



**QNAP**

# **TS-x53D**

**TS-253D**

**TS-453D**

**TS-653D**

## **User Guide**

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# 1. Preface





## About This Guide

This guide provides information on the QNAP TS-x53D 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 a task or configuring settings.
	Warnings provide information, that when ignored, may result to potential loss, injury, or even death.

## 2. Product Overview


This chapter provides basic information about the QNAP TS-x53D NAS.





### About TS-x53D


The TS-x53D is powered by an Intel® Celeron® quad-core 2.0 GHz NAS with 2.5 GbE connectivity with burst up to 2.7 GHz. In addition to the two built-in 2.5 GbE ports, the TS-x53D supports QNAP networking adapters. It features three USB 2.0 ports and two USB 3.2 Generation 1 ports. The TS-x53D is available in 2-drive bay, 4-drive bay, and 6-drive bay models that support multi-cloud backup, cloud storage gateways, 4K HDMI output, and real-time transcoding.

### Hardware Specifications

Ordering P/N	Drive bays	Memory	Power supply
TS-253D-4G	2	4 GB	Single
TS-453D-4G	4	4 GB	Single
TS-453D-8G	4	8 GB	Single
TS-653D-4G	6	4 GB	Single
TS-653D-8G	6	8 GB	Single

Component	TS-253D	TS-453D	TS-653D
Ordering Information			
Ordering P/N	TS-253D-4G	<ul style="list-style-type: none"> <li>• TS-453-4G</li> <li>• TS-453-8G</li> </ul>	<ul style="list-style-type: none"> <li>• TS-653D-4G</li> <li>• TS-653D-8G</li> </ul>
Processor			
CPU	Intel® Celeron® J4125		
Frequency	4-core 2.0 GHz/2.7 GHz burst		
Architecture	x86 64-bit		
Encryption engine	AES-NI		
Memory			
Pre-installed memory	4 GB RAM: 1 x 4 GB SODIMM DDR4	<ul style="list-style-type: none"> <li>• 4 GB RAM: 1 x 4 GB SODIMM DDR4</li> <li>• 8 GB RAM: 2 x 4 GB SODIMM DDR4</li> </ul>	<ul style="list-style-type: none"> <li>• 4 GB RAM: 1 x 4 GB SODIMM DDR4</li> <li>• 8 GB RAM: 2 x 4 GB SODIMM DDR4</li> </ul>
Memory slots	2 x SODIMM DDR4		
	<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 10px;">  </div> <div> <p><b>Important</b></p> <ul style="list-style-type: none"> <li>• Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications.</li> <li>• Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.</li> </ul> </div> </div>		
Maximum memory	8 GB RAM: 2 x 4 GB		

Component	TS-253D	TS-453D	TS-653D
Flash memory	4 GB (dual-boot OS protection)		
Storage			
Drive bays	2 x 3.5-inch SATA 6 Gbps	4 x 3.5-inch SATA 6 Gbps	6 x 3.5-inch SATA 6 Gbps
	 <b>Note</b> The SATA 6 Gbps is also backward compatible with the SATA 3 Gbps.		
Drive compatibility	3.5-inch bays: <ul style="list-style-type: none"> <li>• 3.5-inch SATA hard disk drives</li> <li>• 2.5-inch SATA hard disk drives</li> <li>• 2.5-inch SATA solid-state drives</li> </ul>		
SSD cache acceleration support	3.5-inch drive bays: 1 to 2	3.5-inch drive bays: 1 to 4	3.5-inch drive bays: 1 to 6
Hot-swapping	Supported		
Network			
2.5 Gigabit Ethernet ports	2 x 2.5 GbE RJ45		
External I/O Ports & Expansion Slots			
PCIe slots	1 x PCIe Gen 2.0 x4	1 x PCIe Gen 2.0 x2	
	 <b>Tip</b> For the list of compatible expansion cards, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a> .		
USB ports	Front: <ul style="list-style-type: none"> <li>• 1 x USB 3.2 Type-A</li> </ul>  <b>Note</b> This USB port supports One Touch Copy.           Rear: <ul style="list-style-type: none"> <li>• 1 x USB 3.2 Type-A</li> <li>• 3 x USB 2.0 Type-A</li> </ul>		
HDMI ports	1 x HDMI 2.0 (up to 4096 x 2160 at 60 Hz)		
Interface			
IR sensor	1		
	 <b>Note</b> The QNAP RM-IR004 remote control is an optional separate purchase.		
Buttons	<ul style="list-style-type: none"> <li>• Power</li> <li>• Reset</li> <li>• USB One Touch Copy</li> </ul>		

Component	TS-253D	TS-453D	TS-653D
Dimensions			
Form factor	Tower		
Dimensions (H x W x D)	168 x 105 x 226 mm (6.61 x 4.13 x 8.90 in)	168 x 170 x 226 mm (6.61 x 6.69 x 8.90 in)	168 x 235 x 226 mm (6.61 x 9.25 x 8.90 in)
Net weight	1.48 kg (3.26 lbs)	2.37 kg (5.22 lbs)	2.87 kg (6.33 lbs)
Others			
Power supply unit	65W, 100-240V AC	90W, 100-240V AC	120W, 100-240V AC
Power consumption	12.448 W	25.98 W	35.437 W
System battery	CR2032 lithium battery (3V, 225 mAh)		
Sound level	17.1 dB(A)	21.1 dB(A)	21.3 dB(A)
	 <b>Note</b> 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	1 x 70mm, 12V DC	1 x 120mm, 12V DC	2 x 90mm, 12V DC
Operating temperature	0°C to 40°C (32°F to 104°F)		
Relative humidity	<ul style="list-style-type: none"> <li>• Non-condensing relative humidity: 5% to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> </ul>		
Security slot	Kensington security slot		


**Tip**

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

## Package Contents

Item	Quantity
TS-x53D NAS	1
AC power adapter	1
Power cord	1
Ethernet cable	2 x Cat5e
Screws for 3.5-inch drives	<ul style="list-style-type: none"> <li>• TS-253D: 8</li> <li>• TS-453D: 16</li> <li>• TS-653D: 24</li> </ul>
Screws for 2.5-inch drives	<ul style="list-style-type: none"> <li>• TS-253D: 6</li> <li>• TS-453D: 12</li> <li>• TS-653D: 18</li> </ul>
Quick Installation Guide (QIG)	1

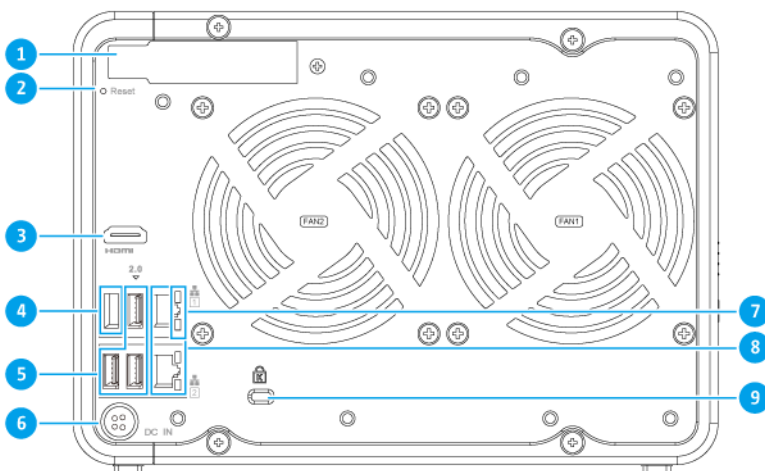
## Components

### Front Panel



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

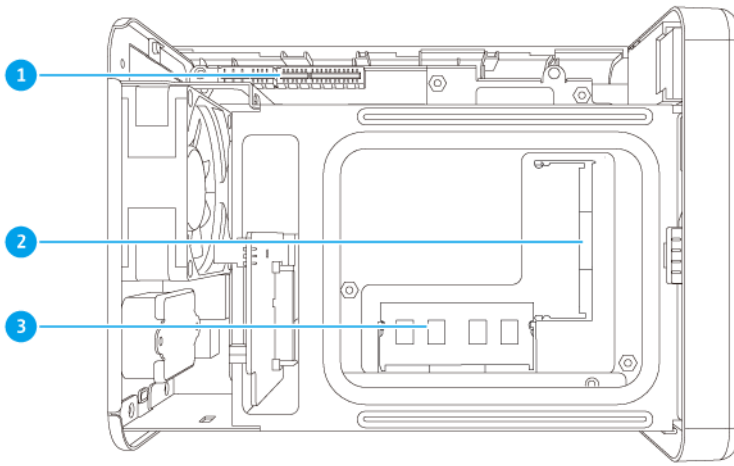
### Rear Panel






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

## Right Panel

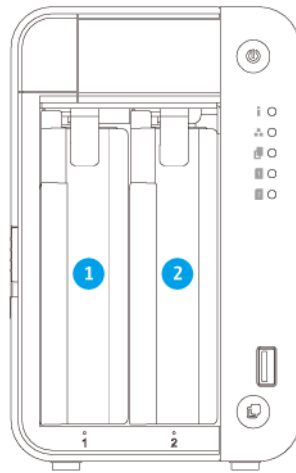


### Note

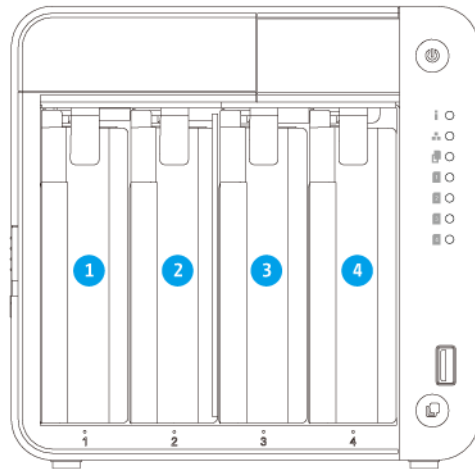
The image does not include the chassis.

No.	Component	No.	Component
1	PCIe 2.0 x2	3	Memory slot 2
	 <b>Note</b> The TS-253D has a PCIe 2.0 x4 slot.		
2	Memory slot 1	-	-

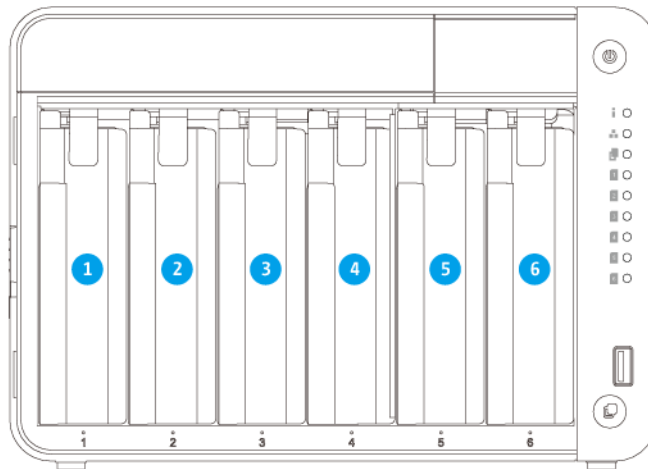
## Drive Numbering



**TS-253D**



**TS-453D**



## TS-653D

### Safety Information

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

#### General Instructions

- The NAS should be stored in a secure location with restricted access, controlled through the use of a tool, lock and key, or any means of security.
- Only qualified, skilled, and authorized persons with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the NAS.
- 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.



The device 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.

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

### Setting Up the NAS



#### Important

Read all safety requirements and information 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:
  - [Installing 3.5-inch Hard Drives on 3.5-inch Drive Bays](#)
  - [Installing 2.5-inch Hard Drives and Solid-State Drives on 3.5-inch Drive Bays](#)
3. Optional: Replace the memory modules.  
For details, see [Replacing Memory Modules](#).

4. Optional: Install the expansion cards.  
For details, see [Installing Expansion Cards](#).
5. Connect the power cord and all applicable cables.
6. Power on the NAS.
7. Install QTS.  
For details, see [QTS Installation](#).
8. 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.

### Installing Drives

The TS-x53D 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 Drive Bays



#### Warning

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



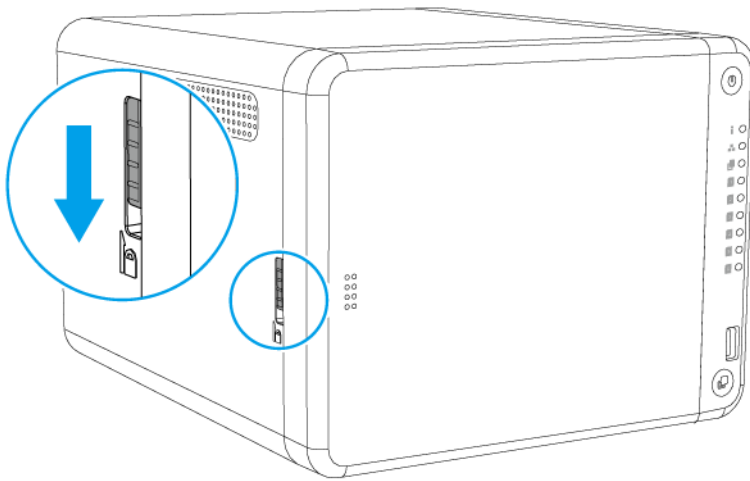
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

- 

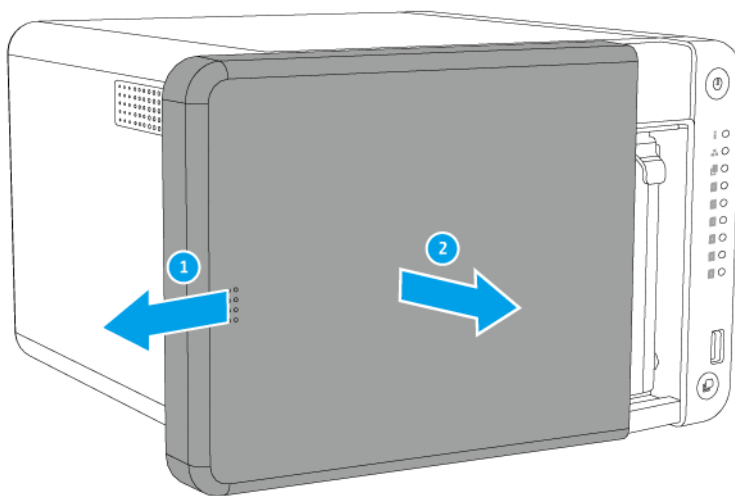


**Other moving components:** Keep your hands and other body parts away from other moving components.

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

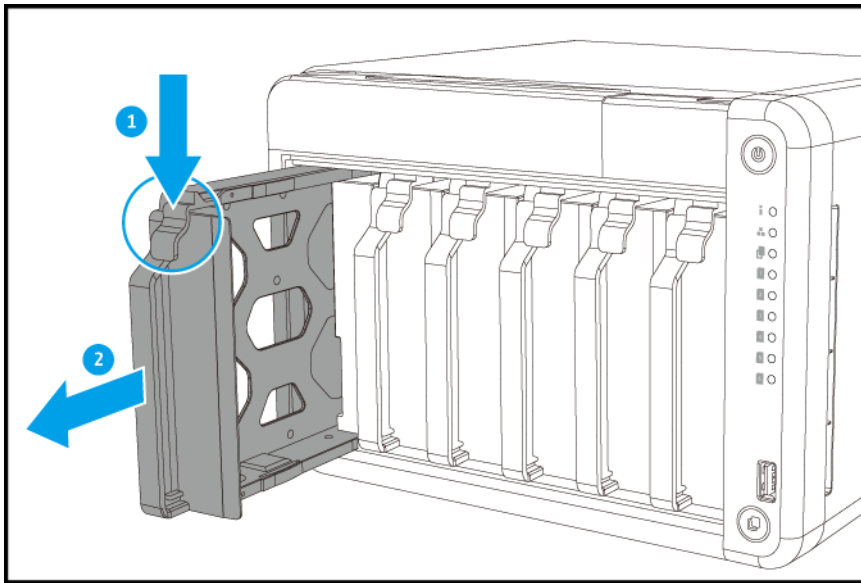


- c. Slide the front cover to the left and then pull.



3. Remove the drive tray.

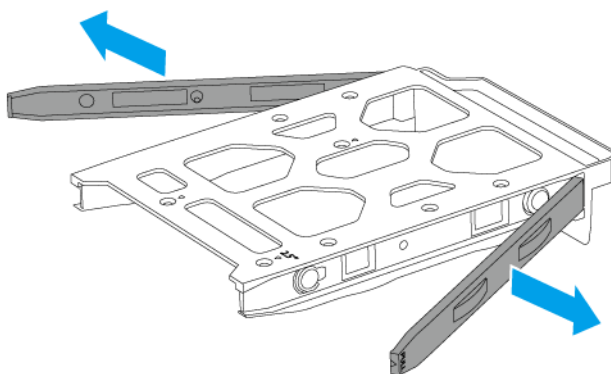
- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



### Important

Remember the number of each drive. The drive trays will need to be returned to their original bays.

- b. Pull the tray handle outward.
  - c. Pull the tray out.
4. Install a drive on the tray.
    - a. Remove the fastening panels from the sides of the drive tray.

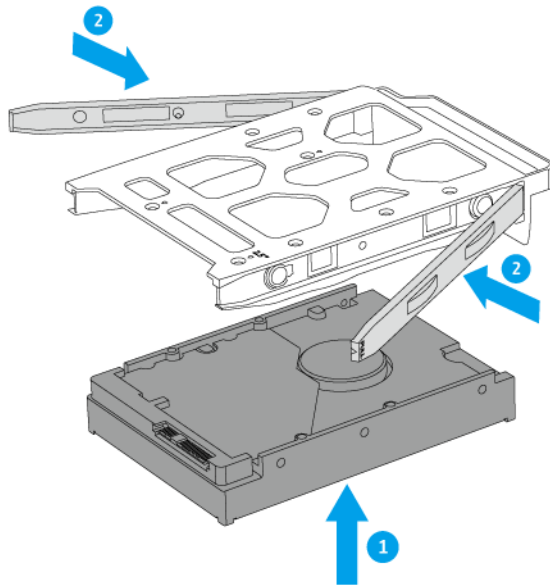


- b. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- c. Attach the fastening panels to lock the drive to the tray.

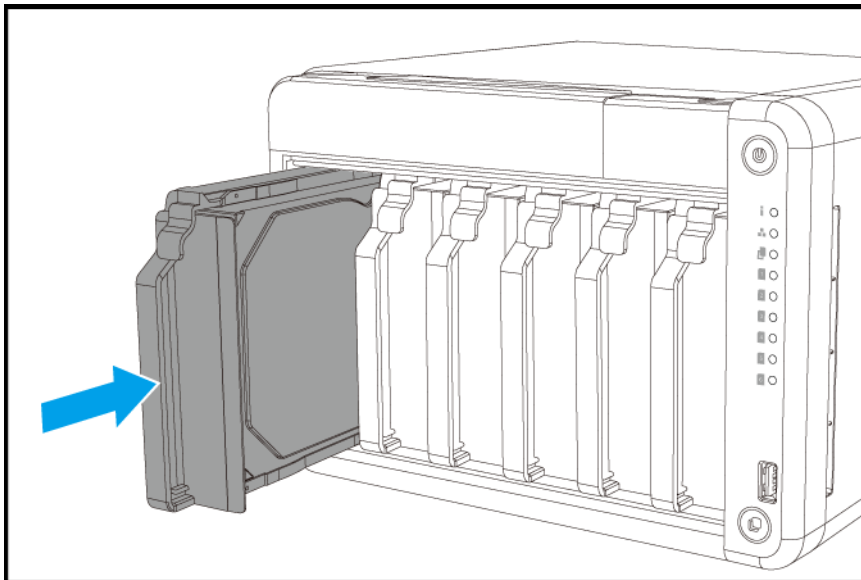


**Note**

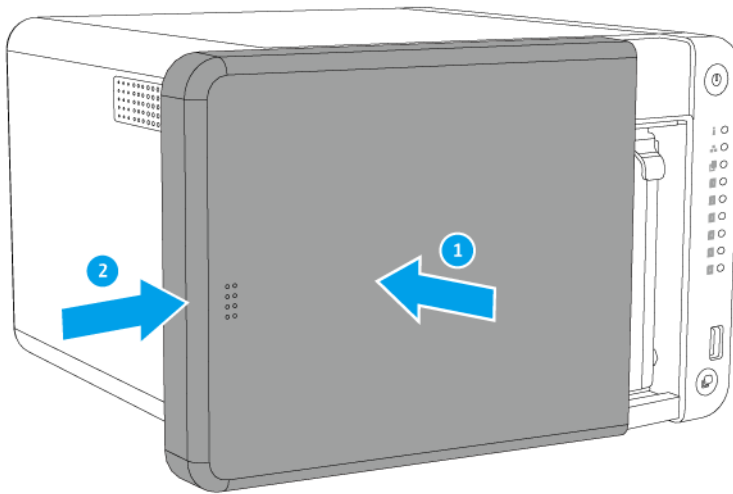
Install screws to transport the NAS with HDDs installed.



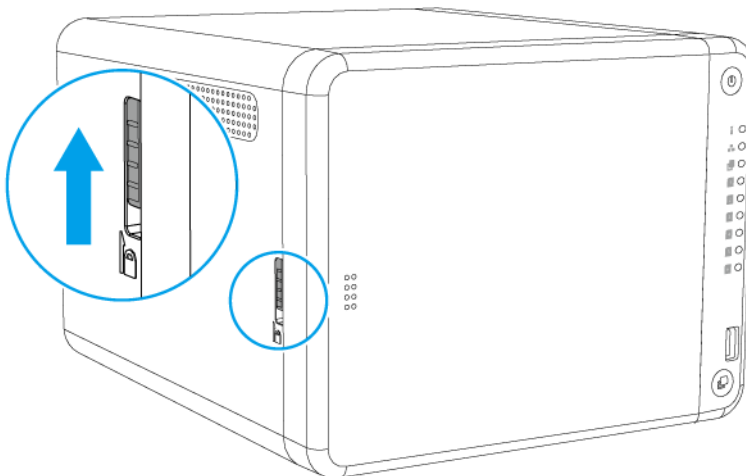
5. Load the tray into the bay.
  - a. Insert the tray into the bay.
  - b. Push the handle.



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



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



7. Power on the NAS.

### Installing 2.5-inch Hard Drives and Solid-State Drives on 3.5-inch Drive Bays



#### Warning

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

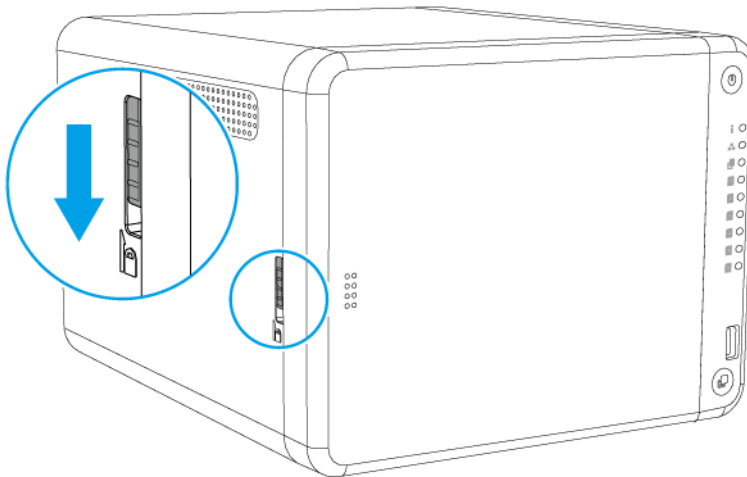


**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

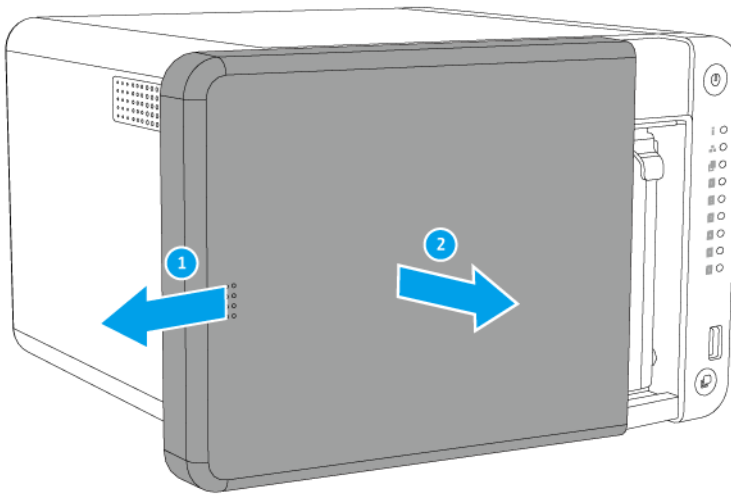


**Other moving components:** Keep your hands and other body parts away from other moving components.

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

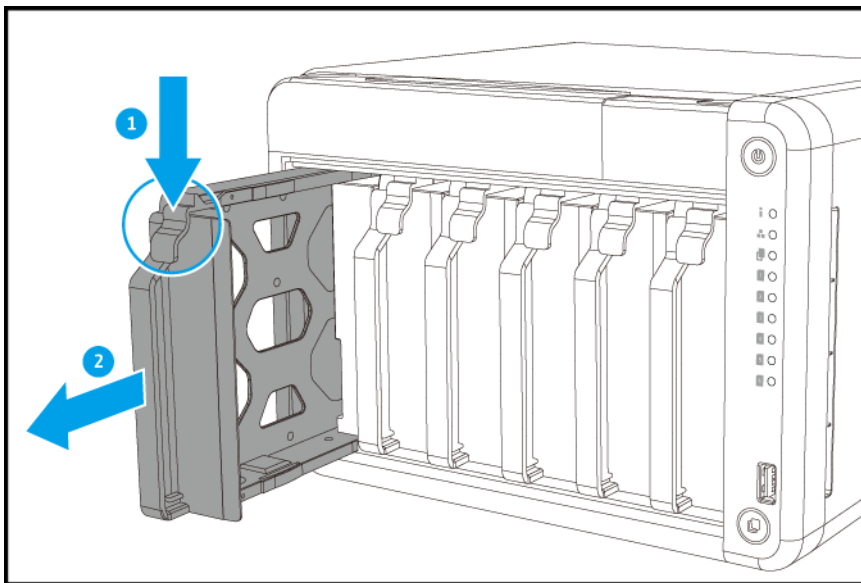


- c. Slide the front cover to the left and then pull.



3. Remove the drive tray.

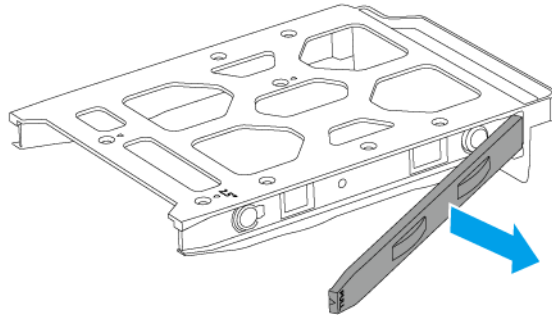
- a. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



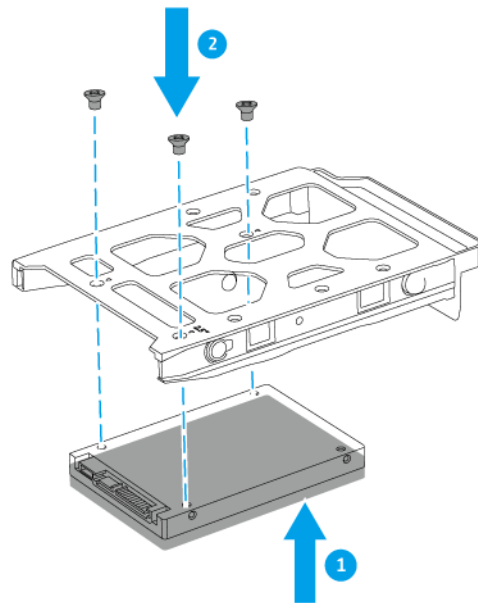
**Important**

Remember the number of each drive. The drive trays will need to be returned to their original bays.

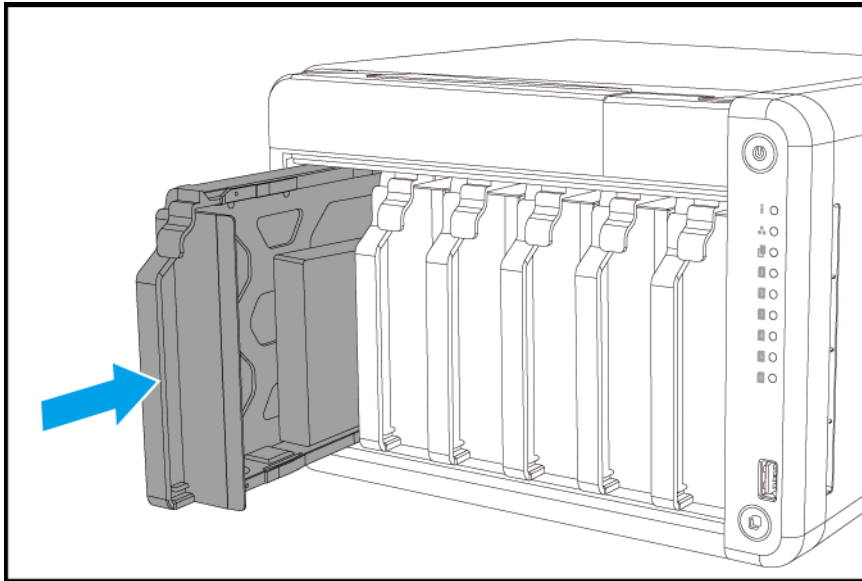
- b. Pull the tray handle outward.
- c. Pull the tray out.
4. Install a drive on the tray.
- a. Remove the right fastening panel from the drive tray.



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

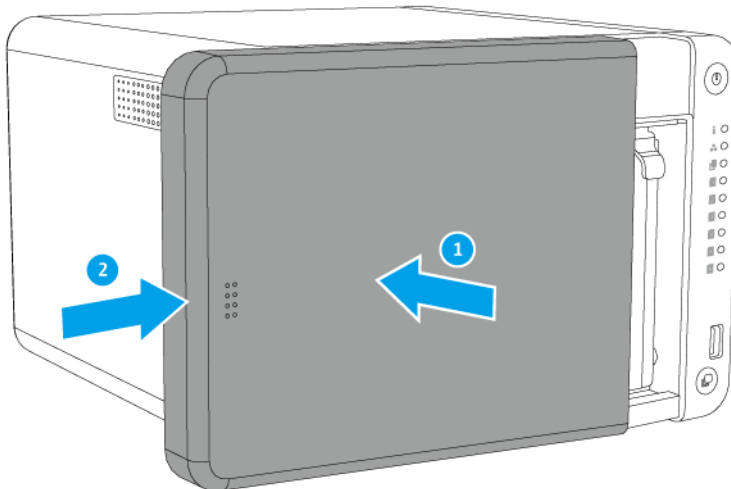


- 5.** Load the tray into the bay.
  - a.** Insert the tray into the bay.
  - b.** Push the handle.

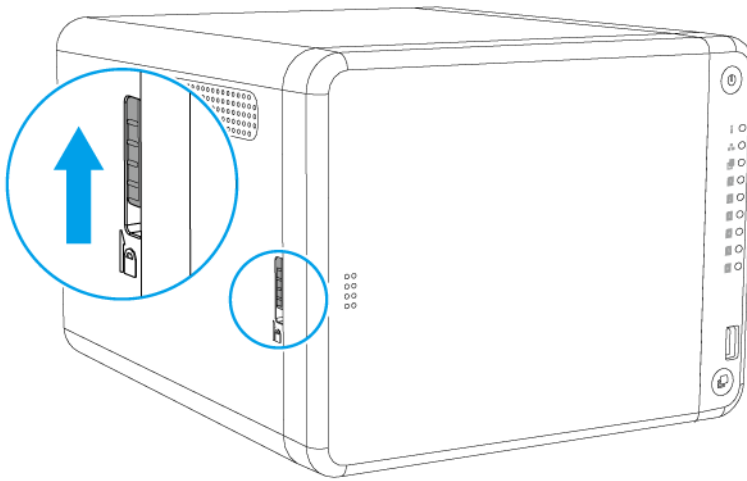


**6. Attach the front cover.**

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



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



7. Power on the NAS.

## Replacing Memory Modules

The NAS has two memory slots. You can increase the memory capacity of the NAS by upgrading the memory module. 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 each pair uses identical modules.  
For details on slot numbering, see [Right Panel](#).



### 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.



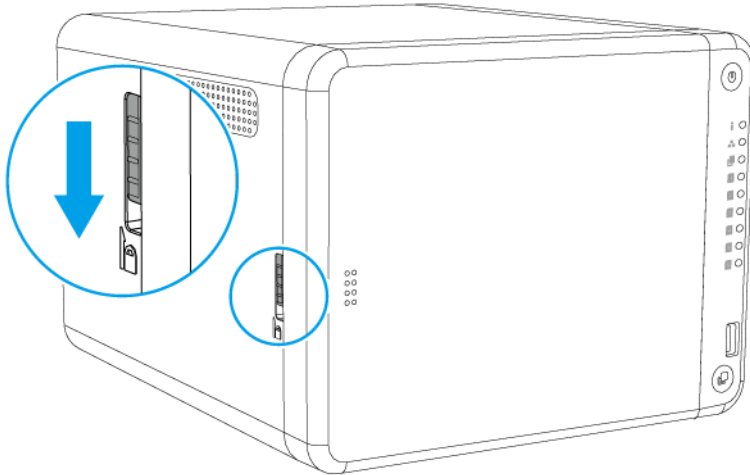
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.



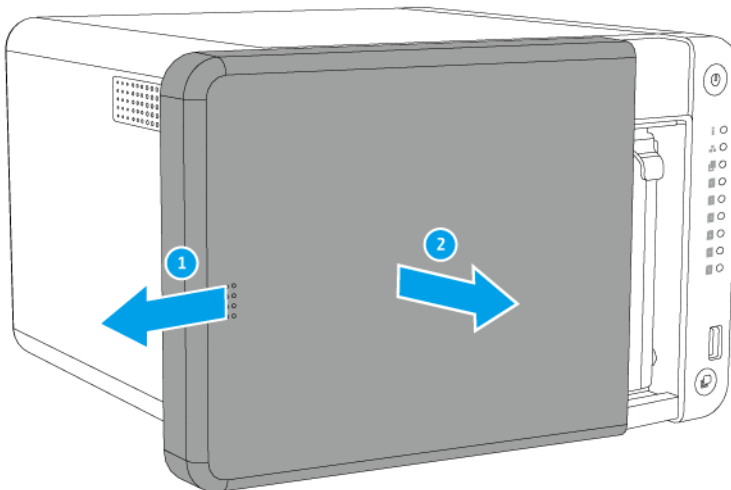
**Other moving components:** Keep your hands and other body parts away from other moving components.

1. Power off the NAS.

2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
  - a. Locate the locking mechanism on the left side of the NAS.

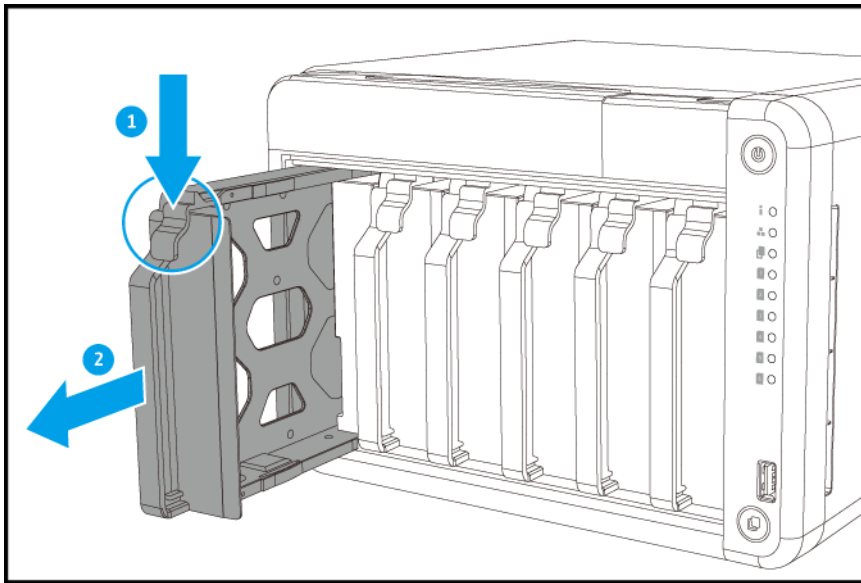


- b. Slide the lock down to unlock the front cover.



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

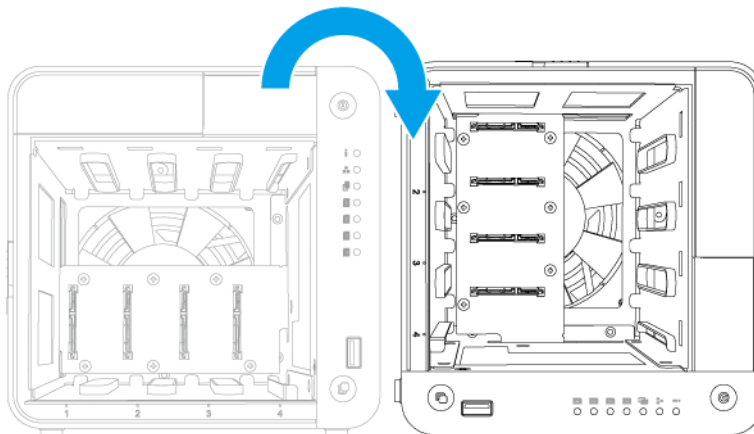




### Important

Remember the number of each drive. The drive trays will need to be returned to their original bays.

- b. Pull the tray handle outward.
  - c. Pull the tray out.
6. Place the NAS on its right side.

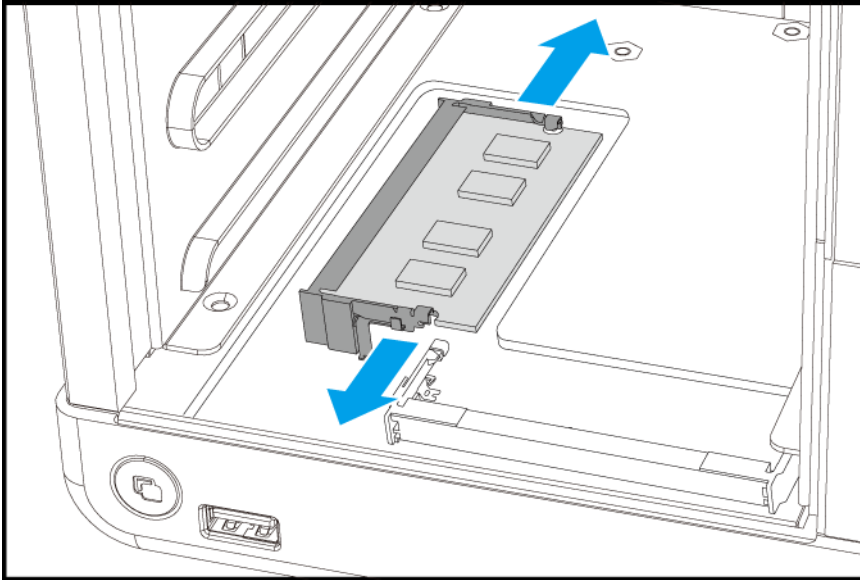


### Note

This image shows the TS-453D model.

- 7. Optional: Remove an existing module.

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

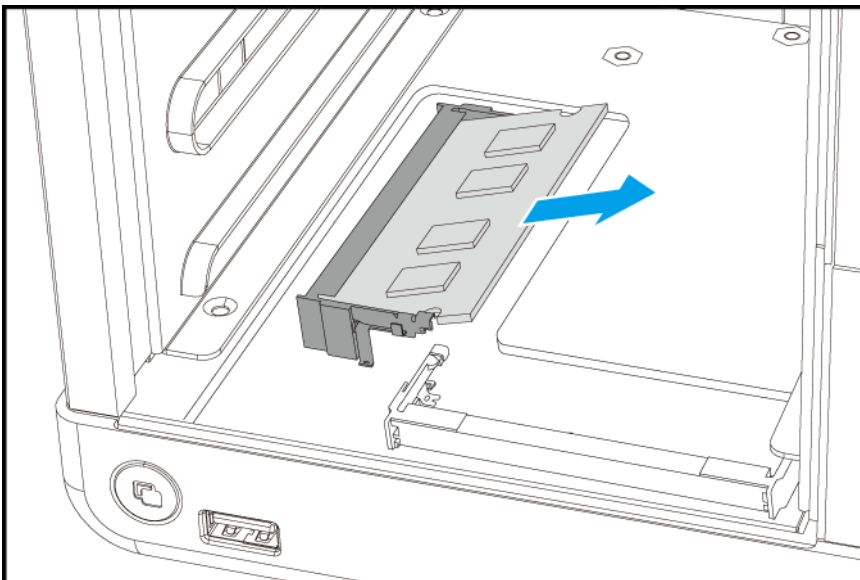


- b. Verify that the module has tilted upward and is completely released from the slot.

**Warning**

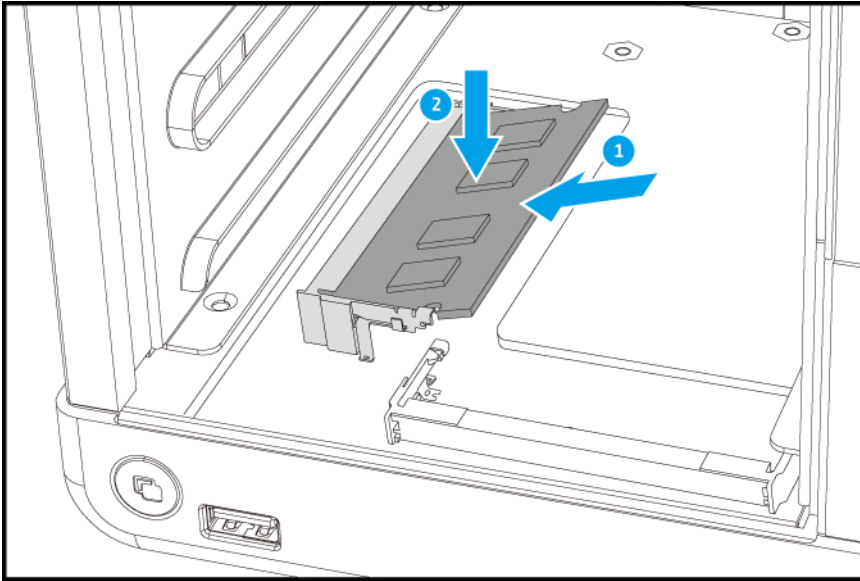
Attempting to remove a module that is not completely released may damage the module and the motherboard.

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

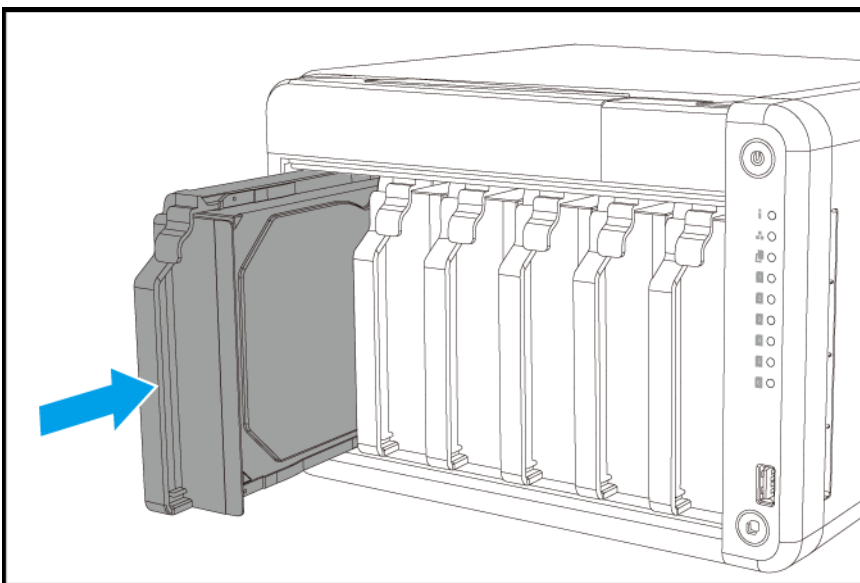
**Warning**

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

- Do not bend the module.
8. 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.

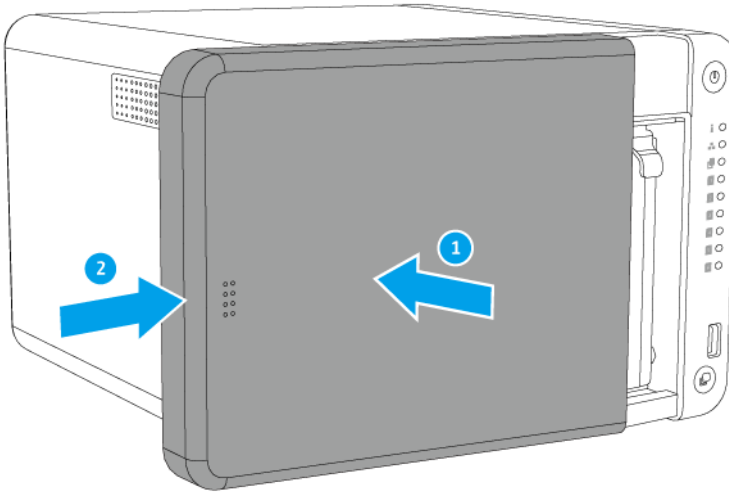


9. Load the tray into the bay.
  - a. Insert the tray into the bay.
  - b. Push the handle.

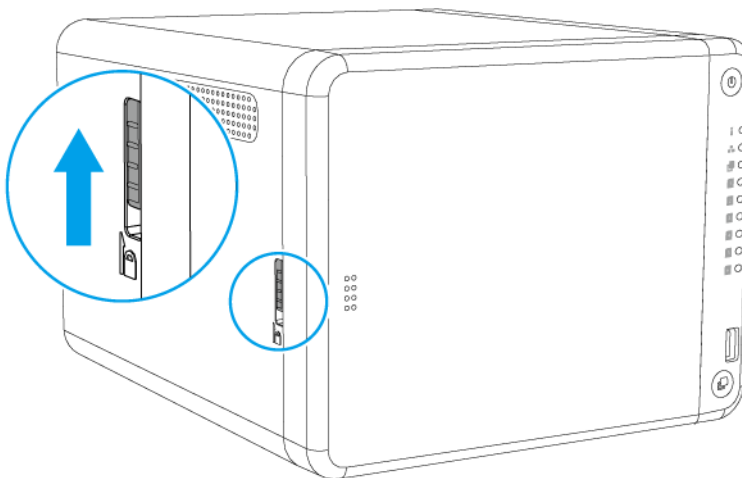


**10. Attach the front cover.**

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



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

**11. Connect all cables and external attachments.****12. Power on the NAS.****13. Verify that the module is recognized by the NAS.**

- a. Log on to QTS as administrator.
- b. Go to **Control Panel > System > System Status > Hardware Information**.
- c. Check the value for **Total memory**.

## Installing Expansion Cards

The TS-x53D supports selected expansion cards. QNAP branded expansion cards purchased from the company website are shipped with the brackets necessary to fit all QNAP NAS models. The TS-x53D series uses low-profile flat brackets.



### Note

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



### 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.

- 



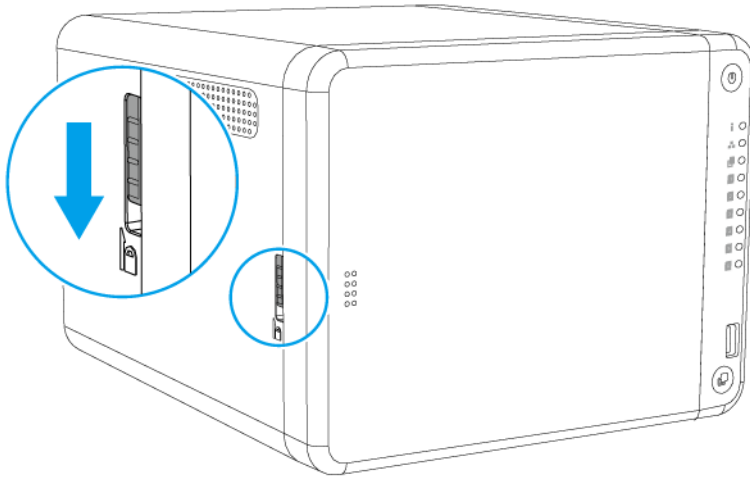
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

- 

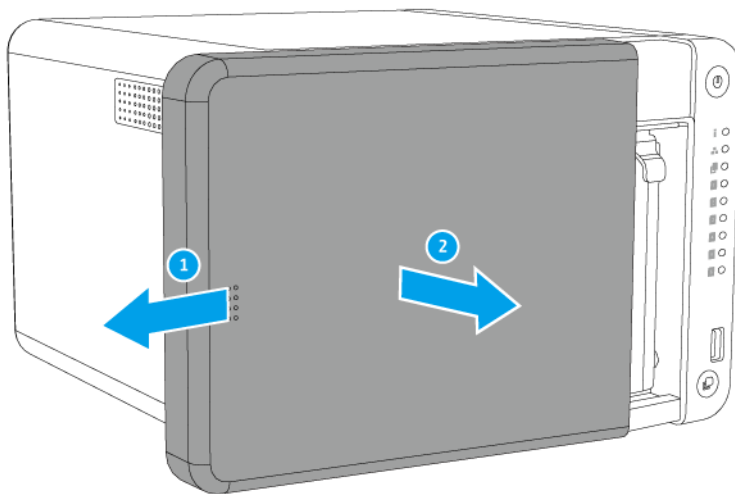


**Other moving components:** Keep your hands and other body parts away from other moving components.

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

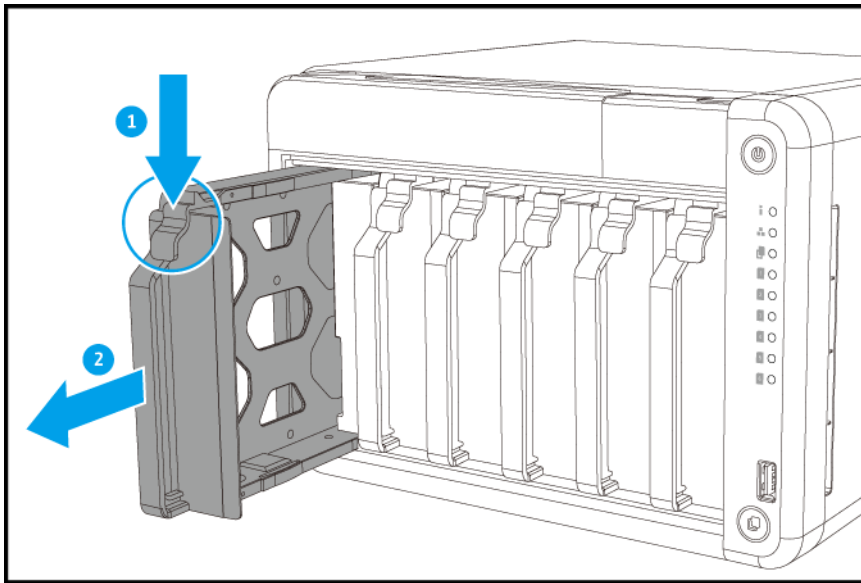


- c. Slide the front cover to the left and then pull.



5. Remove the drive tray.

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

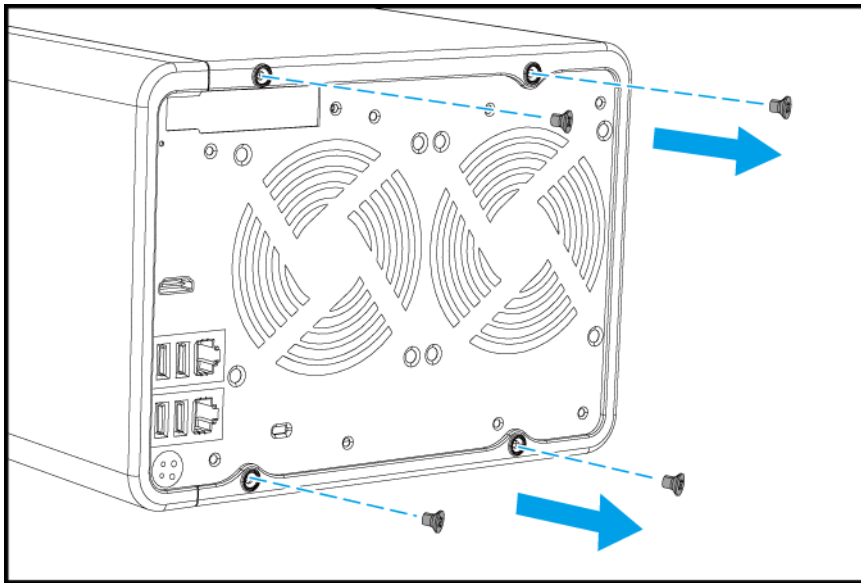


- b. Pull the tray handle outward.
  - c. Pull the tray out.
6. Remove the case cover.
  - a. Remove the screws on the back of the NAS that connect the case cover to the chassis.

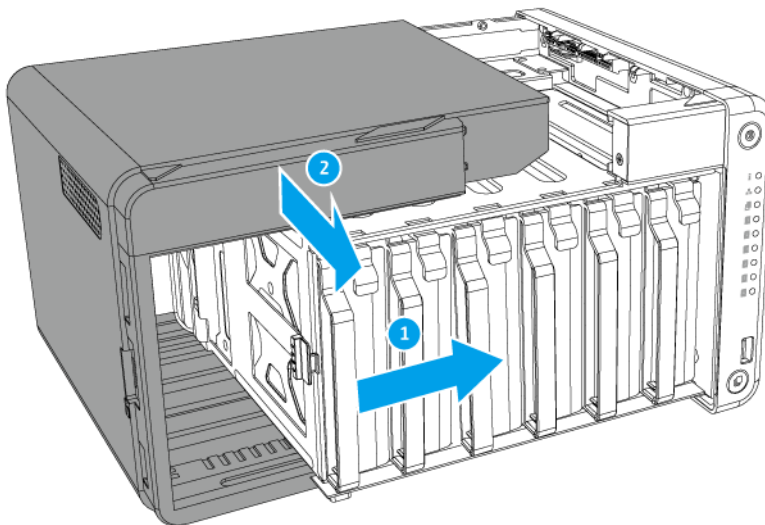

**Note**

The number of screws varies depending on the model.

- TS-253D: 2 screws
- TS-453D: 3 screws
- TS-653D: 4 screws

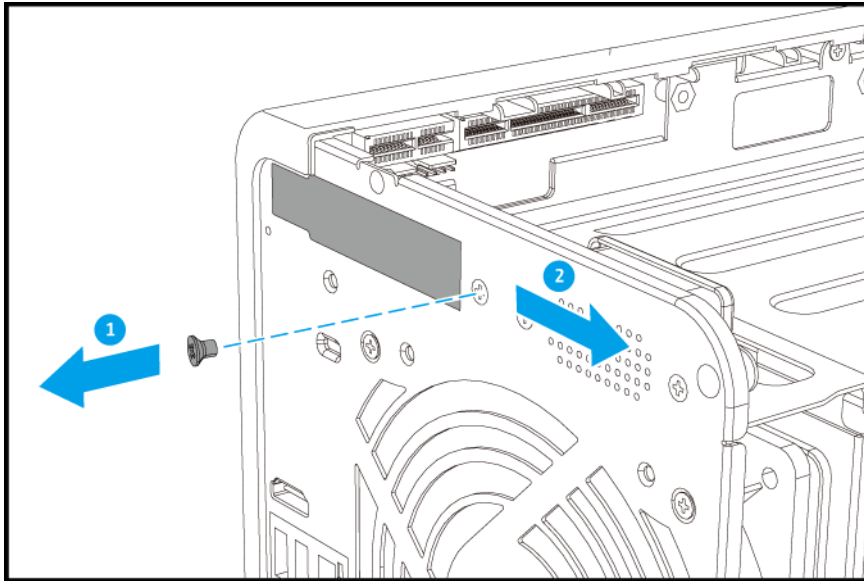


- b. Push down on the top of the case cover and then pull the chassis.
- c. Pull the chassis to the right until it completely detaches from the case cover.

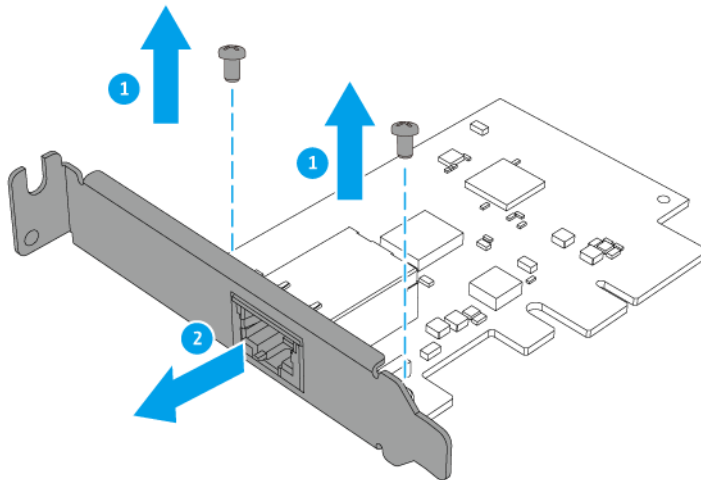


7. Remove the PCIe cover.
  - a. Remove the screw that secures the cover to the bracket.
  - b. Pull the cover away from the slot.

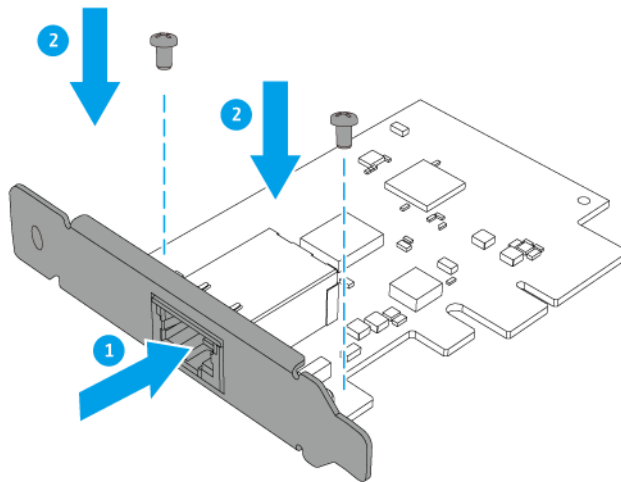




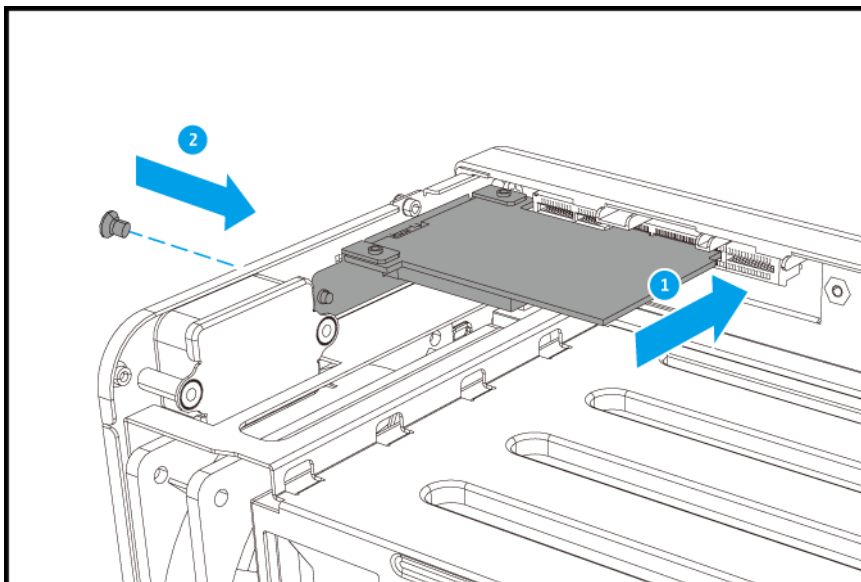
8. Optional: Attach the QNAP bracket to the expansion card.
  - a. Remove all screws of the existing bracket.



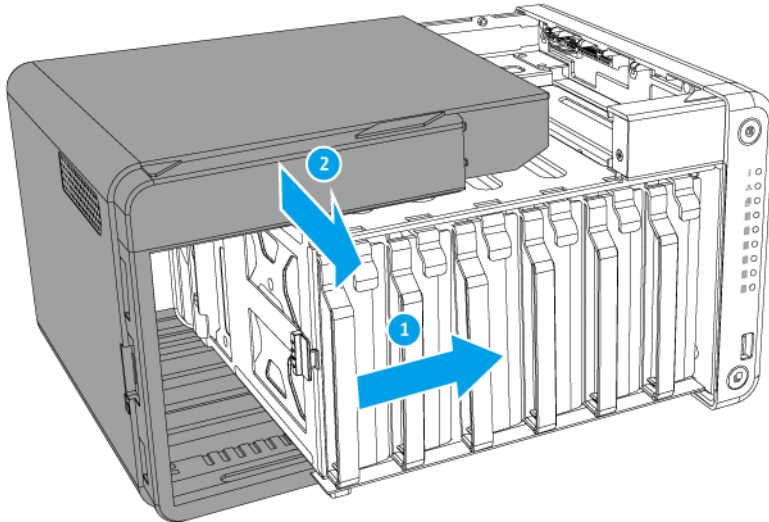
- b. Carefully pull the bracket away from the card.
    - c. Attach the QNAP bracket to the card using the same screws.



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

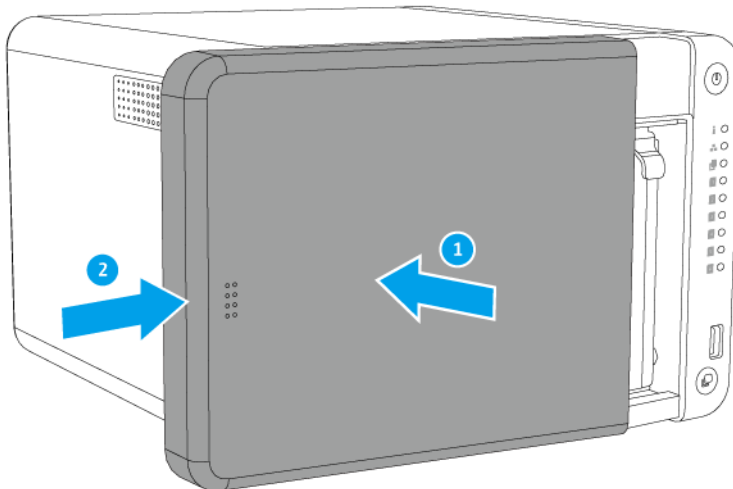


10. Attach the case cover.
- a. Slide the case cover to the right until it connects with the chassis and then pull.

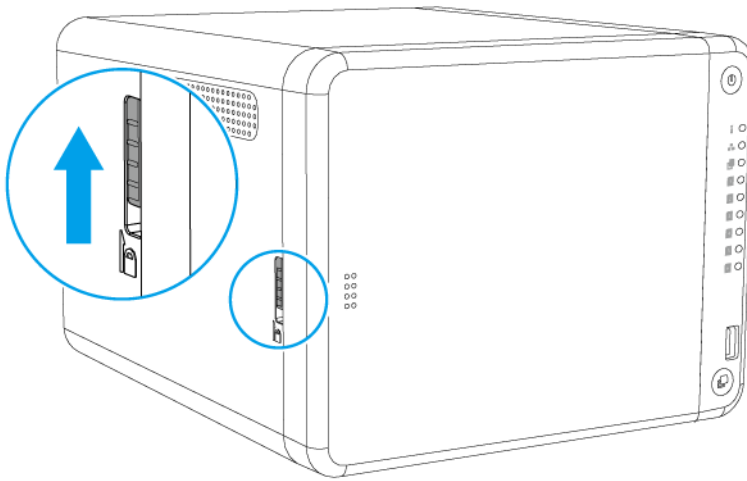


**11. Attach the front cover.**

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



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



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

## Installing Expansion Units

The TS-x53D supports USB and SATA JBOD expansion units. For details, please see table below.



### Note

For details on expansion unit compatibility and maximum expansion units supported, go to <https://www.qnap.com/en/compatibility-expansion/>

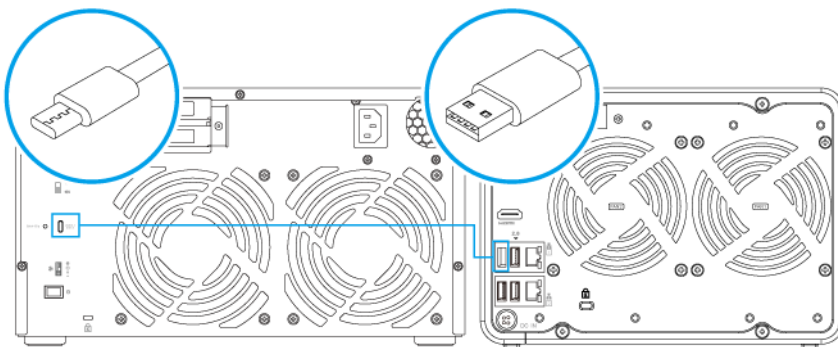
Expansion Unit Model	Description	Required Accessories
TR-002	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 2 Type-C interface</li> <li>• Supports SATA</li> </ul>	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA</li> </ul>	USB 3.2 Gen 1 Type-A to Type-C cable
TL-D400S	<ul style="list-style-type: none"> <li>• Uses an SFF-8088 interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 connector cable</li> <li>• QXP-400eS-A1164 host bus adapter</li> </ul>
TL-D800S	<ul style="list-style-type: none"> <li>• Uses an SFF-8088 interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 2 x SFF-8088 connector cables</li> <li>• QXP-800eS-A1164 host bus adapter</li> </ul>

Expansion Unit Model	Description	Required Accessories
TL-D1600S	<ul style="list-style-type: none"> <li>• Uses an SFF-8088 interface</li> <li>• Supports SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 4 x SFF-8088 to SFF-8644 connector cables</li> <li>• QXP-1600eS host bus adapter</li> </ul>

## Connecting USB Expansion Units

The TS-x53D requires USB Type-A to USB Type-C cables or converters to connect to a USB expansion unit. For the required accessories details, see [Installing Expansion Units](#). For compatible expansion units and maximum units supported, see <https://www.qnap.com/go/compatibility-expansion>.

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-x53D requires a host bus adapter to be installed on the NAS to connect to a SATA JBOD expansion unit. For the required accessories details, see [Installing Expansion Units](#). For compatible expansion units and maximum units supported, see <https://www.qnap.com/go/compatibility-expansion>.

1. Power off the NAS.

2. Install a host bus adapter on the PCIe slot.

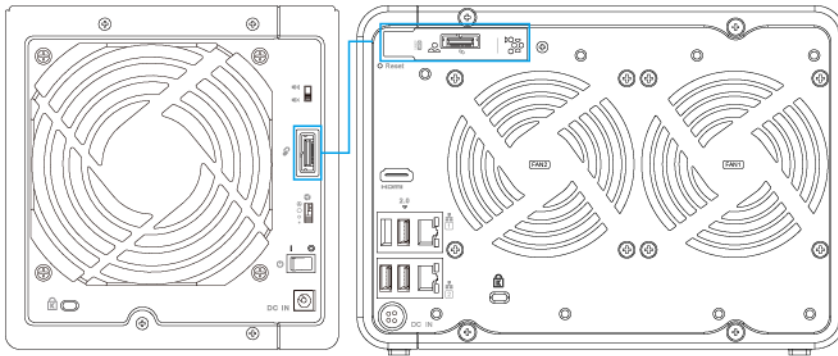


### Important

The QNAP QXP SATA host bus adapter is required for connecting the SATA JBOD enclosure to a host device. Third-party host 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

The SFF-8088 cable is required to connect the TS-x53D to a desktop NAS. The cable is included in the SATA JBOD package.

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** .
  - a. Verify that the expansion units are listed.

## QTS Installation

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

### 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.
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 NAS powers on.
Power off	Press and hold the button for 1.5 seconds.	The NAS powers off.
Force power off	Press and hold the button for 5 seconds.	The NAS shuts down.  <b>Important</b> Use this method only when the NAS is unresponsive.

## Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> <li>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.</li> </ul> <p> <b>Tip</b> 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"> <li>TCP/IP configuration: <ul style="list-style-type: none"> <li>Obtain IP address settings automatically via DHCP</li> <li>Disable jumbo frames</li> <li>If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".</li> </ul> </li> <li>System port: 8080 (system service port)</li> <li>Security level: Low (Allow all connections)</li> <li>VLAN: Disabled</li> </ul>
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"> <li>To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</li> </ul>

## USB One Touch Copy Button

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

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

## LEDs

LEDs indicate system status and related information when the NAS is powered on. The following LED information applies only when the drive is correctly installed and when the NAS is connected to the network.

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"> <li>The drive is being formatted.</li> <li>The NAS is being initialized.</li> <li>The operating system is being updated.</li> <li>RAID rebuilding is in progress.</li> <li>Online RAID Capacity Expansion is in progress.</li> <li>Online RAID Level Migration is in progress.</li> </ul>
	Red	<ul style="list-style-type: none"> <li>The drive is invalid.</li> <li>The disk volume has reached its full capacity.</li> <li>The disk volume is about to reach its full capacity.</li> <li>The system fan is not functioning.</li> <li>An error occurred when accessing (read/write) the data.</li> <li>A bad sector is detected on the hard drive.</li> <li>The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read).</li> <li>A hardware self-test error occurred.</li> </ul>
	Flashes red every 0.5 seconds	The NAS is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
	Flashes green every 0.5 seconds	<ul style="list-style-type: none"> <li>The NAS is starting up.</li> <li>The NAS is not configured.</li> <li>A drive is not formatted.</li> </ul>
	Green	The NAS is ready.
	Off	All drives are in standby mode.
LAN	Orange	The drive is being accessed and a read/write error occurs during the process.
	Flashes orange	The NAS is being accessed from the network.

LED	Status	Description
2.5 Gigabit LAN (Front)	Orange	<ul style="list-style-type: none"> <li>The Ethernet port is connected to a gigabit network.</li> <li>The Ethernet port is connected to a 2.5 gigabit network.</li> <li>The Ethernet port is connected to a 10 megabit network.</li> <li>The Ethernet port is connected to a 100 megabit network.</li> </ul>
	Off	There is no network connection.
2.5 Gigabit Speed LAN (Rear)	Green	The Ethernet port is connected to a 2.5 gigabit network.
	Orange	<ul style="list-style-type: none"> <li>The Ethernet port is connected to a gigabit network.</li> <li>The Ethernet port is connected to a 100 megabit network.</li> </ul>
	Off	The Ethernet port is connected to a 10 megabit network.
2.5 Gigabit Activity LAN (Rear)	Orange	There is no data transmission.
	Flashes orange	<ul style="list-style-type: none"> <li>The Ethernet port has ongoing data transmission connected to a gigabit network.</li> <li>The Ethernet port has ongoing data transmission connected to a 2.5 gigabit network.</li> <li>The Ethernet port has ongoing data transmission connected to a 10 megabit network.</li> <li>The Ethernet port has ongoing data transmission connected to a 100 megabit network.</li> </ul>
	Off	There is no network connection.
Drive	Flashes red	The drive is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error has occurred.
	Flashes green	The data is being accessed.
	Green	The drive can be accessed.
Drive status	Green	The drive is ready.
	Flashes green	The drive is being accessed.
	Red	A drive read/write error has occurred.
	Flashes red	QTS is locating the drive.
	Off	No drive has been detected or the drive has not been initialized.
Drive activity	Green	The drive is ready.
	Flashes green	The drive is being accessed.
	Off	No drive has been detected.

LED	Status	Description
USB One Touch Copy port	Flashes blue 2 times per second	<ul style="list-style-type: none"> <li>• A USB device (connected to the USB One Touch Copy port) is being mounted.</li> <li>• A USB device (connected to the USB One Touch Copy port) is being disconnected.</li> <li>• A USB device (connected to the USB One Touch Copy port) is being accessed.</li> </ul>
	Blue	A USB device (connected to the USB One Touch Copy port) is mounted.
	Off	No USB device is detected.

## Audio Alert

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> <li>• The NAS is starting up.</li> <li>• The NAS is shutting down (software shutdown).</li> <li>• The user pressed the Reset button.</li> <li>• The operating system was updated.</li> </ul>
	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.
Long beep (1.5 seconds)	3 (every 5 minutes)	The system fan is not functioning.
	2	<ul style="list-style-type: none"> <li>• The disk volume is about to reach its full capacity.</li> <li>• The disk volume has reached its full capacity.</li> <li>• The drives are in degraded mode.</li> <li>• The user started the drive rebuilding process.</li> <li>• A drive is plugged in or out.</li> </ul>
	1	<ul style="list-style-type: none"> <li>• The NAS was powered off by force shutdown (hardware shutdown).</li> <li>• The NAS was powered on successfully and is ready.</li> </ul>

## 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 Manager > 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 Manager > 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	<a href="https://docs.qnap.com">https://docs.qnap.com</a>
Service Portal	<a href="https://service.qnap.com">https://service.qnap.com</a>
Downloads	<a href="https://download.qnap.com">https://download.qnap.com</a>
Community Forum	<a href="https://forum.qnap.com">https://forum.qnap.com</a>

## 6. Glossary

### **CloudKey**

Unique 8-digit code assigned to each NAS device

### **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.

### Limited Warranty

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

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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.

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Version 3, 29 June 2007

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## END OF TERMS AND CONDITIONS

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#### FCC Class B Notice



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1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.



#### Note

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



#### Important

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### CE Notice



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## SJ/T 11364-2006



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