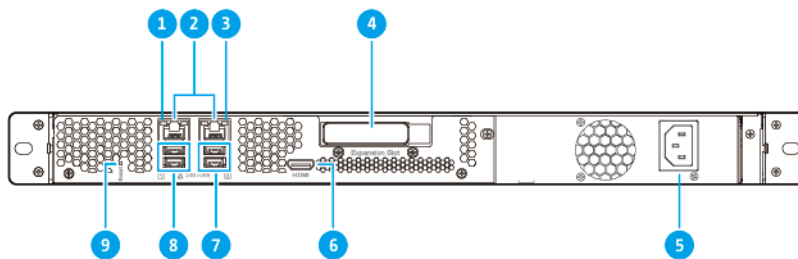
No.	Component	No.	Component
1	Power button	4	LAN LED
2	Status LED	5	Drive LED
3	Expansion unit LED	-	-



TS-453DU, TS-453DU-RP

No.	Component	No.	Component
1	Status LED	3	LAN LED
2	Drive LEDs	4	Power button

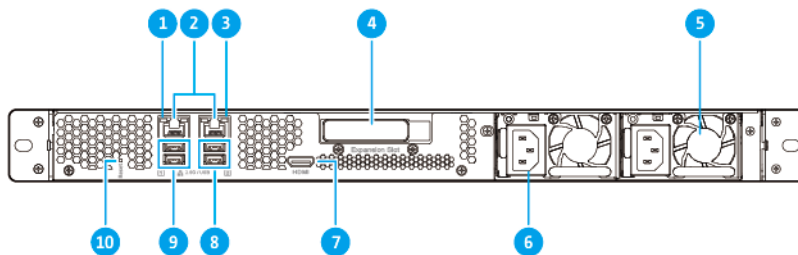
Rear Panel



TS-453DU

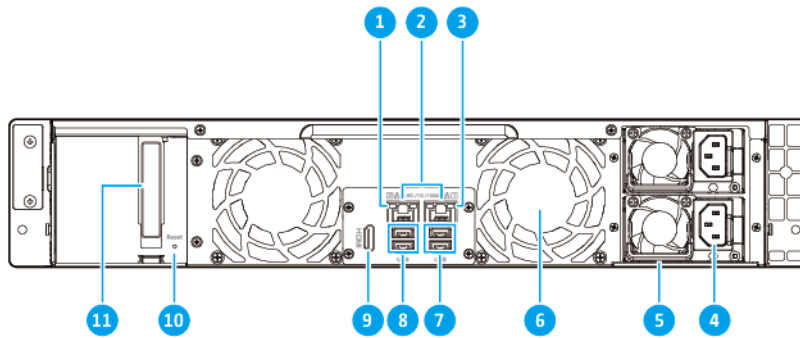
No.	Component	No.	Component
1	2.5 Gigabit Ethernet activity LED	6	HDMI v1.4b port

No.	Component	No.	Component
2	2.5 Gigabit Ethernet ports (RJ45) Note These ports support Wake-on-LAN configurations.	7	USB 3.2 Gen 1 Type-A ports
3	2.5 Gigabit Ethernet speed LED	8	USB 2.0 Type-A ports
4	PCIe low-profile cover	9	Reset button
5	Power input	-	-



TS-453DU-RP

No.	Component	No.	Component
1	2.5 Gigabit Ethernet activity LED	6	Power input
2	2.5 Gigabit Ethernet ports (RJ45) Note These ports support Wake-on-LAN configurations.	7	HDMI 1.4b port
3	2.5 Gigabit Ethernet speed LED	8	USB 3.2 Gen 1 Type-A ports
4	PCIe low-profile cover	9	USB 2.0 Type-A ports
5	Power supply unit	10	Reset button

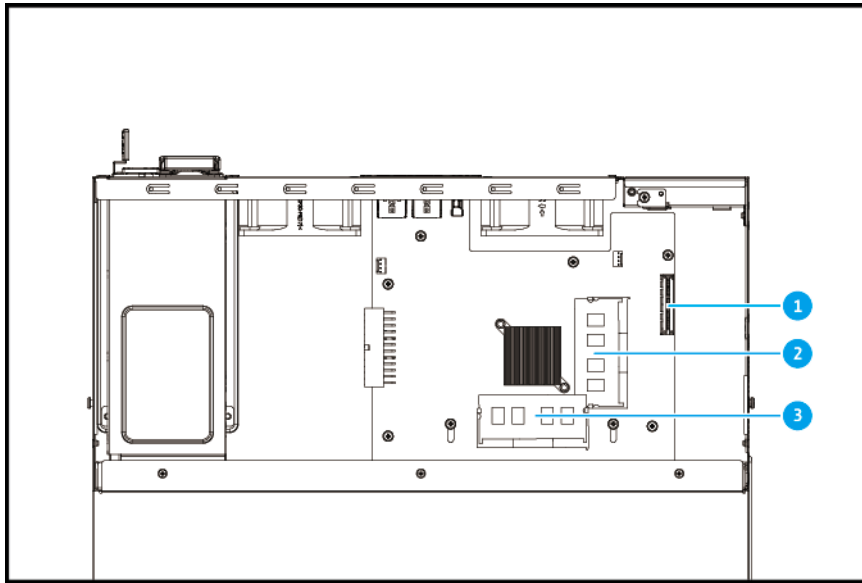


TS-853DU-RP, TS-1253DU-RP

No.	Component	No.	Component
1	2.5 Gigabit Ethernet activity LED	7	USB 3.2 Gen 1 Type-A ports
2	2.5 Gigabit Ethernet ports	8	USB 2.0 Type-A ports
3	2.5 Gigabit Ethernet speed LED	9	HDMI 1.4b port
4	Power input	10	Reset button
5	Power supply unit	11	PCIe low-profile cover
6	System fan	-	-

Note
These ports support Wake-on-LAN configurations.

System Board



Note

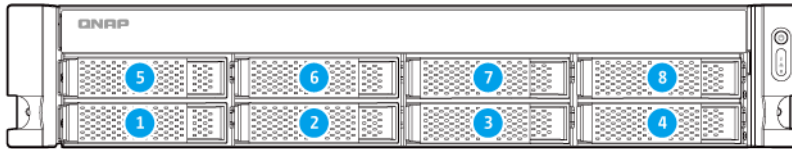
The image does not include the case cover.

No.	Component	No.	Component
1	PCIe 2.0 x2 slot	3	Memory slot 2
2	Memory slot 1	-	-

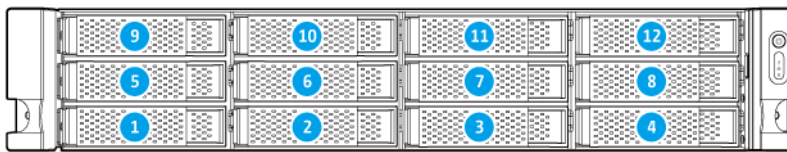
Drive Numbering



TS-453DU, TS-453DU-RP



TS-853DU-RP



TS-1253DU-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

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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	<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
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

1. Place your NAS device in an environment that meets the requirements.
For details, see [Installation Requirements](#).
2. Install the NAS on a rack.
For details, see [Rail Kits](#) and [Installing Handles](#).
3. 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 or Solid State Drives on 3.5-inch Trays](#)

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

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 [Connecting USB Expansion Units](#) and [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](#).
10. Log on to QTS.

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.

Removing the Case Cover



Warning

-



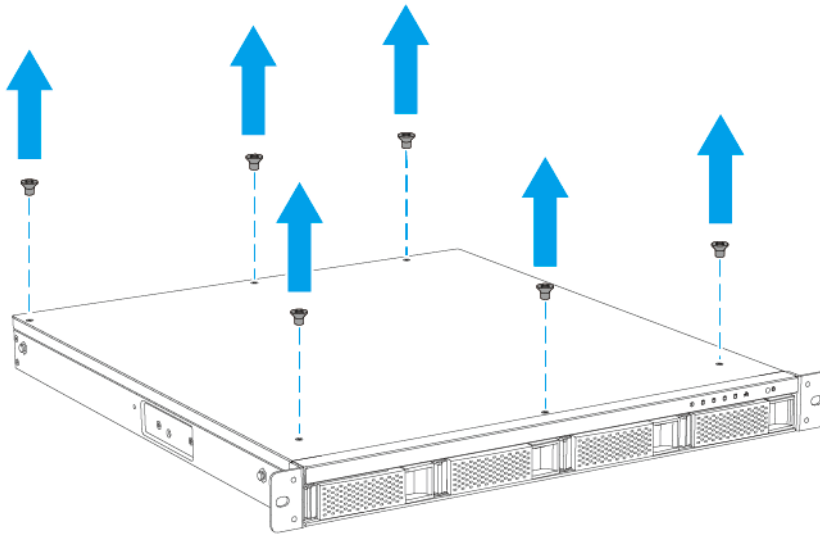
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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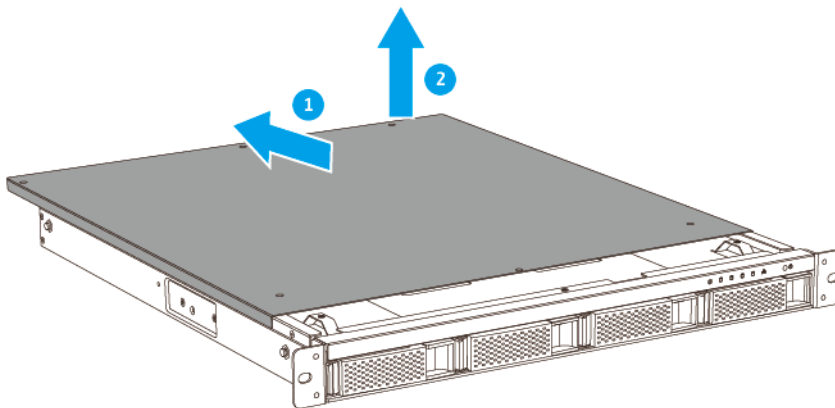


Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
 - TS-453DU, TS-453DU-RP
 1. Remove the screws that connect the case cover to the chassis.

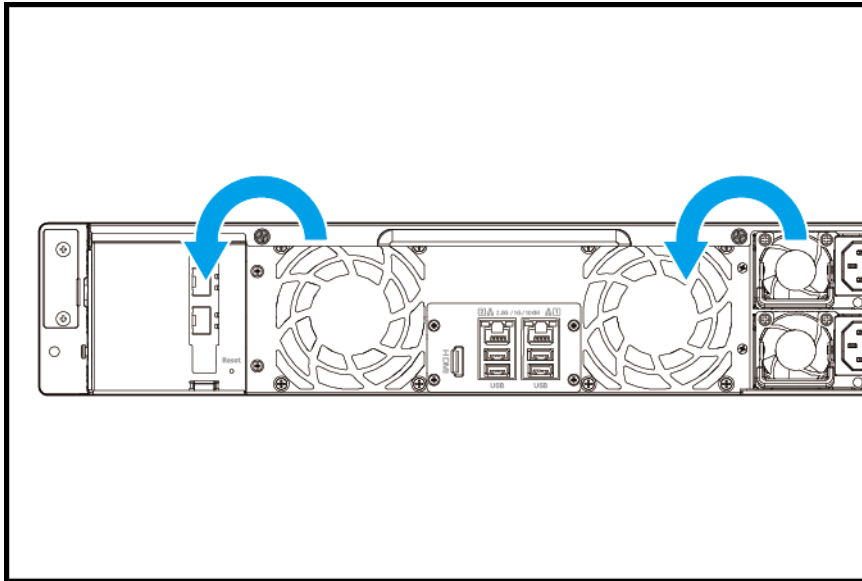


2. Slide the cover back.
3. Lift the cover off the NAS.

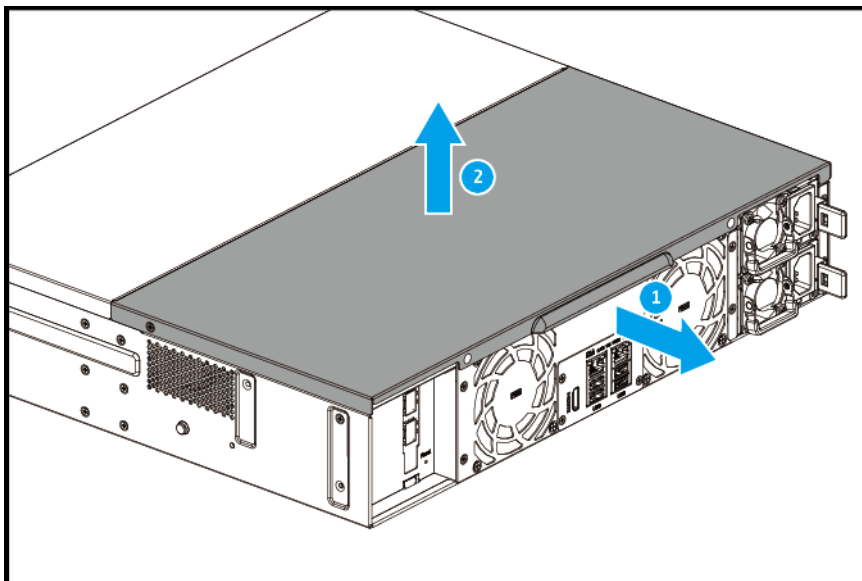


- TS-853DU-RP, TS-1253DU-RP

1. Loosen the screws.



2. Slide the cover back.
3. Lift the cover off the NAS.



Attaching the Case Cover



Warning



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

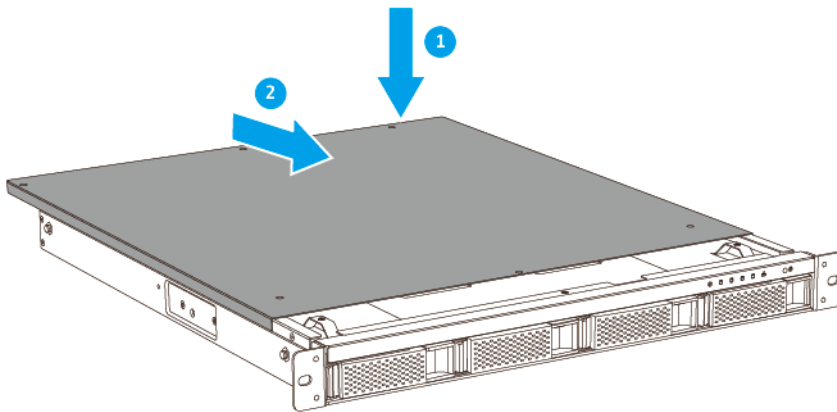


Other moving components: Keep your hands and other body parts away from other moving components.

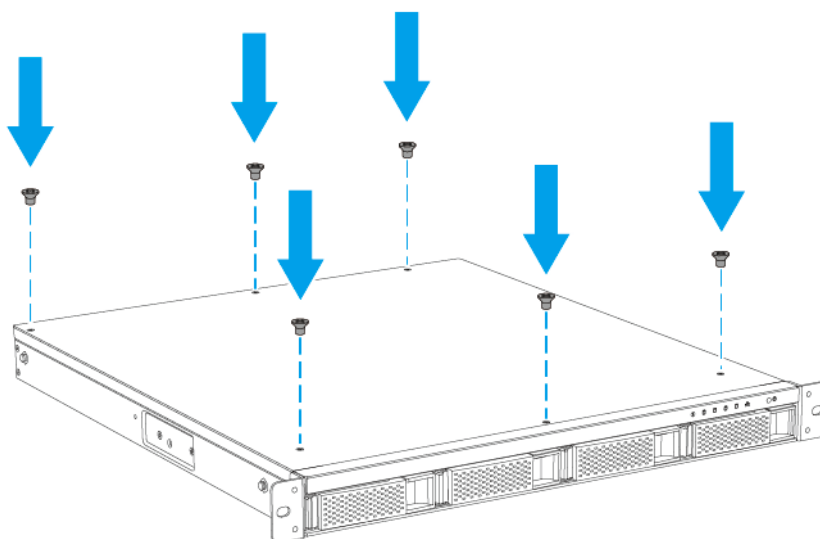
1. Attach the case cover.

- TS-453DU, TS-453DU-RP

1. Place the cover on the NAS.
2. Slide the cover forward.

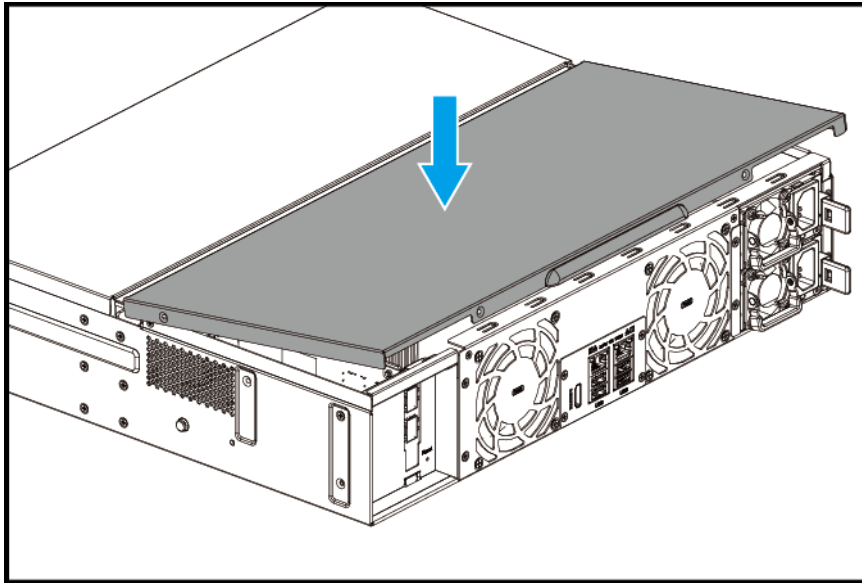


3. Attach the screws that connect the case cover to the chassis.

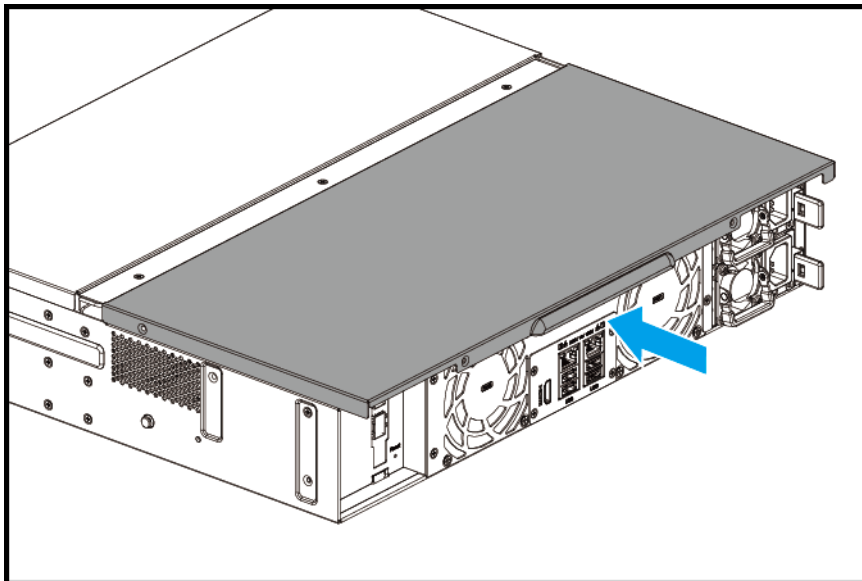


- TS-853DU-RP, TS-1253DU-RP

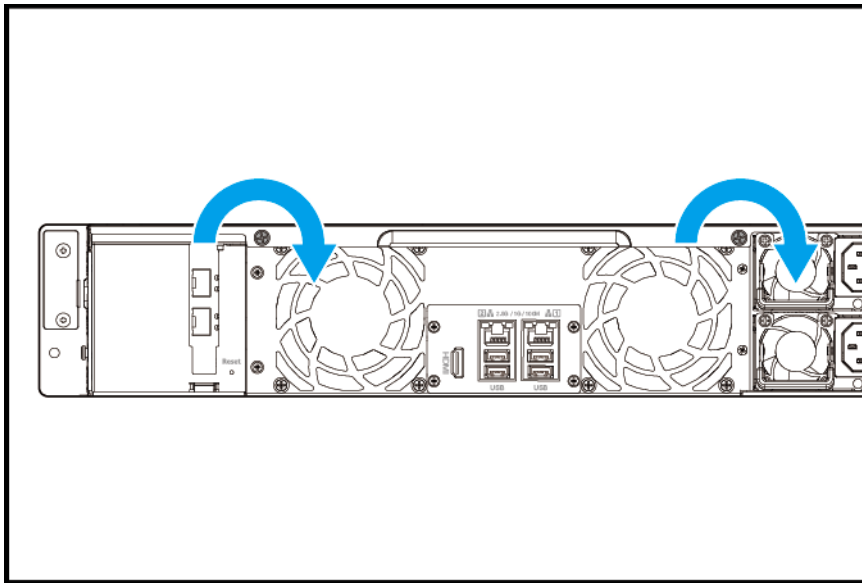
1. Place the cover on the NAS.



2. Slide the cover forward.



3. Tighten the screws.



2. Connect all cables and external attachments.
3. Connect the power cord to the electrical outlet.
4. Power on the NAS.

Drive Installation

The TS-x53DU is compatible with 3.5-inch and 2.5-inch hard drives, and 2.5-inch solid state drives.

Installing 3.5-inch Hard Drives on 3.5-inch Trays



Tip

For the list of compatible drive models, go to <https://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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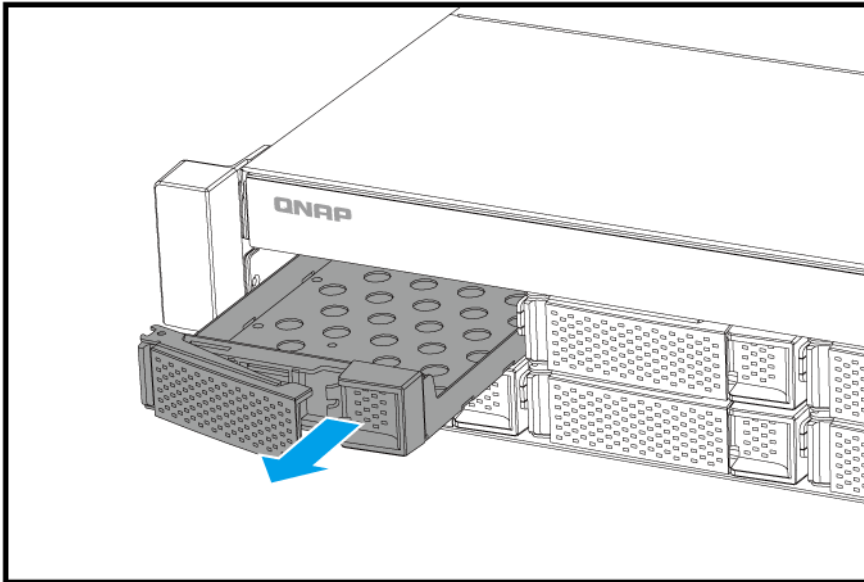
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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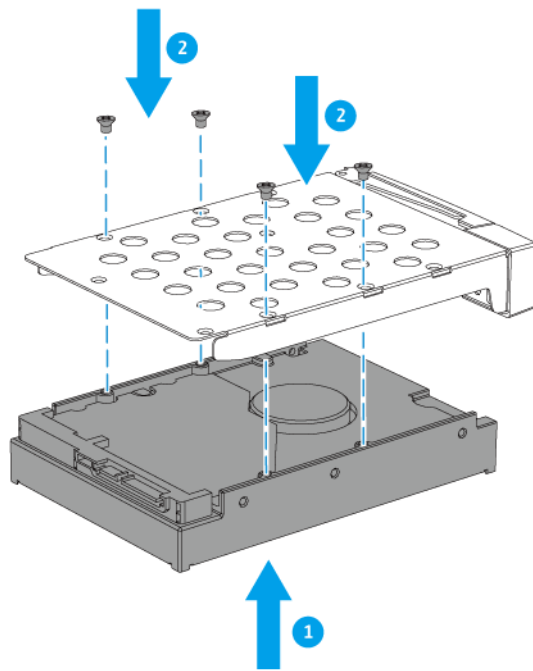


Other moving components: Keep your hands and other body parts away from other moving components.

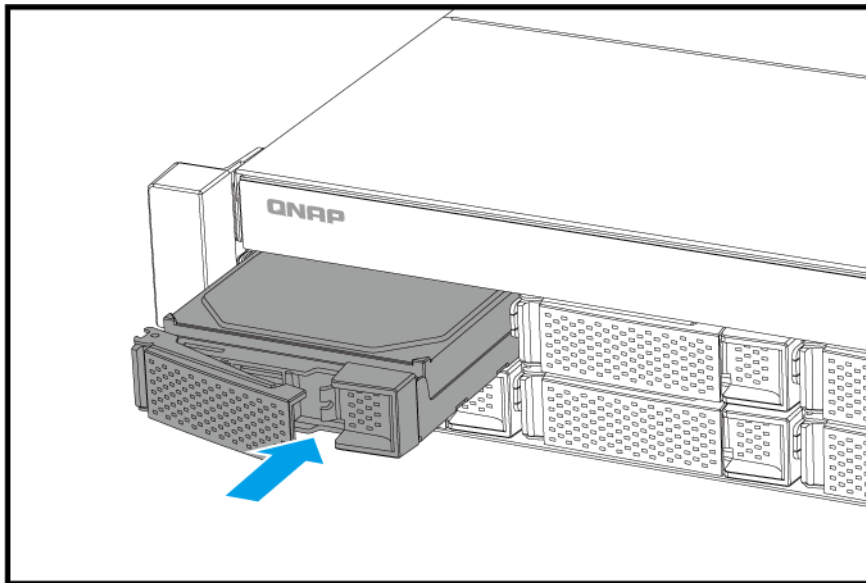
1. Power off the NAS.
2. Remove the drive tray.
 - a. Pull the tray handle outward.
 - b. Pull the tray out.



3. Install a drive on the tray.
 - a. Place the tray on the drive so that the holes on the tray are aligned with those on the drive.
 - b. Attach the screws.



4. Load the tray into the bay.
 - a. Insert the tray into the bay.
 - b. Slide the tray into the bay.
 - c. Push the handle.
 - d. Lock the tray.



5. Power on the NAS.

Installing 2.5-inch Hard Drives or Solid State Drives on 3.5-inch Trays



Tip

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



Warning

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

•



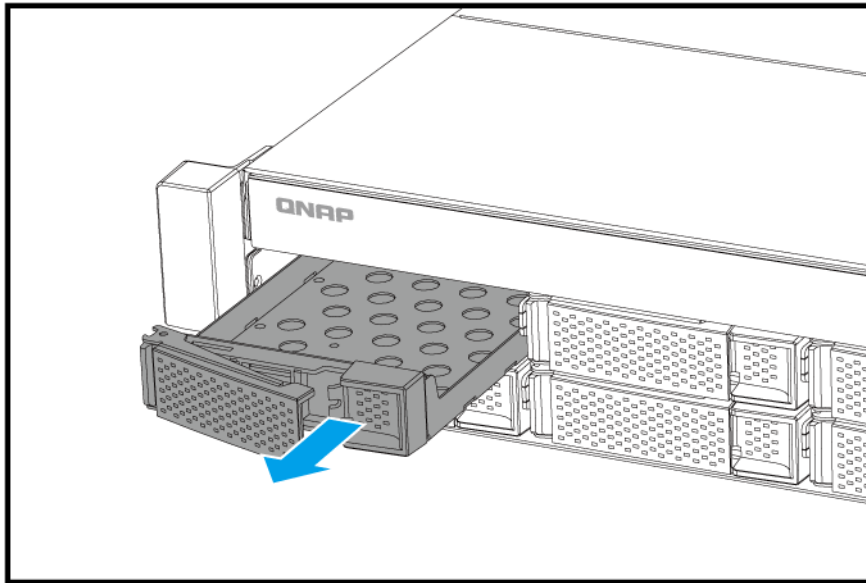
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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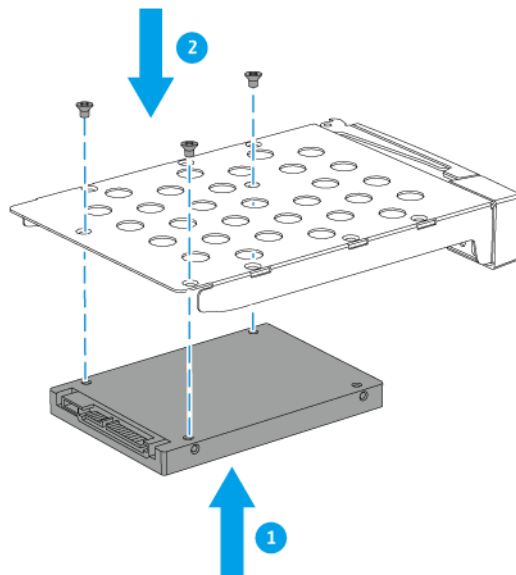


Other moving components: Keep your hands and other body parts away from other moving components.

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

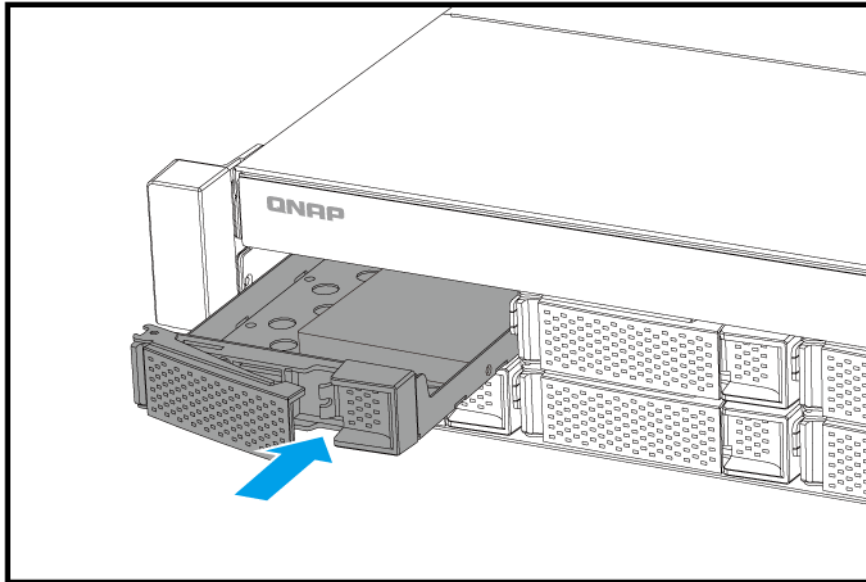


3. Install a drive on the tray.
 - a. Place the tray on the drive so that the holes on the tray are aligned with those on the drive.
 - b. Attach the screws.



4. Load the tray into the bay.

- a. Insert the tray into the bay.
- b. Slide the tray into the bay.
- c. Push the handle.
- d. Lock the tray.



5. Power on the NAS.

Installing Expansion Cards

The TS-x53DU 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-x53DU.



Warning

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

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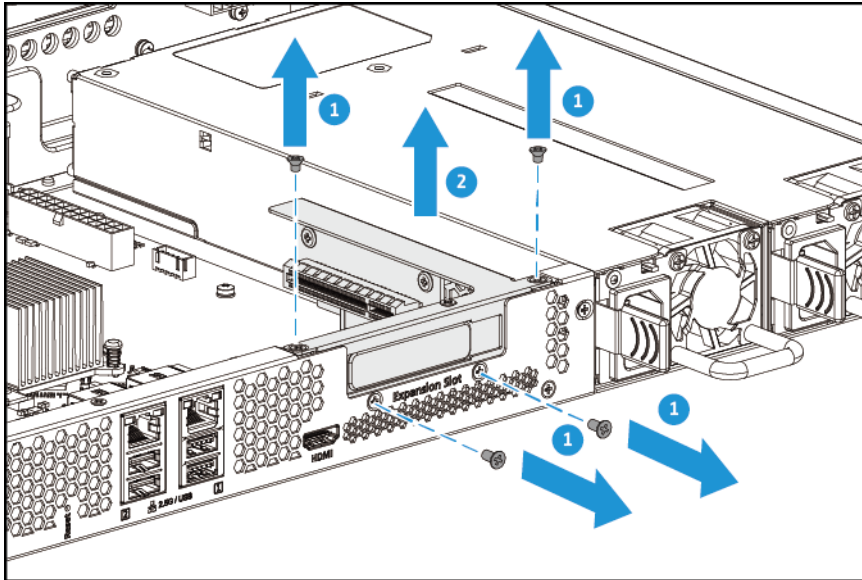
Other moving components: Keep your hands and other body parts away from other moving components.



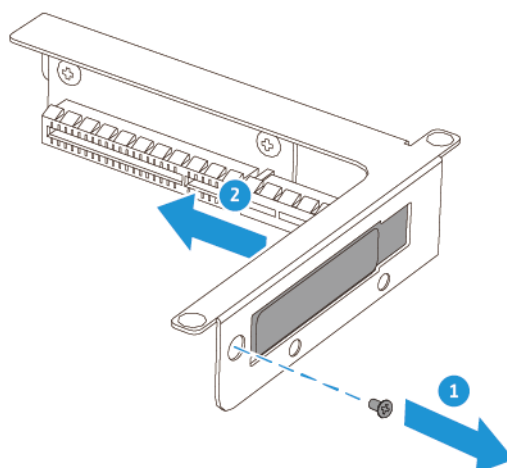
Note

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

1. Remove the case cover.
For details, see [Removing the Case Cover](#).
2. Remove the PCIe cover.
 - TS-453DU, TS-453DU-RP
 1. Remove the screw that secures the cover to the bracket.
 2. Pull the bracket away from the slot.

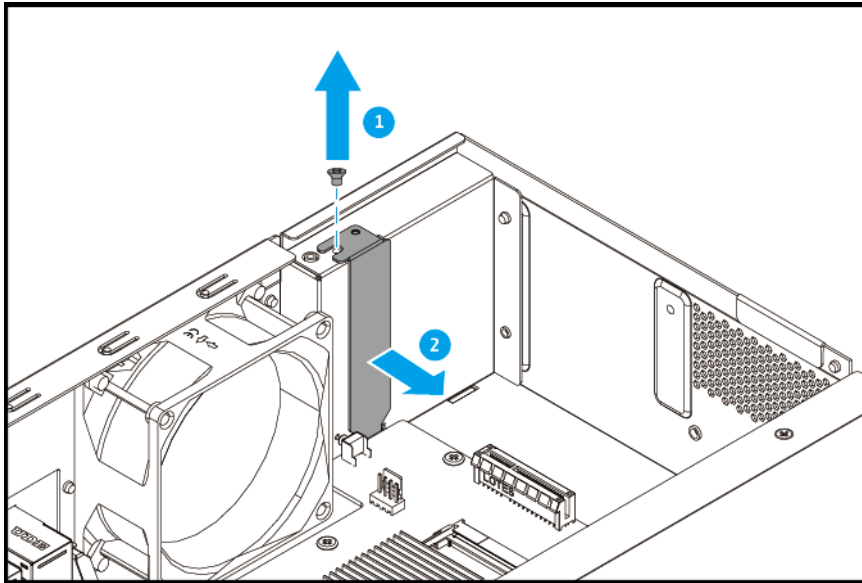


3. Remove the screw that secures the cover to the bracket.
4. Pull the cover away from the slot.

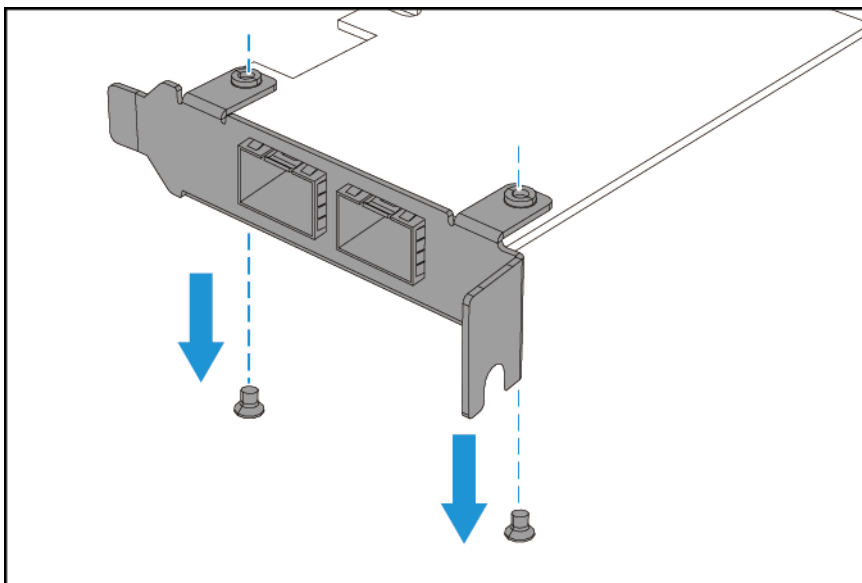


- TS-853DU-RP, TS-1253DU-RP

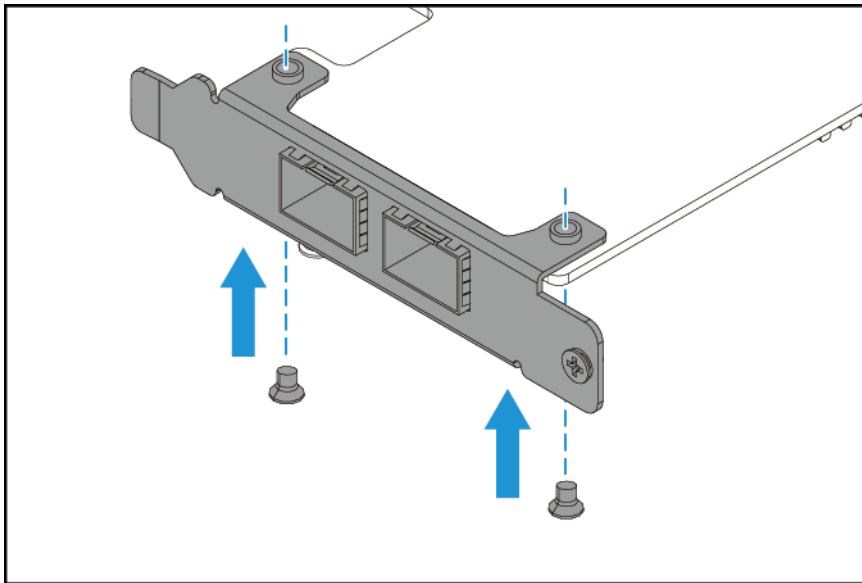
1. Remove the screw that secures the cover to the bracket.
2. Pull the bracket away from the slot.



3. 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.

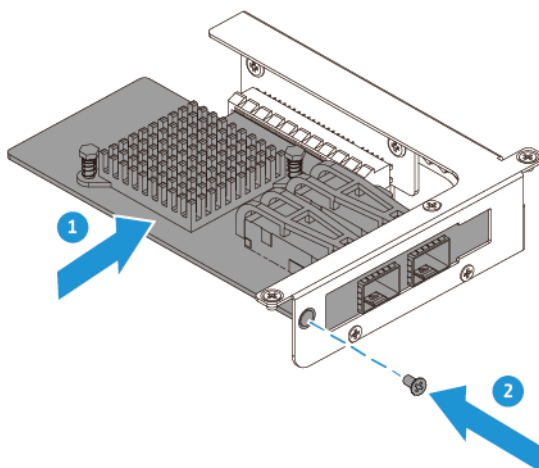


d. Verify that the bracket does not move.

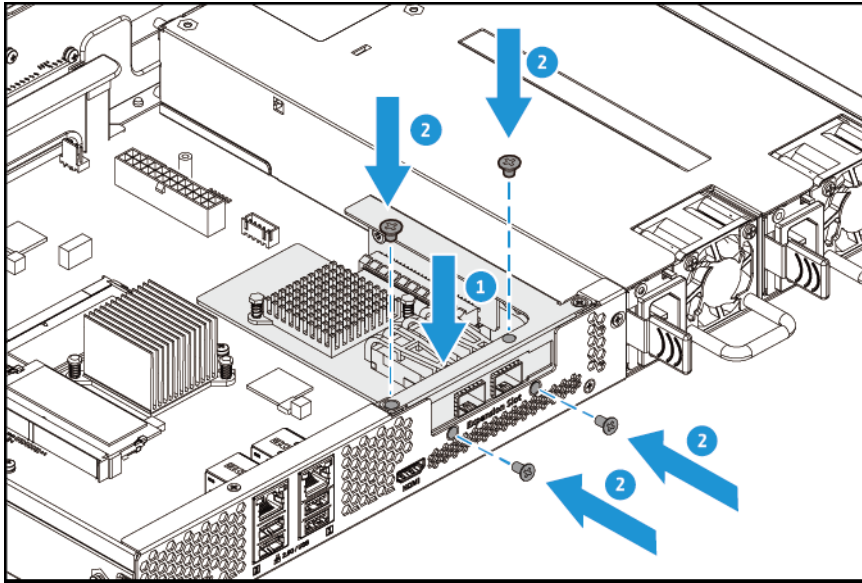
4. Install the expansion card.

- TS-453DU, TS-453DU-RP

1. Hold the card by the edges.
2. Insert the card into the riser card slot.
3. Attach the screw.

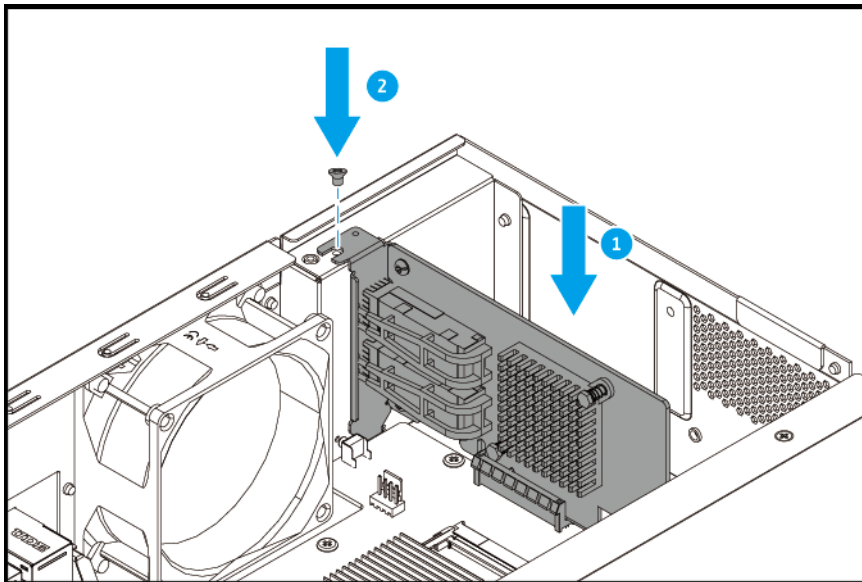


4. Insert the riser card into the slot.
5. Attach the screws.



- TS-853DU-RP, TS-1253DU-RP

1. Hold the card by the edges.
2. Insert the card into the slot.
3. Attach the screw.



5. Attach the case cover.
For details, see [Attaching the Case Cover](#).

Replacing Memory Modules

The TS-x53DU has two memory slots. You can increase the memory capacity of the NAS by upgrading the 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.



Important

Ensure that both memory modules are identical.



Warning

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

-



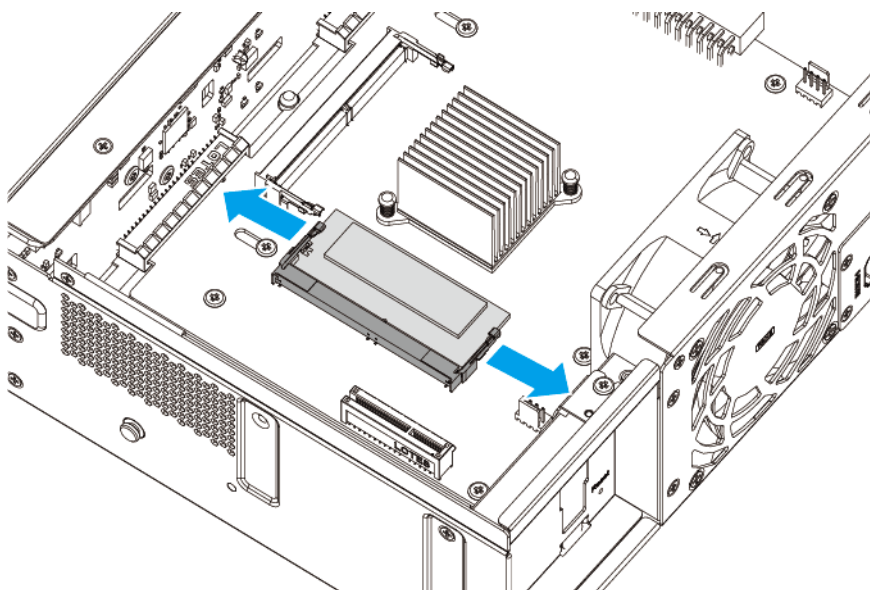
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

-



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

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
For details, see [Removing the Case Cover](#).
5. Remove an existing module.
 - a. Push the retention clips outward simultaneously to release the module.

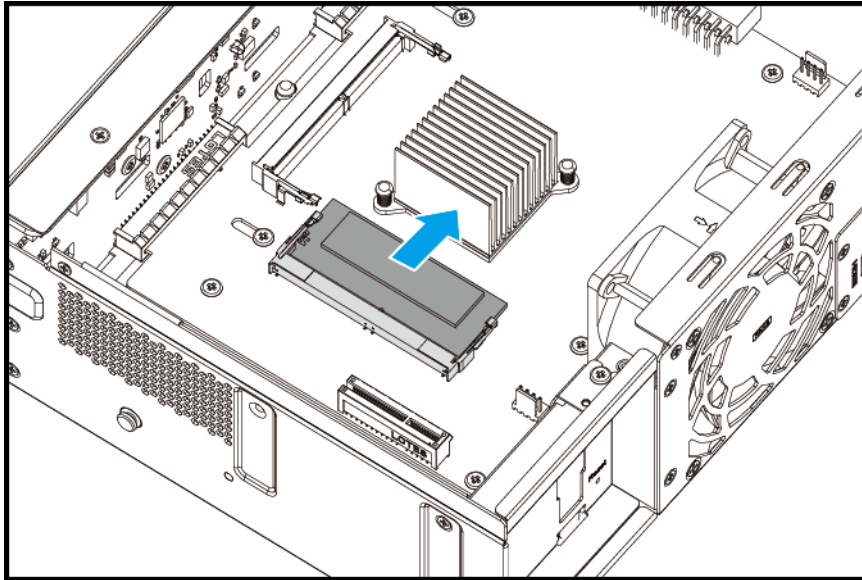


- b. Verify that the module has tilted upward and is completely released from the slot.

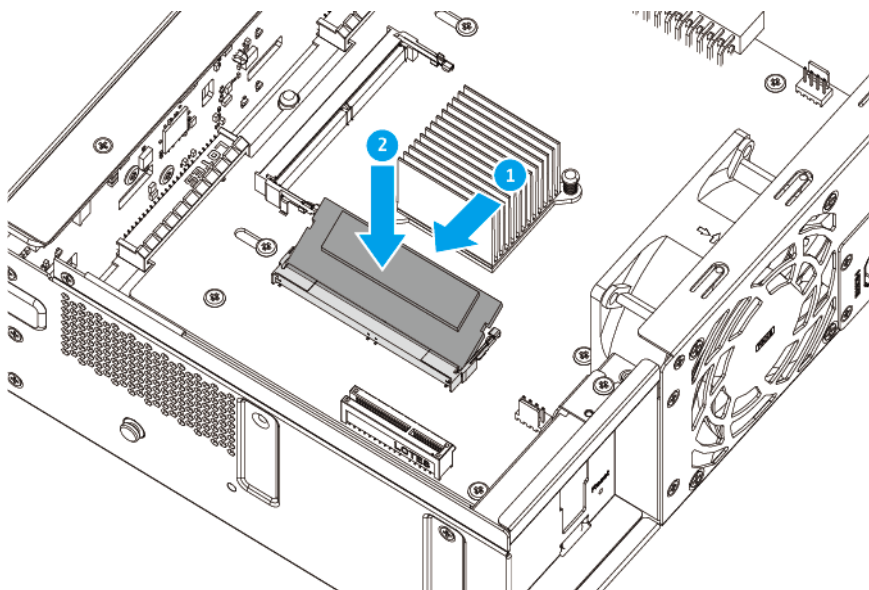
**Warning**

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

- c. Hold the module by the edges.

**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.
For details, see [Attaching the Case Cover](#).
8. Connect all cables and external attachments.
9. Connect all cables and external attachments.
10. Power on the NAS.
11. 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**.

Hot-Swapping Redundant Power Supply Units



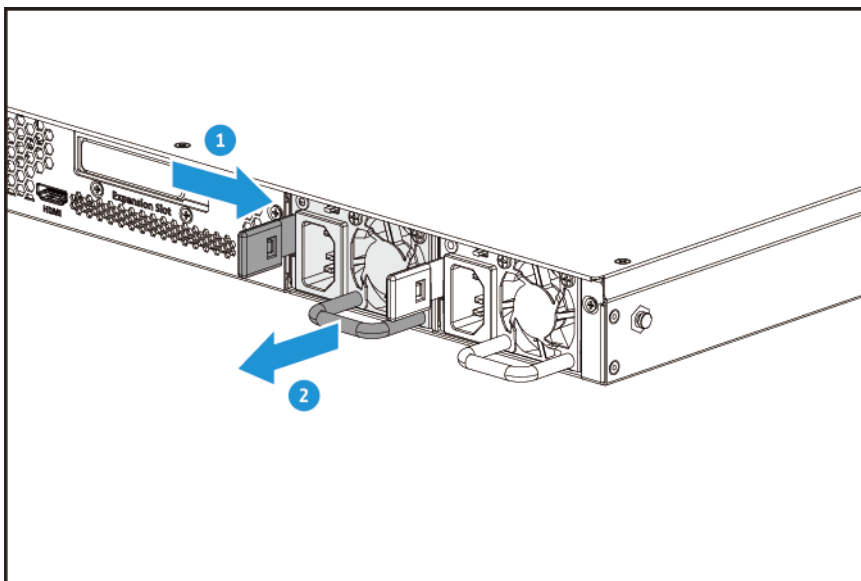
Warning



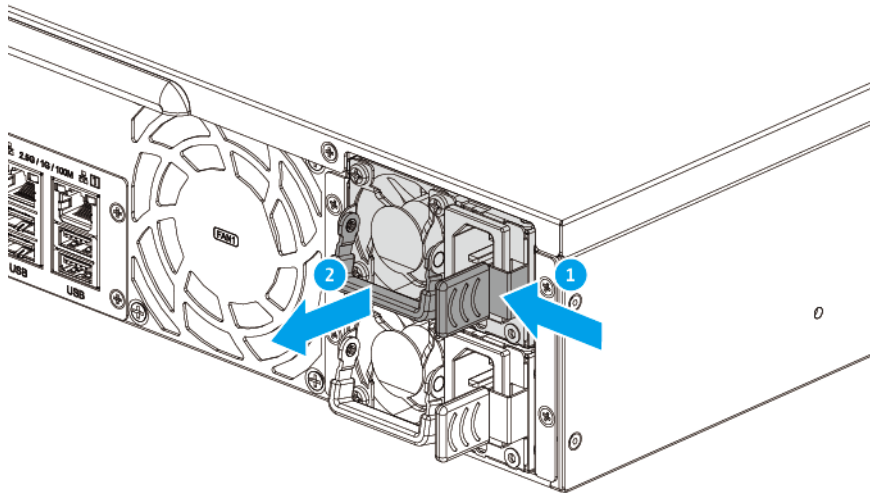
The NAS may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords before installing or replacing system components.

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

- TS-453DU-RP

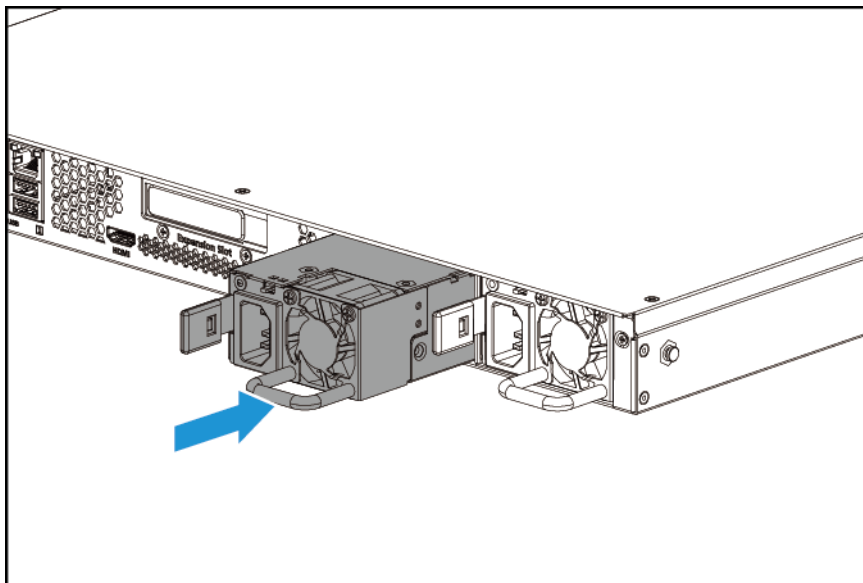


- TS-853DU-RP, TS-1253DU-RP

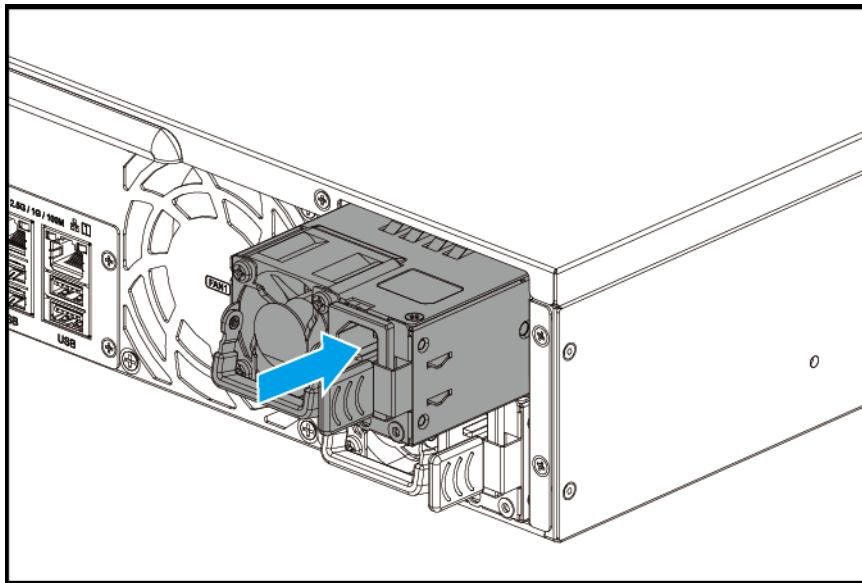


4. Insert the new PSU.

- TS-453DU-RP



- TS-853DU-RP, TS-1253DU-RP



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**.

Expansion Unit Installation

The TS-x53DU is compatible with both SATA expansion units and USB expansion units. For details, please see table below.

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

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

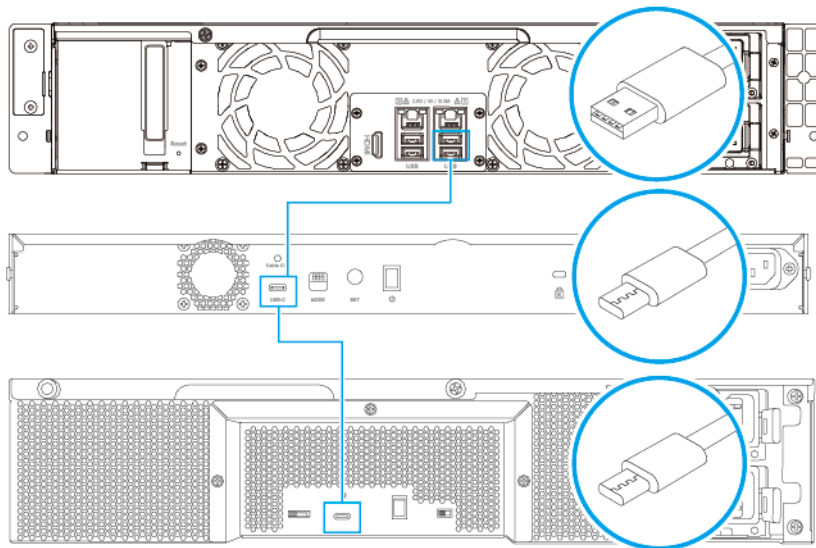
Expansion Unit Model	Description	Required Accessories
TR-004U	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA drives 	<ul style="list-style-type: none"> • USB 3.2 Gen 1 Type-A to Type-C cable • RAIL-B02
TL-R1200C-RP	<ul style="list-style-type: none"> • Uses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

Expansion Unit Model	Description	Required Accessories
TL-D800C	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TL-D400S	<ul style="list-style-type: none"> • Uses a SAS 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 SAS 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 SAS 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 host bus adapter
TL-R400S	<ul style="list-style-type: none"> • Uses a SAS 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 SAS 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 host bus adapter • RAIL-B02

Connecting USB Expansion Units

The TS-x53DU supports connecting a maximum of two USB expansion units.

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

The TS-x53DU supports a maximum of one SATA JBOD expansion unit. To connect SATA JBOD expansion units, a host bus adapter must be installed on the NAS. For details on the required accessories, see [Expansion Unit Installation](#).

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



Important

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

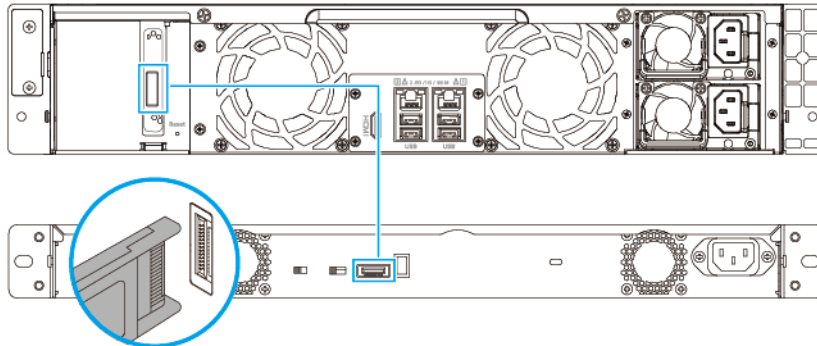
For details, see [Installing Expansion Cards](#).

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



Note

This image shows connecting the NAS to the TL-R400S JBOD enclosure.

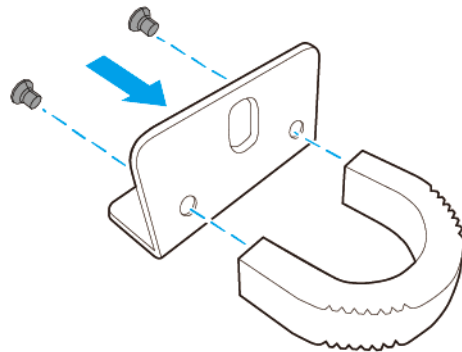


4. Power on the SATA JBOD expansion units.
5. Power on the NAS.
6. Verify that the expansion units are recognized by the NAS.
 - a. Log on to QTS as administrator.
 - b. Go to **Main Menu > Storage & Snapshots > Overview > Storage > System** .
 - c. Verify that the expansion units are listed.

Installing Handles

Installing handles enables you to better grip and further secure the NAS on a rack. Handles on the TS-453DU and TS-453DU-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.

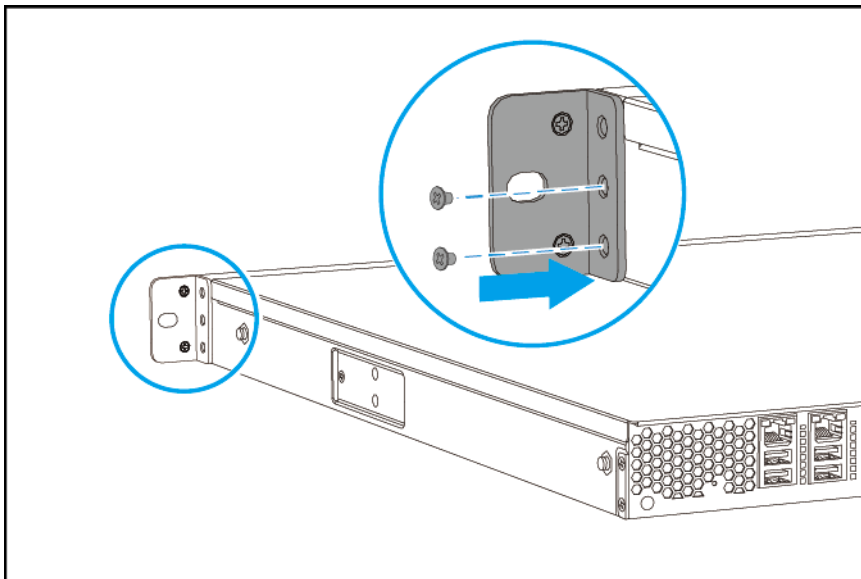


3. Install the angle bracket on the NAS.
 - a. Align the holes on the angle bracket with the holes on the chassis.

**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.

Rail Kits

The TS-x53DU is compatible with the following models:

- RAIL-B02

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>.

You can find installation information in the rail kit package.

QTS Installation

The TS-x53DU uses the QNAP QTS operating system. You can install QTS using any of the following methods.

Method	Description	Requirements
Qfinder Pro installation (Recommended)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Installing QTS 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 Installing QTS Using the Cloud Key.</p>	<ul style="list-style-type: none"> • Computer or mobile device • Network cable • myQNAPcloud account • Cloud Key
Local installation	<p>If the NAS supports HDMI output, you can do the following:</p> <ul style="list-style-type: none"> • Connect the NAS to the required hardware. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Installing QTS Using an HDMI Connection.</p>	<ul style="list-style-type: none"> • Monitor • HDMI cable • USB keyboard or remote control (not available on all models)

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. The **Smart Installation Guide** opens in the default web browser.
5. Click **Start Smart Installation Guide**.
6. 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.
7. Click **Next**.
8. 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.

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



Warning

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

16. 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**.
The **Smart Installation Guide** opens in the default web browser.
8. Click **Start Smart Installation Guide**.
9. 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.
10. Click **Next**.
11. 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.

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

**Warning**

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

19. Click **Confirm**.
QTS is installed.

Installing QTS Using an HDMI Connection

**Warning**

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

1. Connect an HDMI display to the NAS.
2. Connect a USB keyboard to the NAS or prepare the QNAP IR remote control (not available on all models).
3. Power on the NAS.
The **Welcome** screen of the Smart Installation Guide appears.
4. Select **Start Smart Installation Guide**.
5. Select **No, skip this process**.
Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage & Snapshots.
For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.
6. Select **Configure later**.
For details on configuring disks, see the Storage & Snapshots section of the QTS User Guide.
7. Review the settings.
8. Click **Next**.
9. Review the settings.
10. Click **Next**.
The **Confirm** screen appears.

**Warning**



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

11. Click **Next**.
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 5 seconds.	<p>The device powers off.</p> <p> Important Use this method only when the device is unresponsive.</p> <p> Note The fans will spin very fast for about 3 seconds after force power off. This is normal and to be expected.</p>


Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> System administrator password: MAC address of adapter 1 without special characters. For example, if the MAC address of adapter 1 is 11:22:33:44:55:66, then the admin password will be 112233445566. <p> Tip You can find the MAC address of adapter 1 using Qfinder Pro. A label attached to the device also lists the address as MAC1.</p> <ul style="list-style-type: none"> TCP/IP configuration: <ul style="list-style-type: none"> Obtain IP address settings automatically via DHCP Disable jumbo frames If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)". System port: 8080 (system service port) Security level: Low (Allow all connections) LCD panel password: (blank) VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	<p>The default factory settings are restored.</p> <ul style="list-style-type: none"> 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 [Components](#) .

LED	Status	Description
System Status	Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> 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. The firmware is being updated. <p> Important When updating the firmware, do not remove the power cable or USB cable, and do not force-exit the application.</p>
	Red	<ul style="list-style-type: none"> 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. The system temperature is over the threshold.
	Flashes red every 0.5 seconds	The NAS is in degraded mode (one member drive failed in RAID 1).
	Flashes green every 0.5 seconds	<ul style="list-style-type: none"> The device is starting up. The device is not configured. A drive is not formatted.
	Flashes green every 2 seconds	All drives are in standby mode.
	Flashes green every second	The device is not configured.
	Green	The device is ready.
	Off	<ul style="list-style-type: none"> All drives are in standby mode. The device is powered off.
LAN	Orange	A read/write error occurred while another device is accessing data.
	Flashes orange	The device is being accessed from the network.

LED	Status	Description
2.5 Gigabit Speed LAN (Rear)	Green	The network connection is operating at 2.5 Gbps.
	Orange	<ul style="list-style-type: none"> The network connection is operating at 1 Gbps. The network connection is operating at 100 Mbps.
	Off	The network connection is operating at 10 Mbps
2.5 Gigabit Activity LAN (Rear)	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	There is no network connection.
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	<ul style="list-style-type: none"> A drive read/write error occurred. The drive temperature is over the threshold.
	Flashes green	<ul style="list-style-type: none"> Data is being accessed. Data is being copied.
	Green	<ul style="list-style-type: none"> The drive can be accessed. The device is powered on.
	Off	No drive is detected.
Expansion Unit • TS-853D U-RP • TS-1253 DU-RP	Blue	A QNAP USB or SATA external storage device is connected.
	Off	No USB or SATA external storage devices connected.

Audio Alert

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 (software shutdown). The user pressed the Reset button. The operating system was updated.
	3	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)	The system fan is not functioning.
	2	<ul style="list-style-type: none"> • The disk volume is about to reach its full capacity. • The disk volume has reached its full capacity. • The drives are in degraded mode. • The user started the drive rebuilding process. • 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.

5. Troubleshooting

This chapter describes basic troubleshooting information.

Forcing Qfinder Pro or myQNAPcloud to Locate the NAS

If Qfinder Pro or myQNAPcloud is unable to locate the NAS during QTS installation, the drives or data may be faulty.

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

Hot-swapping Failed Drives

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

- RAID 1: One member drive fails
- RAID 5: One member drive fails
- RAID 6: One or two member drives 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`.

Recovering Unintentionally Removed Healthy Drives

The NAS supports exclusive RAID recovery technology to recover failed RAID disk volumes from unintentional disconnection or removal of drives. Users can recover an inactive RAID 1, RAID 5, or RAID 6 volume to degraded mode, or an inactive RAID 0 and JBOD configuration to normal.

Disk Volume	RAID Recovery Support	Maximum Number of Removed Drives
Single	No	N/A
JBOD	Yes	1
RAID 0	Yes	1
RAID 1	Yes	1
RAID 5	Yes	2
RAID 6	Yes	3
RAID 10	No	N/A

Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	https://docs.qnap.com
Service Portal	https://service.qnap.com
Downloads	https://download.qnap.com
Community Forum	https://forum.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

myQNAPcloud ID

Email address that was used to register for a myQNAPcloud account

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.

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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.

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Version 3, 29 June 2007

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显示	0	0	0	0	0	0
印刷电路板	0	0	0	0	0	0
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