TS-453BT3

TS-453BT3

User Guide

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1. Preface

About This Guide

This guide provides information on the QNAP TS-453BT3 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-453BT3 NAS.

About TS-453BT3

TS-453BT3 is powered by a next generation Intel® Celeron® J3455 quad-core 1.5 GHz processor with burst frequency up to 2.3 GHz and dual-channel 8 GB memory. The NAS comes with one 10-Gigabit 10GBASE-T LAN port, two Gigabit LAN ports, and two M.2 SATA 6 Gbps SSD slots for lightning-fast multi-tasking with low power consumption. The TS-453BT3 supports 4K (H.264) video playback, and 1080P or 4K real-time transcoding.

With an accelerated AES-NI engine, the TS-453BT3 also provides AES 256-bit encryption to enhance system performance and security, and to protect sensitive business data.

Hardware Specifications

Important
Modifying the hardware or software of your QNAP product invalidates the warranty. QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.

Component	TS-453BT3
SKU	
Ordering P/N	TS-453BT3-8G
Processor	
CPU	Intel® Celeron® J3455 quad-core 1.5 GHz, burst up to 2.3 GHz
Architecture	64-bit
Graphics	Intel® HD Graphics 500
Encryption engine	AES-NI
Memory	
Pre-installed memory	8 GB RAM: 2 x 4 GB DDR3L 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. **Note** Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.
Total memory slots	2 x SODIMM DDR3L
Maximum memory	8 GB (2 x 4 GB)
Storage	
Drive bays	4 x SATA 6 Gbps
Drive compatibility	• 3.5-inch SATA hard disk drives • 2.5-inch SATA hard disk drives • 2.5-inch SATA solid state drives

Component	TS-453BT3
M.2 SSD type	2 x M.2 SSD SATA 6 Gbps
M.2 SSD form factor	2280
SSD cache acceleration support	• Drive bays 1 to 4 • M.2 slots 1 to 2 • Optional: SSD using PCIe expansion slot
Hot-swappable	Yes **Note** The following are not hot-swappable: • M.2 SSDs • SSD cache drives • SSDs using PCIe expansion slots
Network	
10 gigabit Ethernet ports	1 x 10GBASE-T RJ45
Gigabit Ethernet ports	2 x RJ45
External I/O Ports & Expansion Slots	
PCIe slots	1 x PCIe 2.0 x2 **Note** A QM2 expansion card is pre-installed on the PCIe slot. The card includes a 10GBASE-T RJ45 port and two M.2 SSD slots.
Thunderbolt ports	2 x Thunderbolt 3
USB ports	5 x USB 3.0 • Front: 1 x USB 3.0 One Touch Copy • Back: 4 x USB 3.0
HDMI outputs	2 x HDMI 1.4b (up to 3840 x 2160 @ 30Hz resolution)
Audio	• 2 x 3.5 mm dynamic microphone jacks • 1 x 3.5 mm line-out jack • 1 x speaker **Note** You cannot use the speakers and the line-out jack simultaneously.
Interface	
Display panel	Monochrome OLED display with capacitive sensing Enter and Select buttons
USB One Touch Copy	Front: USB 3.0 Type-A
IR sensor	QNAP RM-IR004 remote control (MCE compatible)
Dimensions	
Form factor	Tower

Component	TS-453BT3
Dimensions (H x W x D)	168 x 170 x 226 mm 6.61 x 6.69 x 8.90 in
Net weight	2.33 kg (5.14 lbs)
Other	
Power supply unit	120W, 100-240V AC, 50/60Hz
Fans	System: 1 x 12 mm
Sound Level	
Operating temperature	0 to 40˚C (32 to 104˚F)
Relative humidity	• Non-condensing relative humidity: 5 to 95% • Wet-bulb temperature: 27˚C (80.6˚F)
Security slot	Kensington security slot

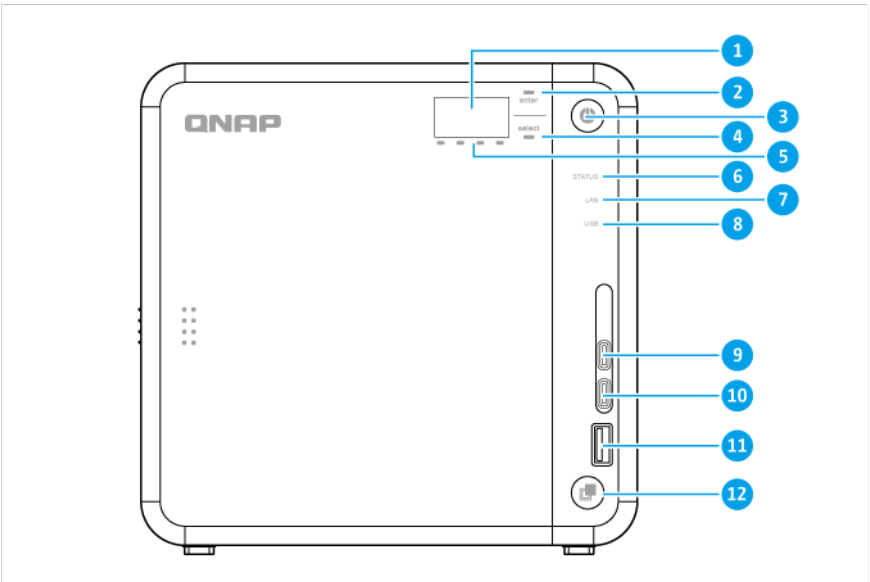
Note
Model specifications are subject to change without prior notice. To see the latest specifications, go to https://www.qnap.com.

Package Contents

Item	Quantity
TS-453BT3 NAS	1
AC power adapter	1
Power cord	1
Ethernet cable	2
RM-IR004 infrared (IR) remote control	1
Screws for 3.5-inch drives	16
Screws for 2.5-inch drives	12
Quick Installation Guide (QIG)	1

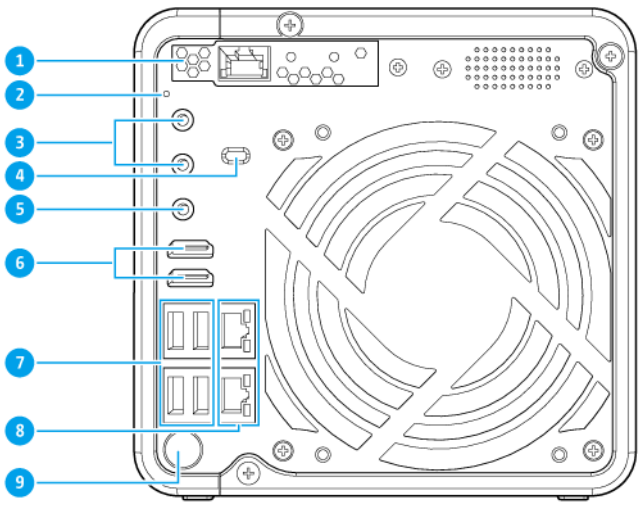
Components

Front Panel



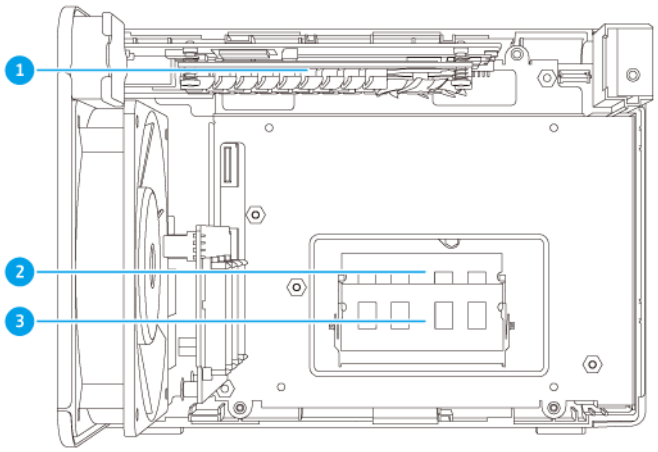
No.	Component	No.	Component
1	OLED panel	7	LAN LED
2	Enter button	8	USB LED
3	Power button	9	Thunderbolt 3 port 2
4	Select button	10	Thunderbolt 3 port 1
5	Drive LEDs	11	USB 3.0 One Touch Copy port
6	Status LED	12	USB One Touch Copy button

Back Panel



No.	Component	No.	Component
1	10GBASE-T RJ-45 port	6	HDMI ports
2	Reset button	7	USB 3.0 ports
3	3.5 mm dynamic microphone jacks	8	Gigabit RJ-45 ports
4	Kensington security slot	9	Power input
5	3.5 mm speaker jack	-	-

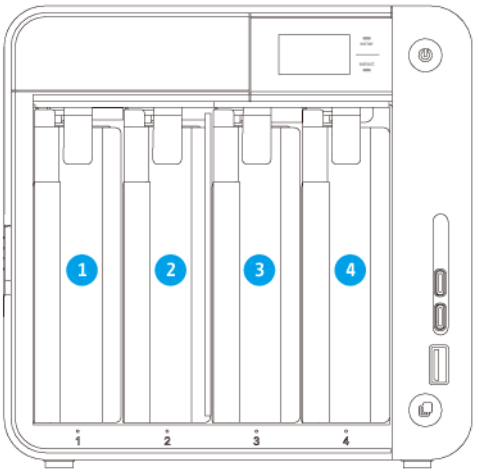
Right Panel



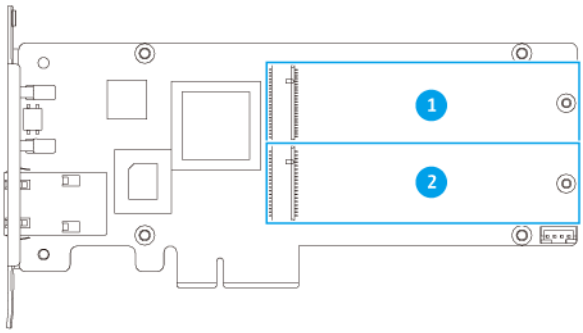
Note
The image does not include the chassis.

No.	Component	No.	Component
1	QM2 card	3	Memory slot 2
2	Memory slot 1	-	-

Front Drive Numbering



M.2 Solid State Drive Numbering



Safety Information

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

General Instructions

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

- To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.
- Observe electrostatic discharge (ESD) procedures to avoid potential injury or damage to components.

Power

- To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.
- 

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

System Battery

- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.
- Dispose of used batteries properly according to local regulations or the instructions of the battery manufacturer.

Moving Parts

- 

  Moving fan blades: Keep your body parts away from moving fan blades while the device is connected to a power source.
- 

  Moving components: Keep your body parts away from other moving components.

Installation Requirements

Category	Item
Environment	• Room temperature: 0 to 40˚C (32 to 104˚F) • Non-condensing relative humidity: 5 to 95% • Wet-bulb temperature: 27˚C (80.6˚F) • Flat, anti-static surface with no exposure to direct sunlight, liquids, and chemicals

Category	Item
Hardware and peripherals	• Storage drives For details on compatible drives, go to https://www.qnap.com/compatibility/. • Network cable
Tools	• Phillips #1 or #2 screwdriver • Anti-static wrist strap

Setting Up the NAS

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

1. Place your NAS device in an environment that meets the requirements.
   For details, see Installation Requirements.
2. Verify that the intake vents on the bottom of the case are unobstructed.
3. Remove the protective films from the OLED screen and the front cover.
4. 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
   - Installing M.2 Solid State Drives
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.

Drive Installation

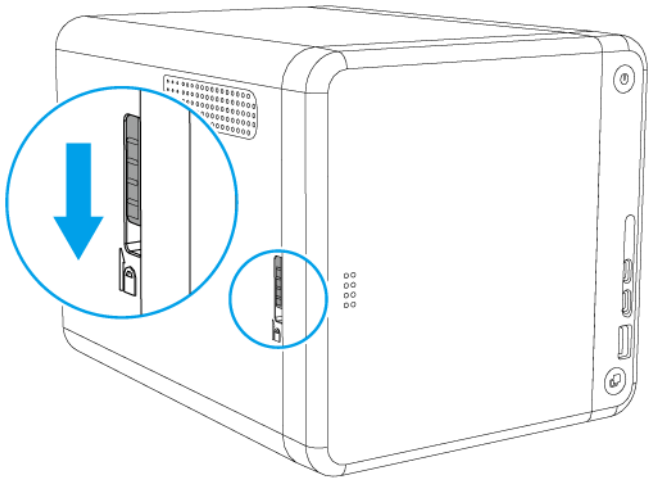
The TS-453BT3 is compatible with 3.5-inch and 2.5-inch hard drives, 2.5-inch solid state drives, and M.2 solid state drives.

Installing 3.5-inch Hard Drives on 3.5-inch Trays

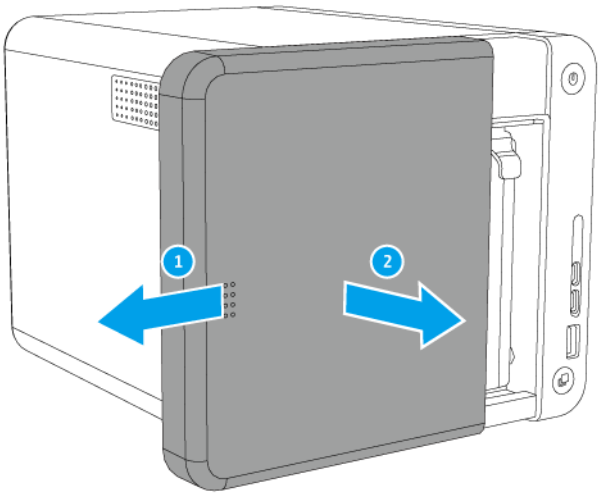
Warning

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

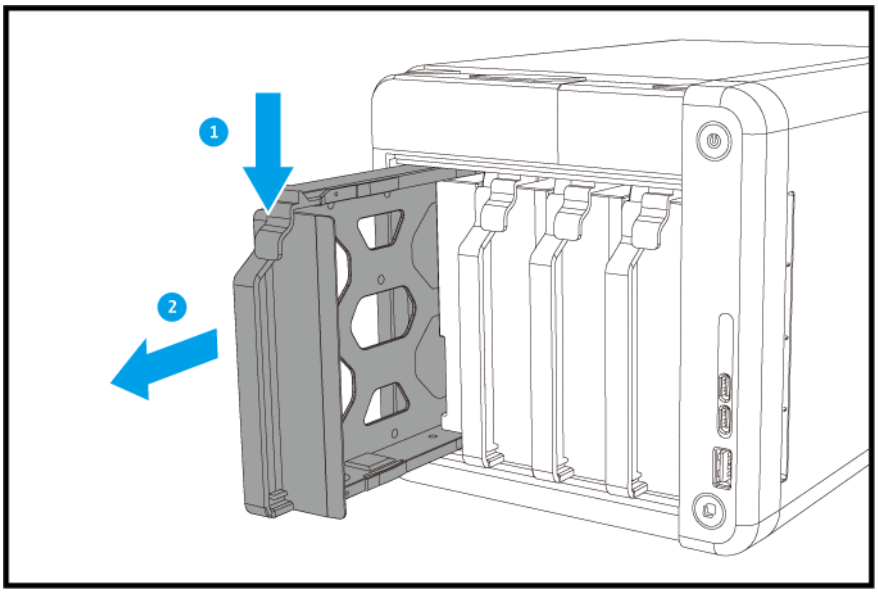
1. Power off the NAS.
2. Remove the front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.



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

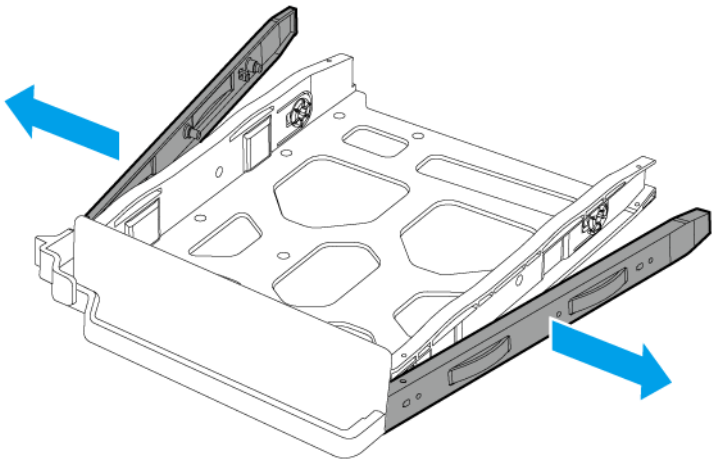


3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



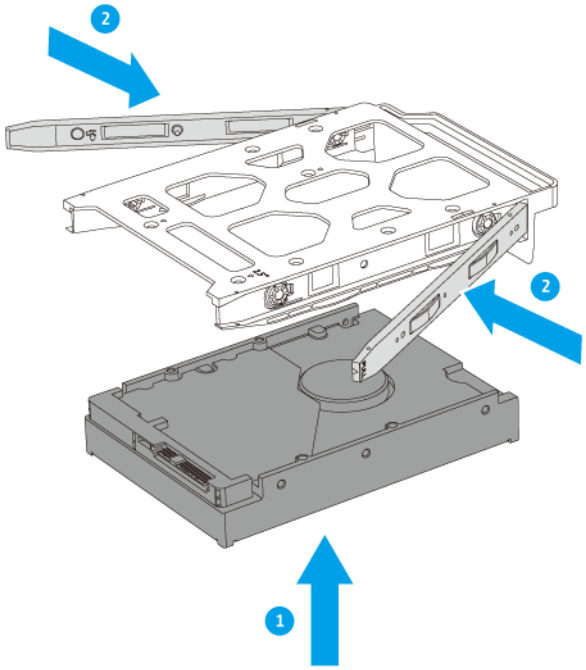
4. Install a drive on the drive tray.

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

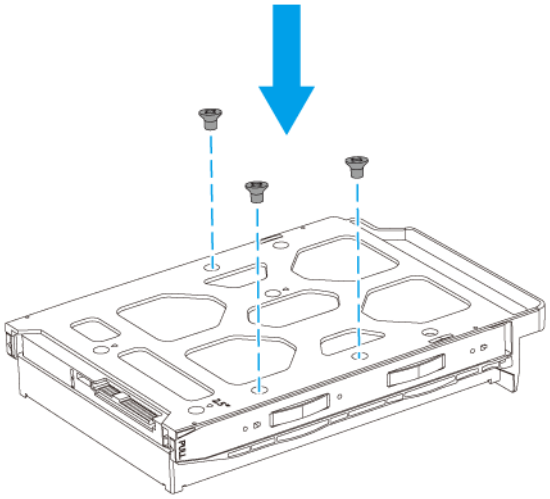


b. Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.

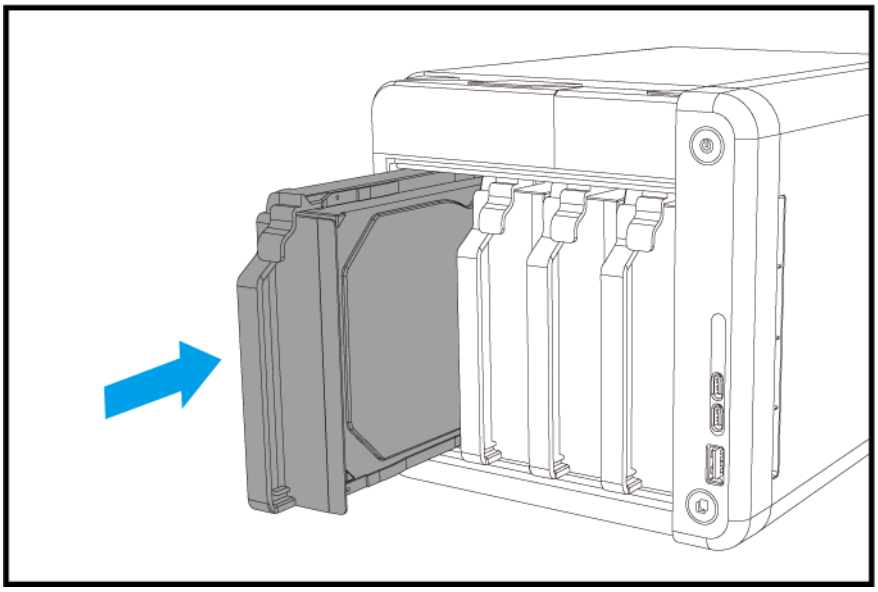
c. Attach the fastening panels.



d. Optional: Attach screws to further secure the drive.
To purchase 3.5-inch drive screws (part number: SCR-HDD35A-96), go to http://shop.qnap.com/index.php?route=product/product&product_id=162.

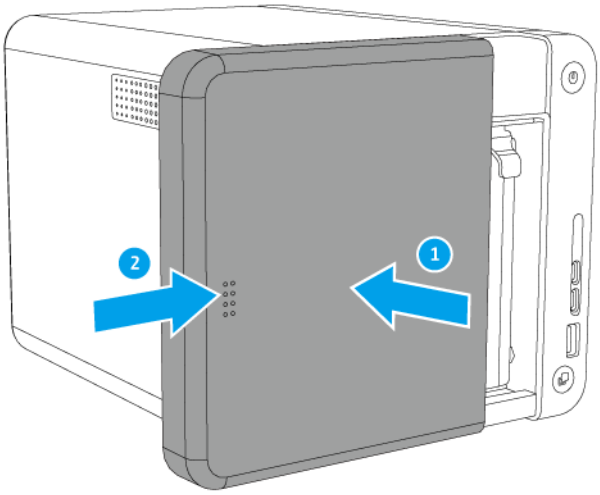


5. Load the drive tray into the drive bay.

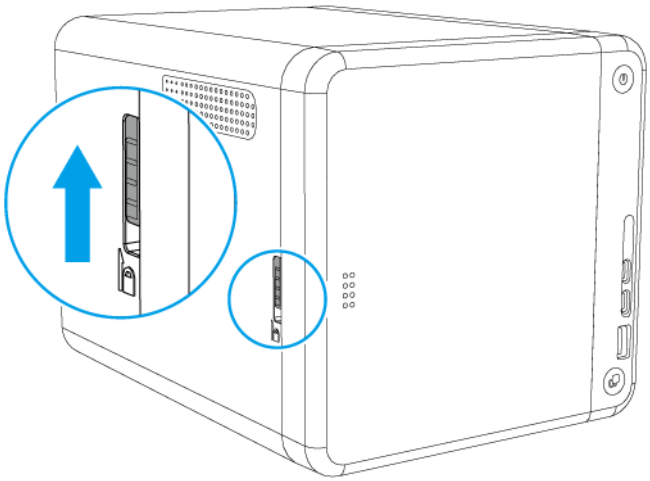


6. Attach the front cover.

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



b. Slide the lock up.



7. Power on the NAS.

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

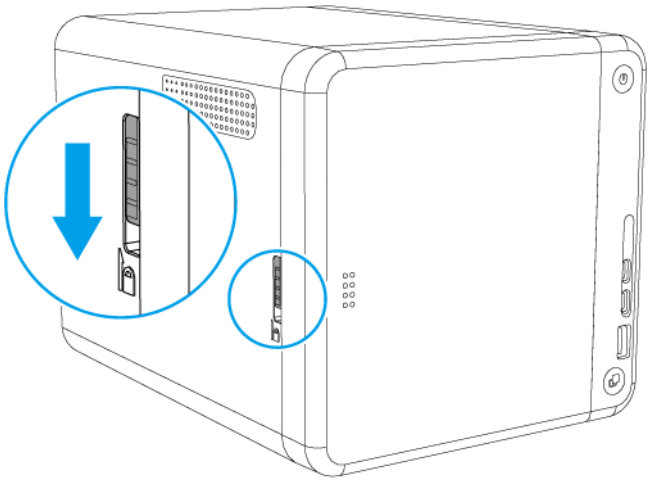
Warning

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

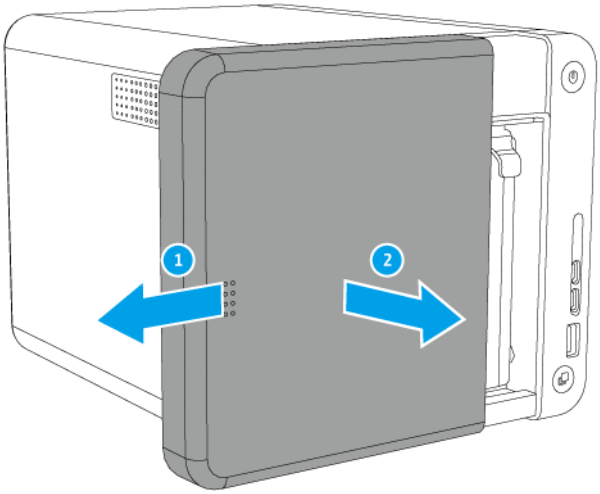
1. Power off the NAS.
2. Remove the front cover.

a. Locate the lock on the left side of the NAS.

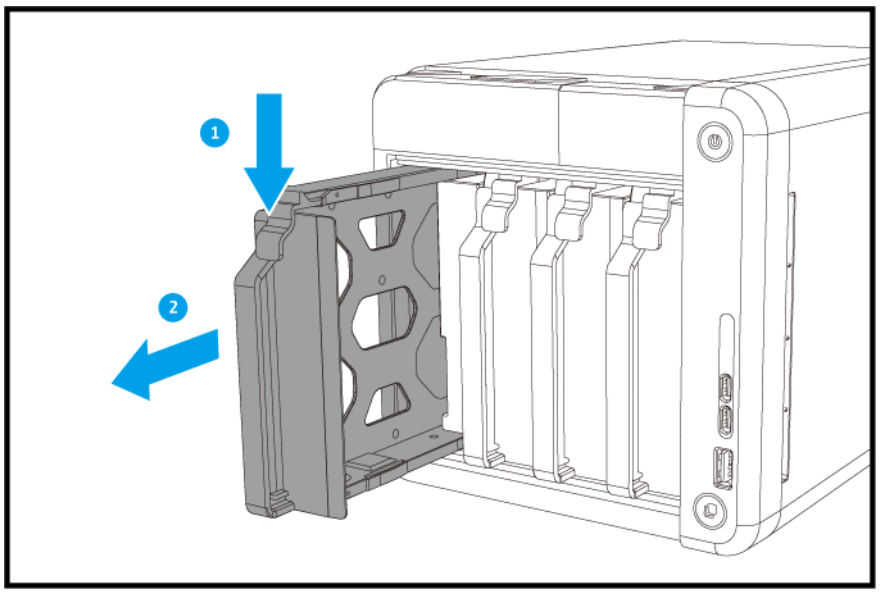
b. Slide the lock down to release the cover.



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

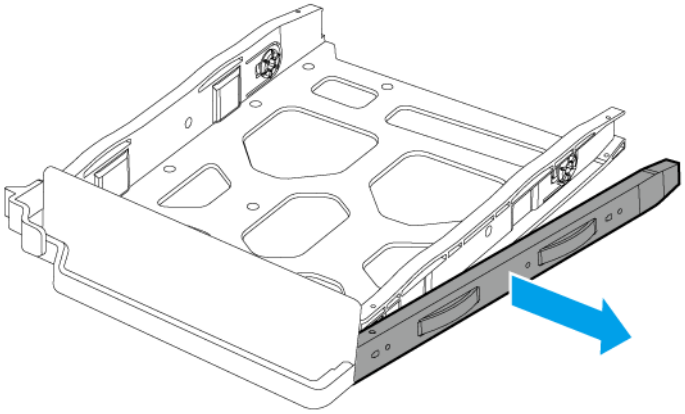


3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



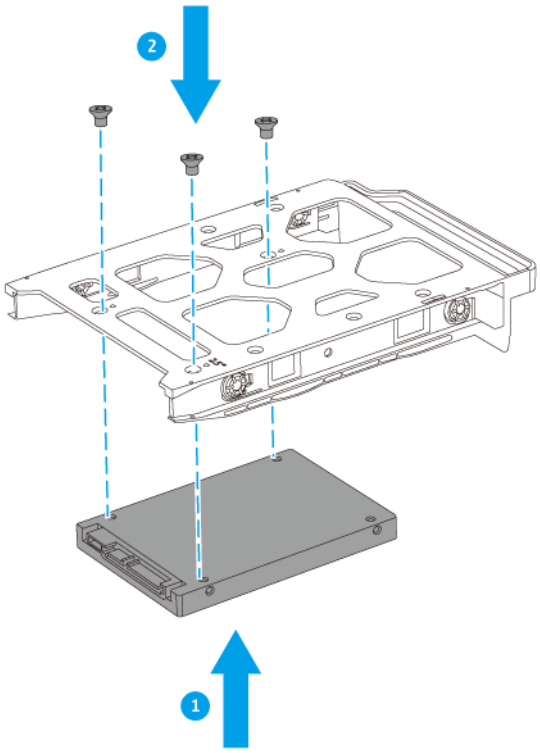
4. Install a drive on the drive tray.

   a. Remove the right fastening panel from the tray.

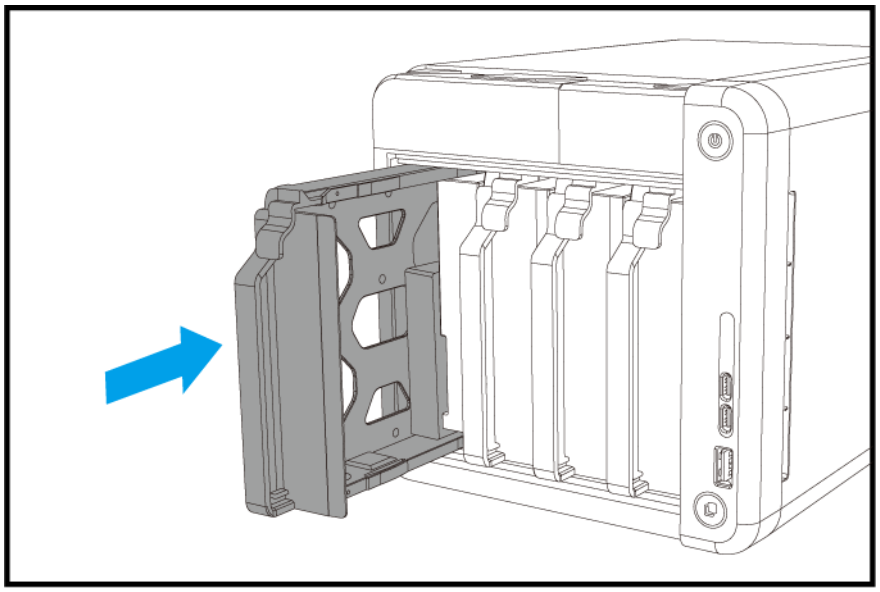


   b. Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.

   c. Attach the screws.

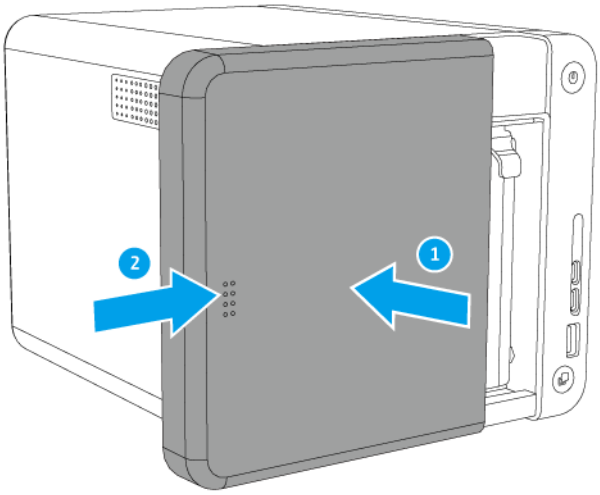


5. Load the drive tray into the drive bay.

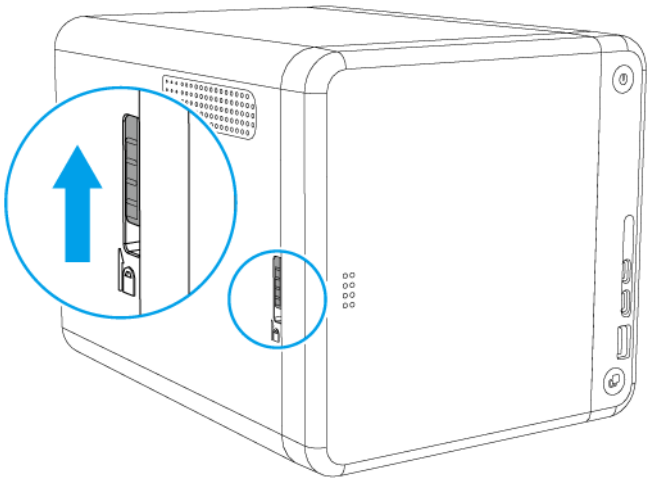


6. Attach the front cover.

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



b. Slide the lock up.



7. Power on the NAS.

Installing M.2 Solid State Drives

Warning

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

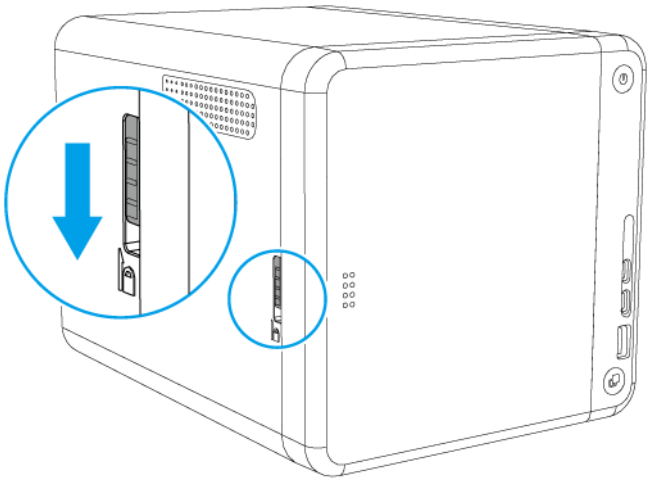
- 

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

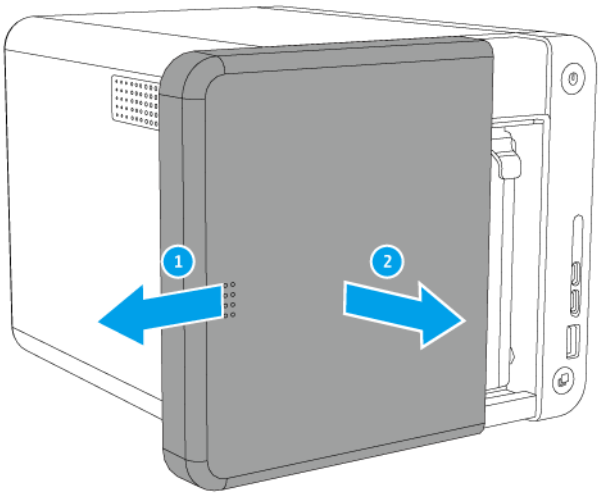
- 

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

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 lock on the left side of the NAS.
   b. Slide the lock down to release the cover.

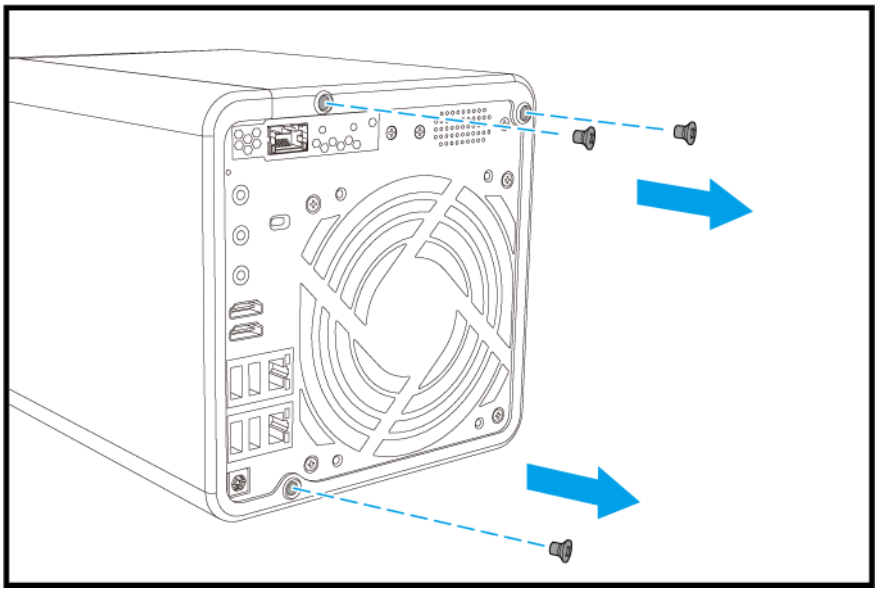


   c. Slide the cover to the left and then pull.



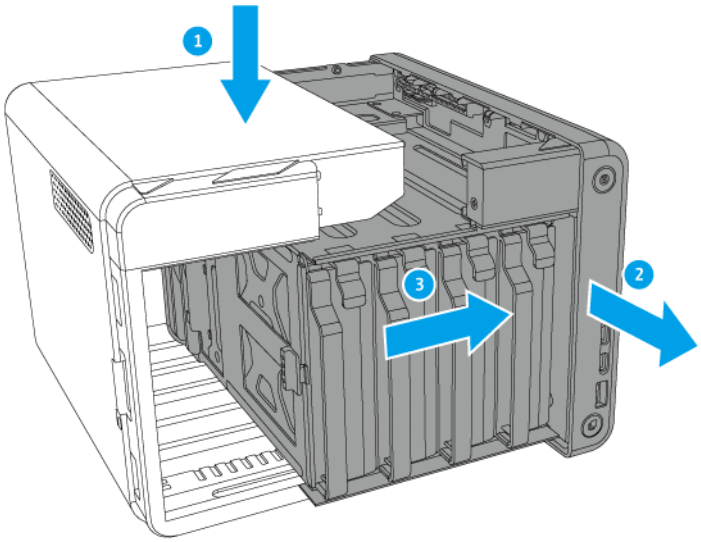
5. Remove the case cover.

   a. Remove the screws that secure the cover to the chassis.

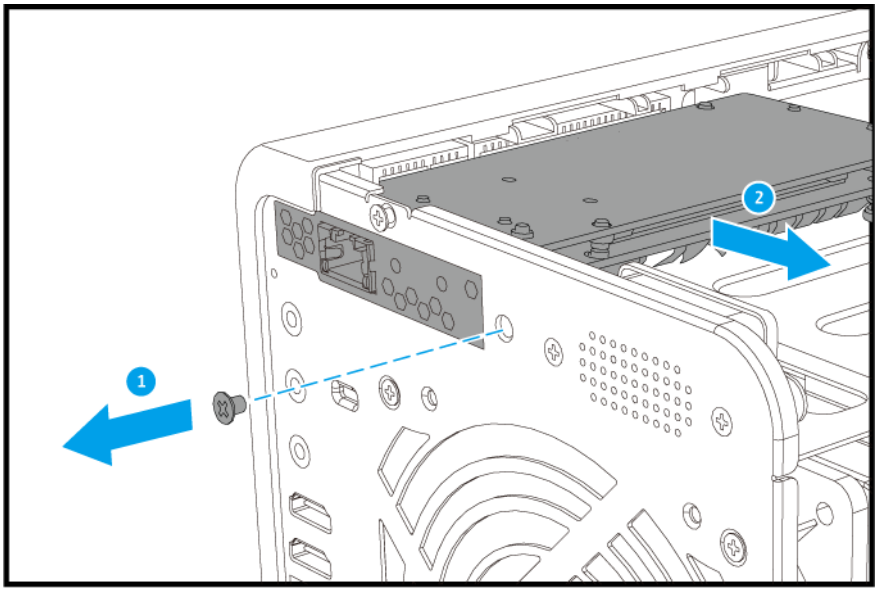


   b. Push down on the cover and then pull the chassis.

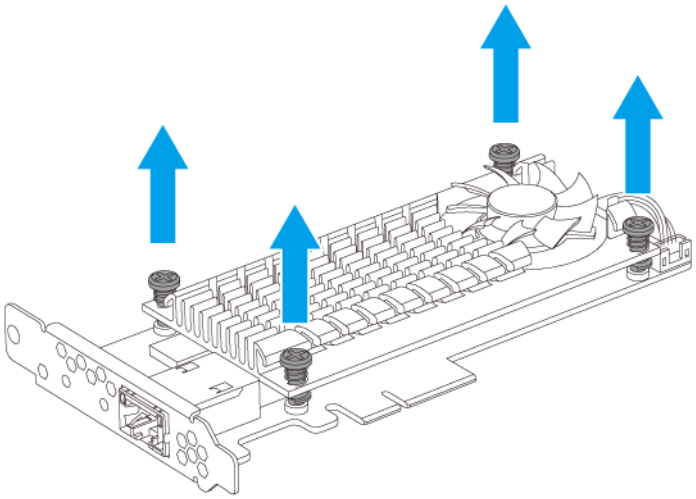
   c. Pull the chassis to the right until it completely detaches from the cover.



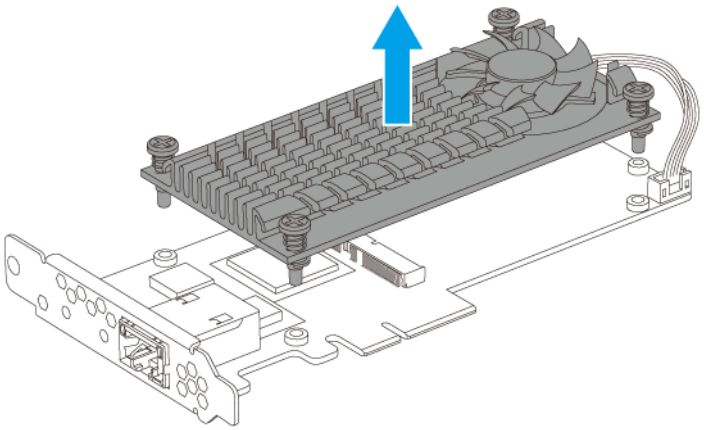
6. Remove the QM2 card.
   a. Remove the screw on the back of the card.
   b. Remove the card from the PCIe slot.



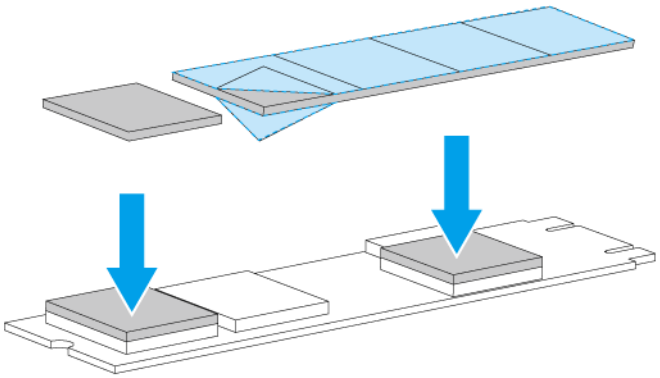
7. Remove the cooling module from the QM2 board.
   a. Loosen the screws on the cooling module.



b. Remove the cooling module from the QM2 board without disconnecting the power connector.



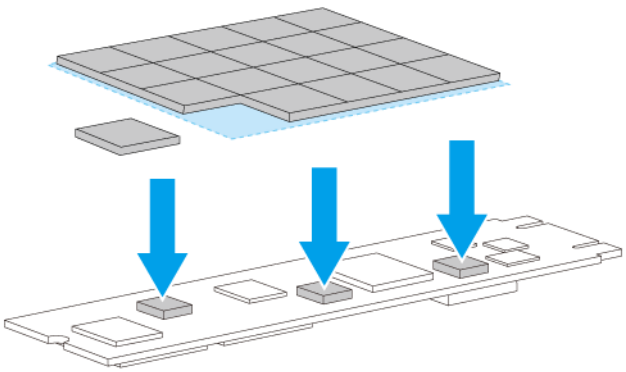
8. Prepare the M.2 SSD.
   a. Remove the protective film from both sides of the thermal pad.
   b. Install the thermal pad on the SSD controller.



c. Remove the protective film from the black rubber pad.

d. Turn the SSD over.

e. Install the rubber pads on the bottom of the SSD as necessary.

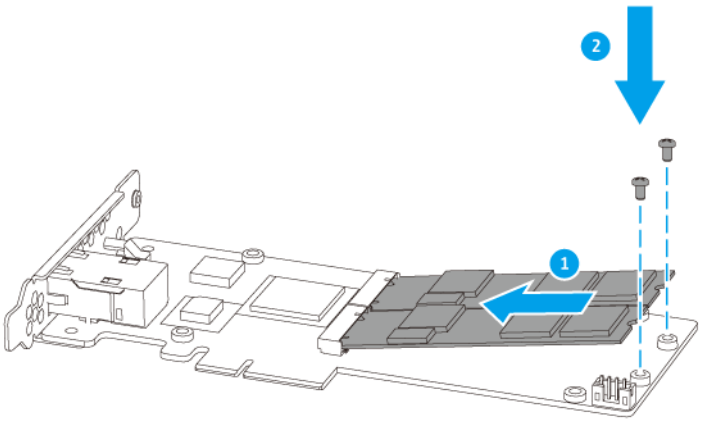


The thermal and rubber pads work together to transfer heat from the SSD controller to the cooling module.

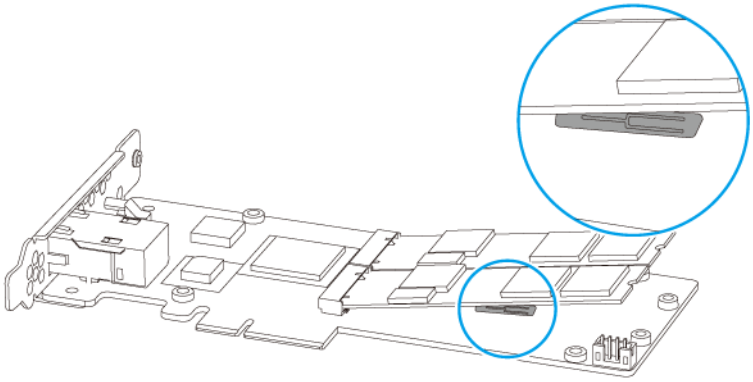
9. Install the M.2 SSD.

a. Insert the SSD into the slot.

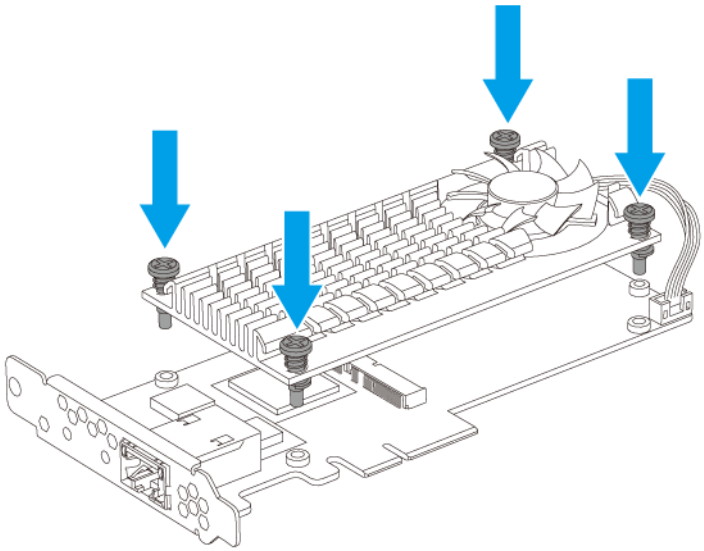
b. Attach the flat head screw to the riser screw.



Note
Verify that the temperature sensor is in contact with the M.2 SSD.



10. Install the cooling module.
    a. Attach the cooling module to the QM2 board.
    b. Tighten the screws.

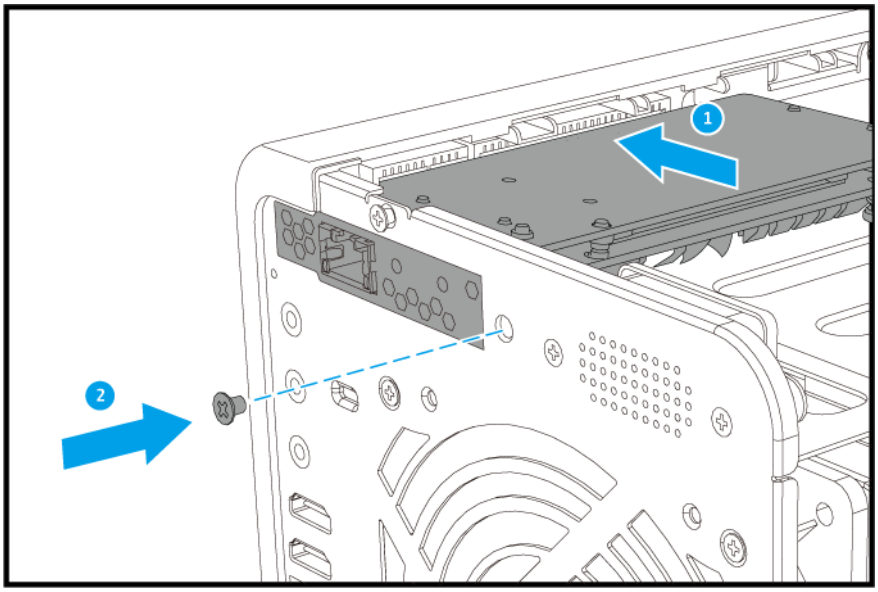


11. Install the QM2 card.

    a. Hold the card by the edges.

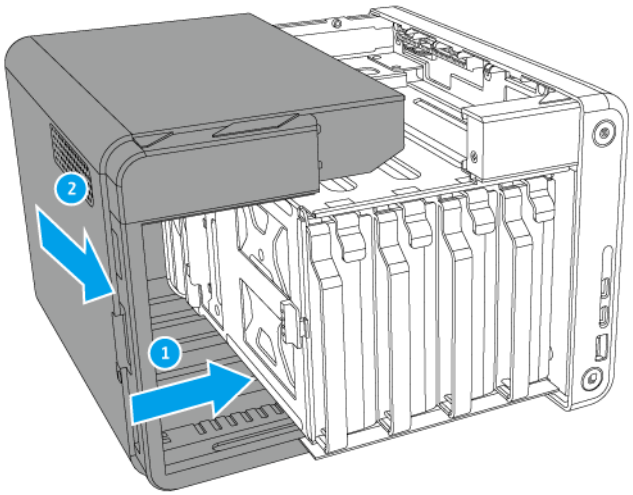
    b. Insert the card into the slot.

    c. Attach the screw.

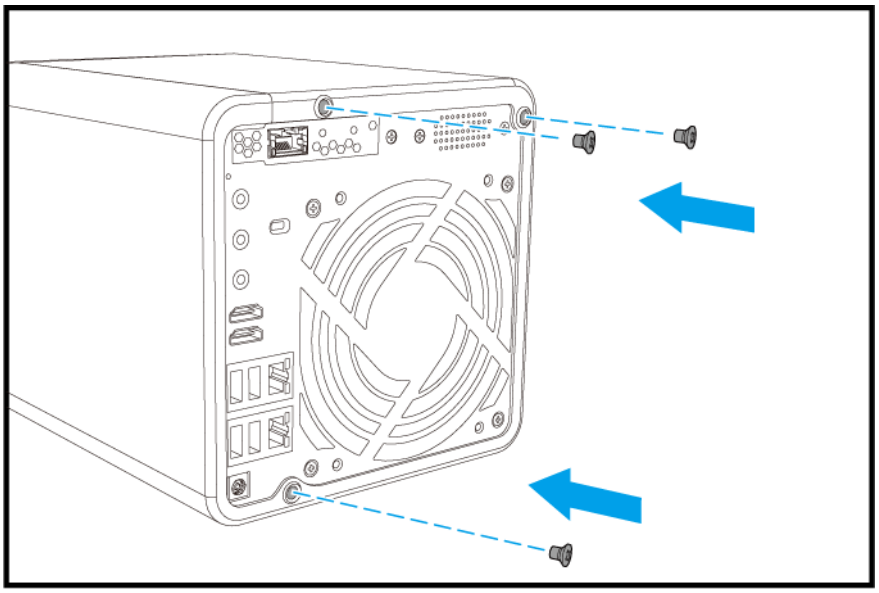


12. Attach the case cover.

    a. Slide the cover to the right until it connects with the chassis, and then pull.

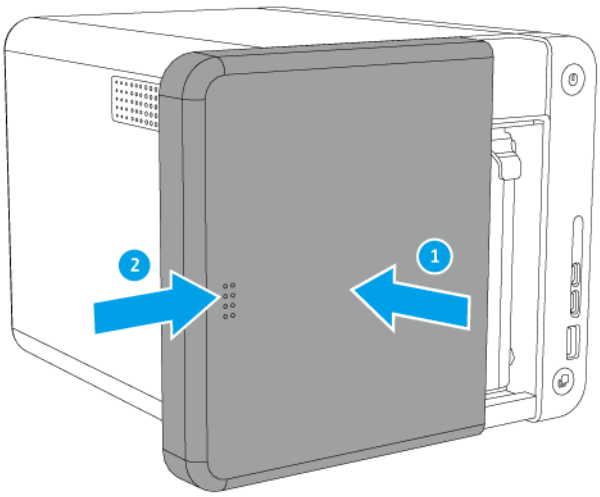


b. Attach the screws to the back side of the case.

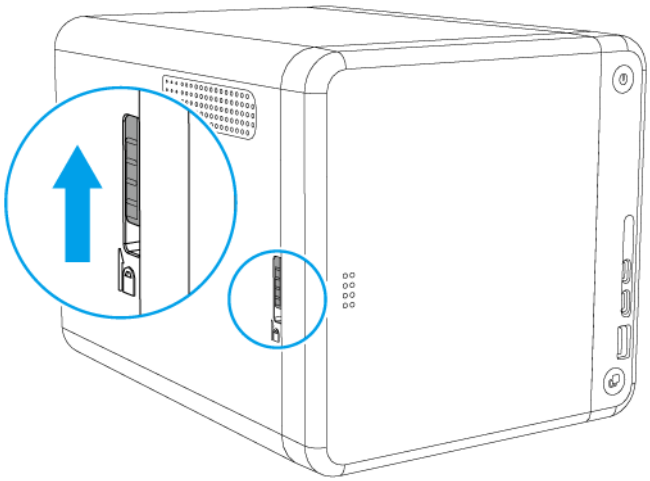


13. Attach the front cover.

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



b. Slide the lock up.



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

Installing Expansion Cards

A QM2 card is pre-installed on the PCIe slot.

The NAS 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 all QNAP NAS models. The TS-453BT3 series uses low-profile flat brackets.

For details on supported expansion cards and brackets, go to www.qnap.com/compatibility.

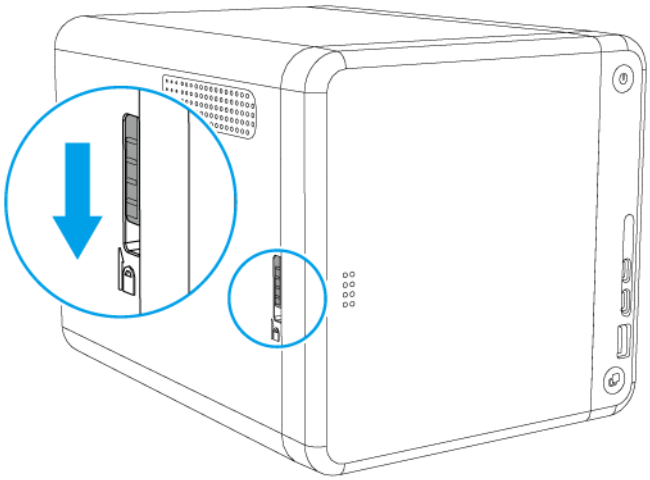
Warning

- 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.
- 

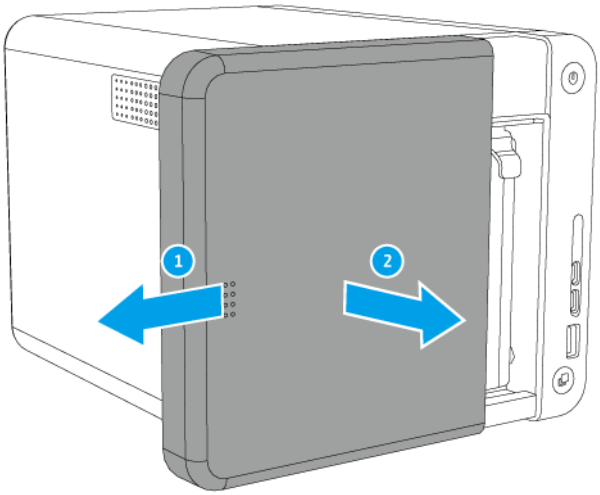
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 

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

1. Check the expansion cards and brackets supported by your model on the QNAP website.
   a. Go to www.qnap.com/compatibility.
   b. Click **Search by NAS**.
   c. Specify the number of bays and the specific model of your NAS.
   d. Under **Category**, select **Expansion Card**.
   e. Locate the expansion card model in the list and then click the corresponding **Note** icon.
2. Power off the NAS.
3. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.

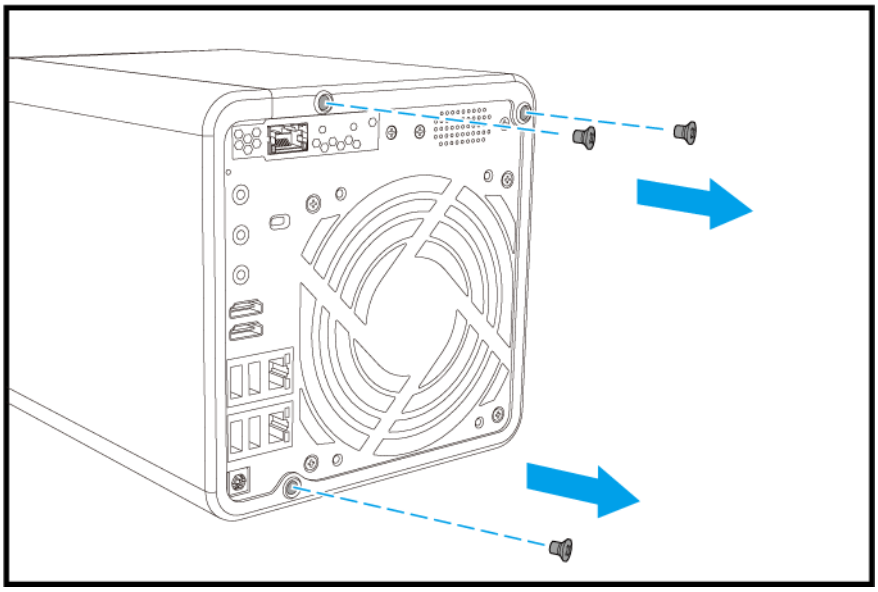


c. Slide the cover to the left and then pull.



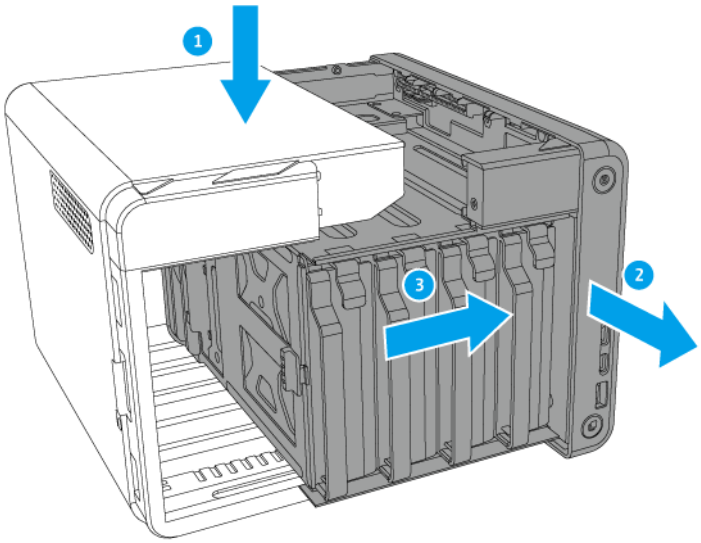
6. Remove the case cover.

a. Remove the screws that secure the cover to the chassis.



b. Push down on the cover and then pull the chassis.

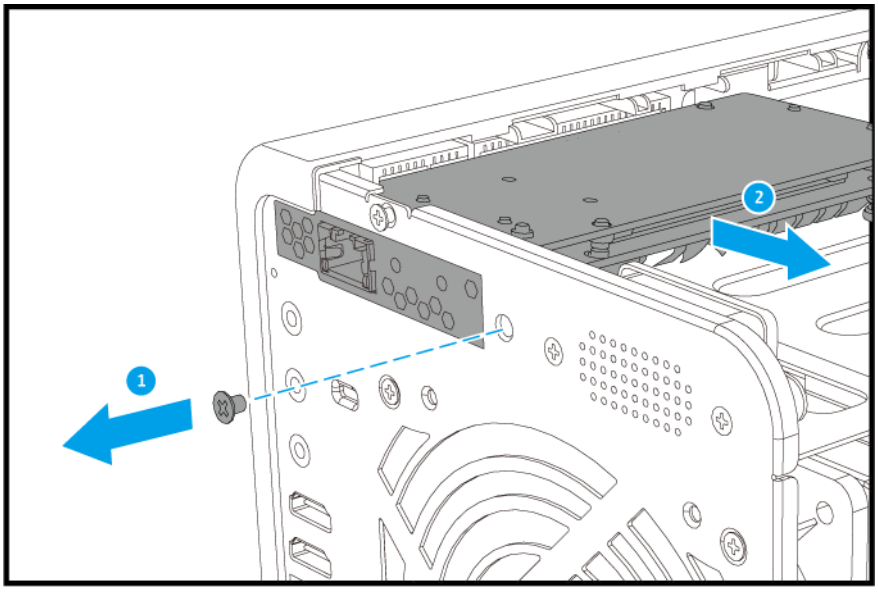
c. Pull the chassis to the right until it completely detaches from the cover.



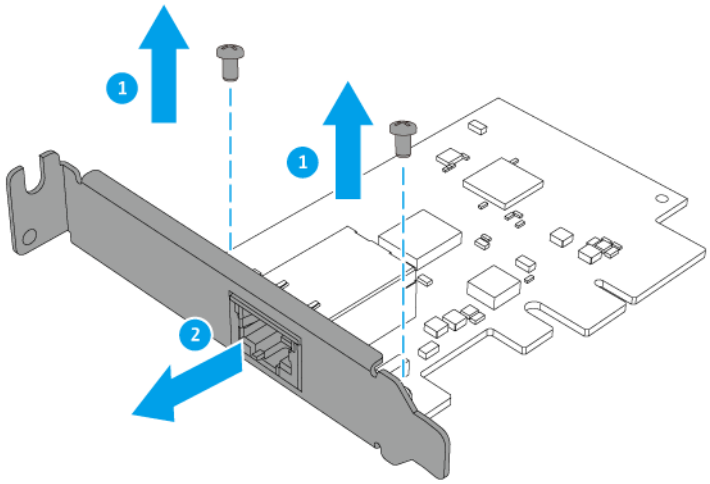
7. Remove the QM2 card.

a. Remove the screw on the back of the card.

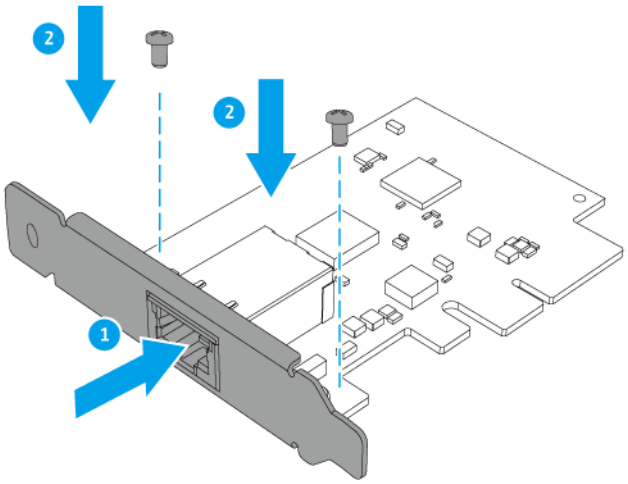
b. Remove the card from the PCIe slot.



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.



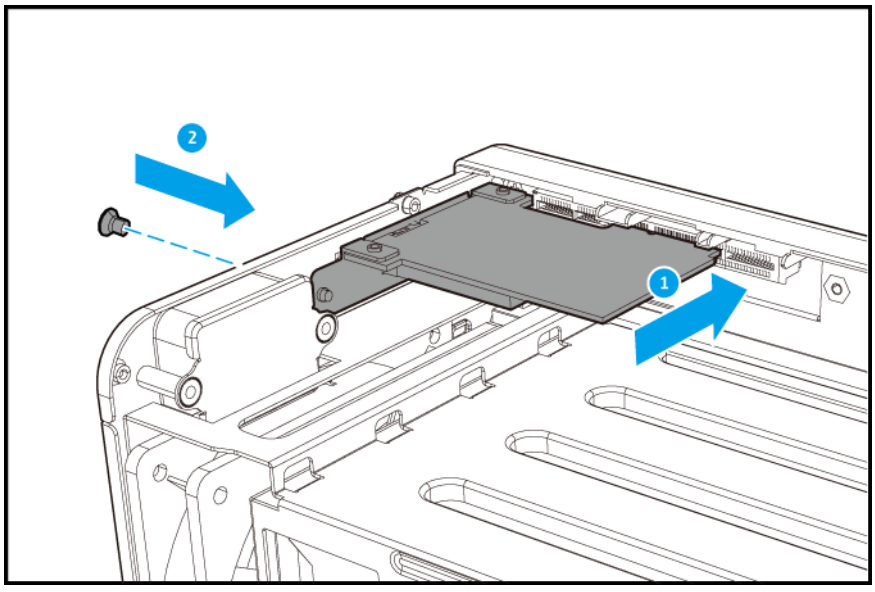
d. Verify that the bracket does not move.

9. Install the expansion card.

a. Hold the card by the edges.

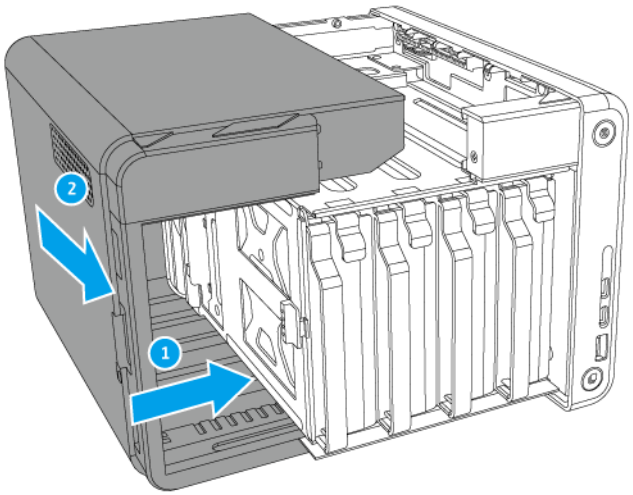
b. Insert the card into the slot.

c. Attach the screw.

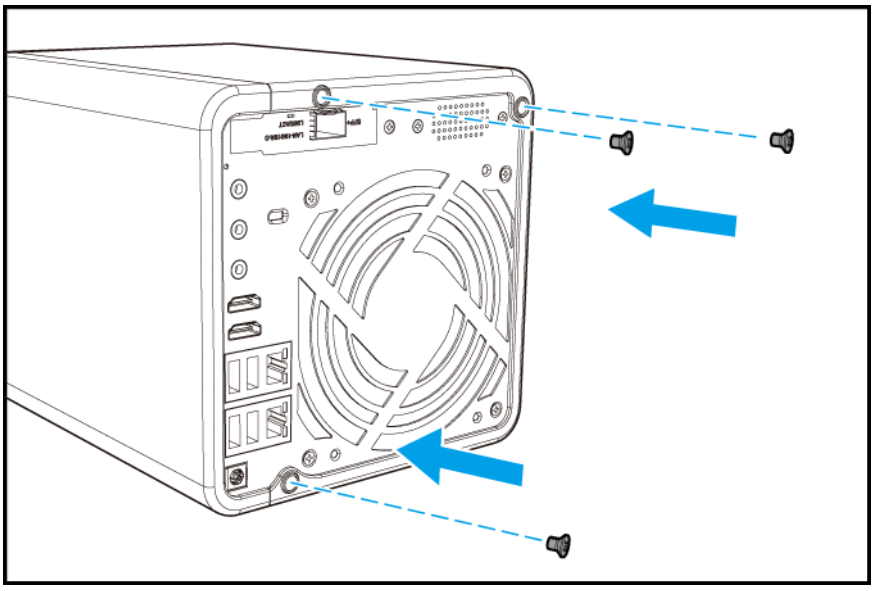


10. Attach the case cover.

a. Slide the cover to the right until it connects with the chassis, and then pull.

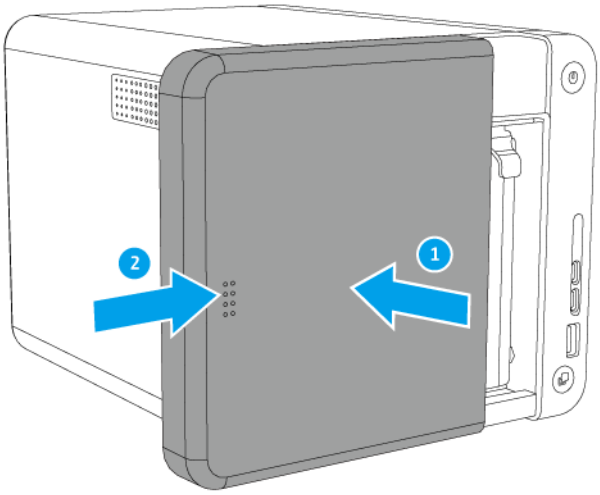


b. Attach the screws to the back side of the case.

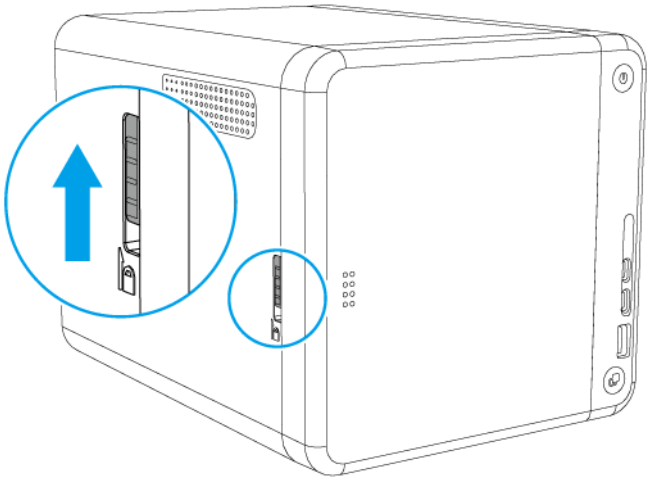


11. Attach the front cover.

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



b. Slide the lock up.



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

Replacing Memory Modules

The NAS has two memory slots. Depending on the model, you can increase the memory capacity of the NAS by upgrading one or both modules. When using two modules, use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.

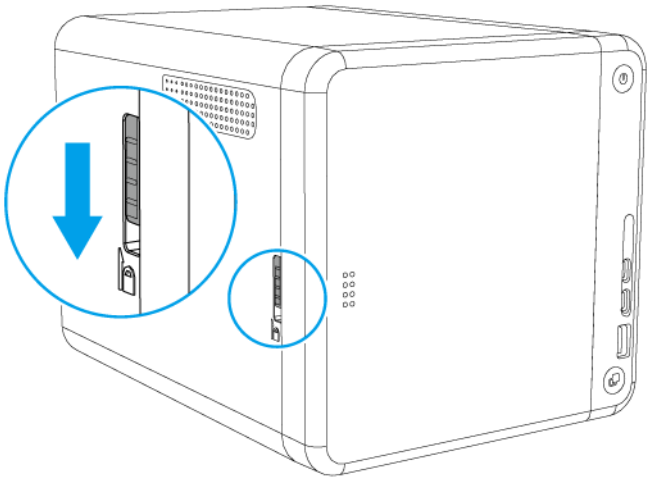
Warning

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

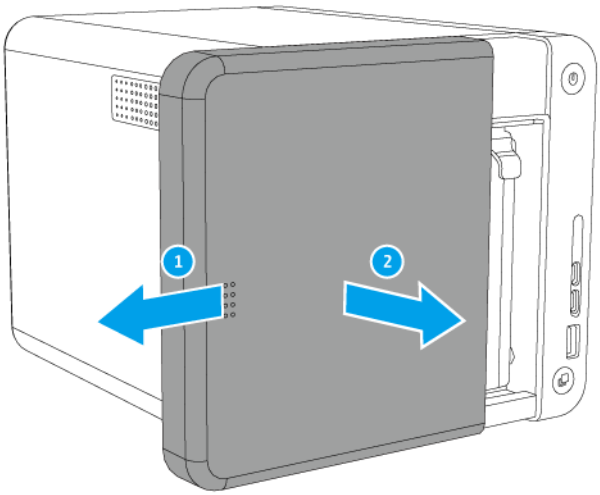
  Moving fan blades: Keep your hands and other body parts away from moving fan blades.
- 

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

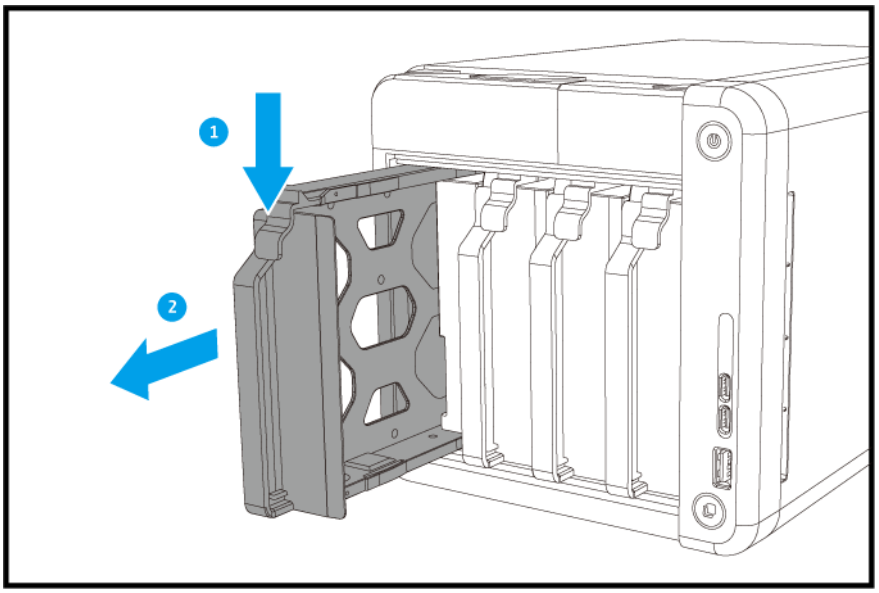
1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.



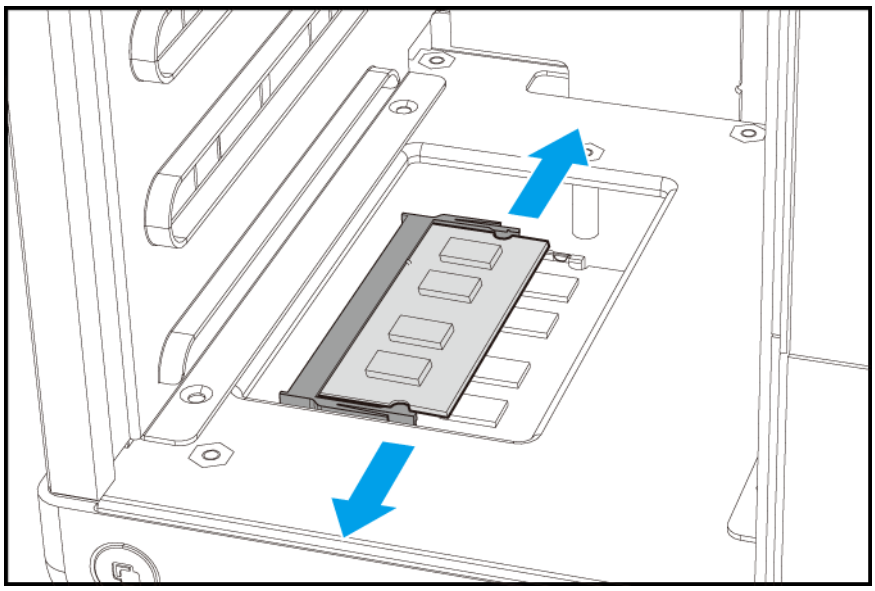
   c. Slide the cover to the left and then pull.



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



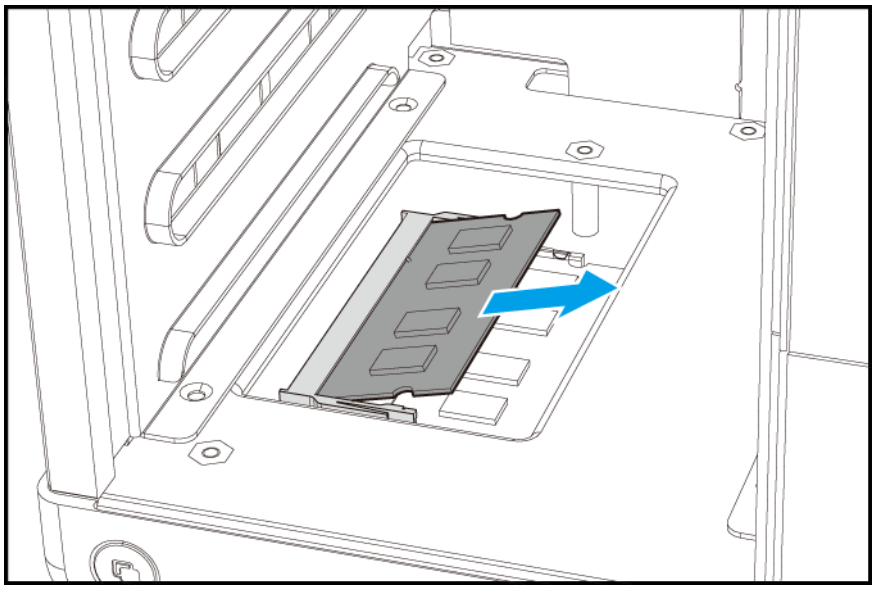
6. Place the NAS on its right side.
7. Remove an existing memory module.
    a. Push the retention clips outward simultaneously to release the module.



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 and then carefully slide it out of the slot.



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

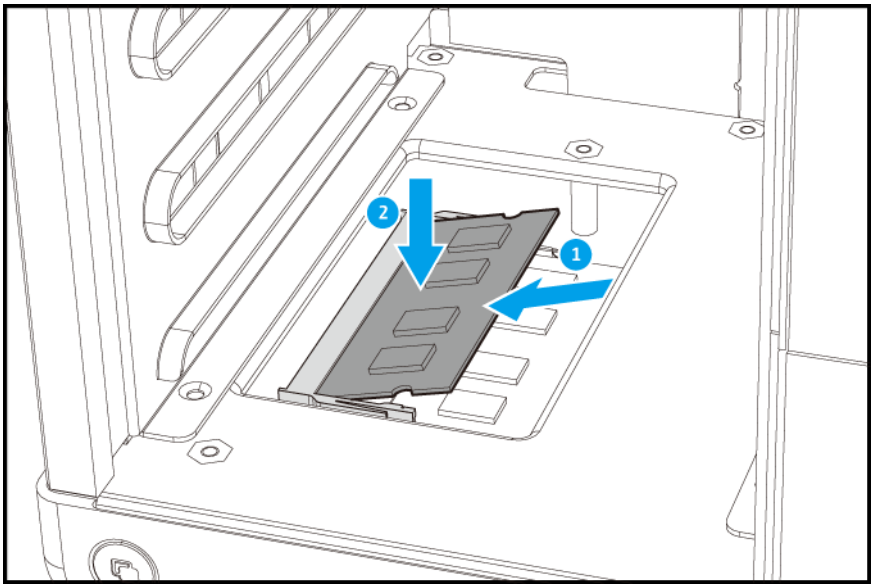
8. Install a new memory module.

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

b. Insert the module into the slot.

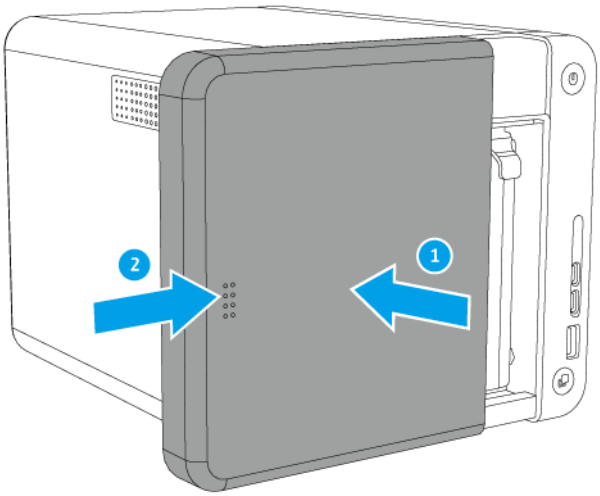
c. Verify that the metal connectors are completely inserted into the slot.

d. Carefully press down on the module until the retention clips lock the module into place.

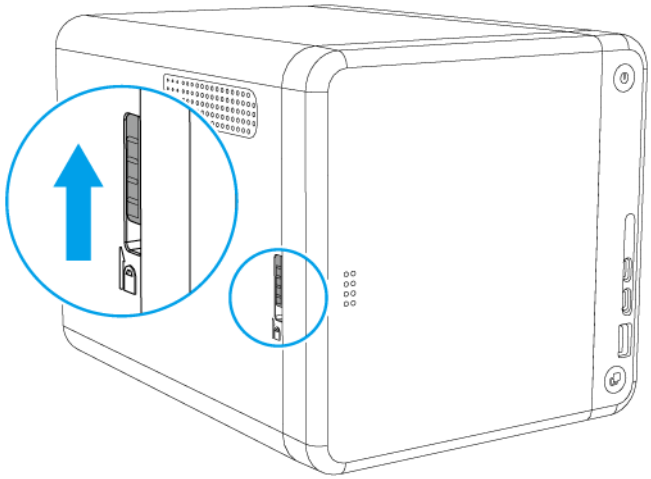


9. Attach the front cover.

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



b. Slide the lock up.



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

QTS Installation

TS-453BT3 uses the QNAP QTS operating system. You can install QTS using any of the following methods.

Method	Description	Requirements
Qfinder Pro installation (Recommended)	If the NAS is connected to your local area network, you can do the following: • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. For details, see Installing QTS Using Qfinder Pro.	• Computer • Network cable • Qfinder Pro installer

Method	Description	Requirements
Cloud installation	If the NAS is connected to the internet, you can do the following: • Scan the QR code on the NAS. • Log into your myQNAPcloud account. • Use CloudLink to remotely access your NAS. • Complete the steps in the Smart Installation Guide wizard. For details, see Installing QTS Using the Cloud Key.	• Computer or mobile device • Network cable • myQNAPcloud account • CloudKey
Local installation	If the NAS supports HDMI output, you can do the following: • Connect the NAS to the required hardware. • Complete the steps in the Smart Installation Guide wizard. For details, see Installing QTS Using an HDMI Connection.	• 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. Select **Configure disks later**.

Note
For details on configuring disks, see the Storage Manager section of the QTS User Guide.

15. Click **Next**.
16. Select **No**.

Note

- Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.
- For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

17. Click **Next**.
18. Review the settings.
19. Click **Apply**.
    A confirmation message appears.

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

20. Click **Confirm**.
    QTS is installed.

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.

7. Optional: Select **CloudLink**.

> **Note**
>
> - CloudLink allows you to remotely access the NAS without having to configure port forwarding on your router. You can remotely access the NAS by logging into QTS or by using mobile apps.
> - You can also enable CloudLink by installing the CloudLink app on the NAS.

8. Click **Next**.
   The **Smart Installation Guide** opens in the default web browser.
9. Click **Start Smart Installation Guide**.
10. Specify the following information.
    - **NAS name**: Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
    - **Password**: Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
11. Click **Next**.
12. Specify the time zone, date, and time.

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

13. Click **Next**.
14. Select **Obtain an IP address automatically (DHCP)**.
15. Click **Next**.
16. Select the types of devices that you will use to access shared folders on the NAS.

17. Click **Next**.
18. Select **Configure disks later**.

Note
For details on configuring disks, see the Storage Manager section of the QTS User Guide.

19. Click **Next**.
20. Select **No**.

Note

- Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.
- For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

21. Click **Next**.
22. Review the settings.
23. Click **Apply**.
    A confirmation message appears.

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

24. 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 monitor 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 Manager.
   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 Manager 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. **Important** 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.	The following settings are reset to default:
		• System administrator password: admin
		• TCP/IP configuration:
		  • Obtain IP address settings automatically via DHCP
		  • Disable jumbo frames
		  • If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to “Active Backup (Failover)”.
		• System port: 8080 (system service port)
		• Security level: Low (Allow all connections)
		• LCD panel password: (blank)
		• VLAN: Disabled

Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. • To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

USB One Touch Copy Button

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

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

For details on configuring USB One Touch Copy, see the QTS User Guide.

OLED Panel

The OLED panel allows you to perform the following operations:

- Restart and power off the NAS
- Configure or change the OLED panel password
- View and configure network settings
- View information on the system, drives, and volumes

Viewing TCP/IP Settings

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

- IP address
- Subnet mask
- Default gateway
- Primary DNS
- Secondary DNS

1. Press **Enter** or **Select**.
   The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
   The panel displays `Main Menu 1. TCP/IP`.
3. Press and hold **Enter**.
   The panel displays the IP address of the first network adapter.
4. Press and hold **Select** to view the next TCP/IP screen.
5. Optional: Repeat step 4 as necessary.

Configuring TCP/IP Settings

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

- IP address
- Subnet mask
- Default gateway
- Primary DNS
- Secondary DNS

1. Press **Enter** or **Select**.

The panel displays the NAS name and QTS version.

2. Press and hold **Enter** for two seconds.
   The panel displays `Main Menu 1. TCP/IP`.
3. Press and hold **Enter**.
   The panel displays the IP address of the first network adapter.
4. Press **Select** repeatedly until the panel displays `Enter Network Settings`.
5. Press and hold **Enter**.
   The panel displays the configurable network settings.
6. Press **Select** and **Enter** to configure the settings.

Button	Usage
Enter	• Display a configuration screen. • Move to the next item on a configuration screen.
Select	• Move to the next item on a menu. • Modify a value on a configuration screen.

Viewing Drive Information

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

1. Press **Enter** or **Select**.
   The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
   The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** repeatedly until the panel displays `Main Menu 2. Physical disk`.
4. Press and hold **Enter**.
   The panel displays the temperature and capacity of the first drive.
5. Press and hold **Select** to view information of the next drive.
   The panel displays the temperature and capacity of the next drive.
6. Optional: Repeat step 5 as necessary.

Viewing Volume Information

The OLED panel can display the name and capacity of each volume.

1. Press **Enter** or **Select**.
   The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
   The panel displays `Main Menu 1. TCP/IP`.
3. Press **Enter** repeatedly until the panel displays `Main Menu 3. Volume`.
4. Press and hold **Enter**.
   The panel displays the name and capacity of the first volume.

5. Press and hold **Select**.
   The panel displays the name and capacity of the next volume.
6. Optional: Repeat step 5 as necessary.

Viewing System Information

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

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

Powering Off the NAS

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

Restarting the NAS

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

Changing the OLED Password

Specifying a password for the OLED panel prevents unauthorized access.

1. Press **Enter** or **Select**.
   The panel displays the NAS name and QTS version.
2. Press and hold **Enter** for two seconds.
   The panel displays `Main Menu 1. TCP/IP`.

3. Press **Enter** repeatedly until the panel displays `Main Menu 7. Password`.
4. Press and hold **Enter**.
   The `Change Password` screen appears.
5. Select **Yes** by pressing and holding **Enter**.
   The `New Password` screen appears.
6. Press **Select** and **Enter** to set the new password.
   - Specify a password with 1 to 8 characters. The password can only contain numbers (0 to 9).
   - To remove a password, leave the password field blank.

Button	Usage
Enter	Move to the next item in the `New Password` screen.
Select	Change a number in the `New Password` and `Verify Password` screens.

7. Press **Enter**.
   The NAS saves the password.

OLED Error Messages

System Message	Description
Sys. Fan Failed	The system fan failed.
Sys. Overheat	The system overheated.
HDD Overheat	The drive overheated.
CPU Overheat	The CPU overheated.
Network Lost	LAN 1 and LAN 2 are disconnected in failover or are in load-balancing mode.
LAN1 Lost	LAN 1 is disconnected.
LAN2 Lost	LAN 2 is disconnected.
HDD Failure	The drive failed.
Vol1 Full	The volume is full.
HDD Ejected	The drive was ejected.
Vol1 Degraded	The volume is in degraded mode.
Vol1 Unmounted	The volume is unmounted.
Vol1 Nonactivate	The volume is not activated.

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	• The drive is being formatted. • The NAS is being initialized. • The operating system is being updated. • RAID rebuilding is in progress. • Online RAID Capacity Expansion is in progress. • Online RAID Level Migration is in progress.
	Red	• The drive is invalid. • The disk volume has reached its full capacity. • The disk volume is about to reach its full capacity. • The system fan is not functioning. • An error occured when accessing (read/write) the data. • A bad sector is detected on the hard drive. • 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). • Hardware self-test error
	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	• The NAS is starting up. • The NAS is not configured. • A drive is not formatted.
	Flashes green every 2 seconds	The NAS is in S3 sleep mode.
	Green	The NAS is ready.
	Off	All drives are in standby mode.
LAN	Orange	A read/write error occured while another device is accessing data.
	Flashes orange	The NAS is being accessed from the network.
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occured.
	Flashes green	The data is being accessed.
	Green	The drive can be accessed.

LED	Status	Description
USB	Flashes blue every 0.5 sec	• A USB device (connected to the front USB port) is detected. • A USB device (connected to the front USB port) is being removed from the NAS. • A USB device (connected to the front USB port of the NAS) is being accessed. • Data is being copied to or from a USB or eSATA device.
	Blue	A USB device is detected in the front USB port.
	Off	• No USB device is detected. • The NAS has finished copying data to or from the USB device connected to the front USB port.

Beep Alarm

Duration	Frequency	Description
Short beep (0.5 seconds)	1	• 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.
Long beep (1.5 seconds)	3 (every 5 minutes)	The system fan is not functioning.
	2	• 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	• 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 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	http://docs.qnap.com
Help Desk	http://helpdesk.qnap.com
Downloads	http://download.qnap.com
Community Forum	http://forum.qnap.com

6. Glossary

CloudKey

Unique 8-digit code assigned to each NAS device

CloudLink

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 CloudLink

myQNAPcloud ID

Email address that was used to register for a myQNAPcloud account

Qfinder Pro

Enables you to locate and access the QNAP NAS devices in your local area network

QTS

QNAP NAS operating system

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END OF TERMS AND CONDITIONS

FCC Notice

FCC Class B Notice



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

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

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

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

CE Notice



This QNAP NAS complies with CE Compliance Class B.

SJ/T 11364-2006



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部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	0	0	0	0	0	0
显示	0	0	0	0	0	0
印刷电路板	0	0	0	0	0	0
金属螺帽	0	0	0	0	0	0
电缆组装	0	0	0	0	0	0
风扇组装	0	0	0	0	0	0
电力供应组装	0	0	0	0	0	0
电池	0	0	0	0	0	0
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