



TS-431KX

TS-431KX
TS-431X3

User Guide

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1. Preface

About This Guide

This guide provides information on the QNAP TS-431KX and TS-431X3 NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

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

Document Conventions

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

2. Product Overview

This chapter provides basic information about the QNAP TS-431KX and TS-431X3 NAS.

About the TS-431KX

The TS-431KX is powered by Annapurna Labs Alpine AL-214 1.7 GHz processors for multi-tasking and smooth data streaming. Built to accommodate busy office environments, the TS-431KX ensures data security and performance with built-in AES 256-bit encryption engines. It features a USB One Touch Copy port for quick and convenient backup and data transfer. The TS-431KX supports 4-drive bays and SATA 6 Gbps for speedy data transfer. The NAS also offers one 10 Gigabit Ethernet SFP+ interface and dual Gigabit Ethernet RJ45 ports for quick data transfer.

About the TS-431X3

The TS-431X3 is powered by Annapurna Labs Alpine AL-314 quad-core 1.7 GHz processors for high-performing data processing, and cost-effective storage in business environments. Built for SMB office environments, the TS-431X3 ensures data security and performance with built-in encryption engine. It features a USB One Touch Copy port for quick and convenient backup and data transfer. The TS-431X3 supports 4-drive bays and SATA 6 Gbps for speedy data transfer. The NAS also offers three types of Gigabit Ethernet ports, including 10 Gigabit Ethernet SFP+, 2.5 Gigabit Ethernet RJ45, and Gigabit Ethernet RJ45 for quick data transfer.

Hardware Specifications



Warning

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

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

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



Tip

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

Ordering P/N	CPU	Memory	Power supply
TS-431KX-2G	Annapurna Labs Alpine AL-214	2 GB	Single
TS-431X3-4G	Annapurna Labs Alpine AL-314	4 GB	Single

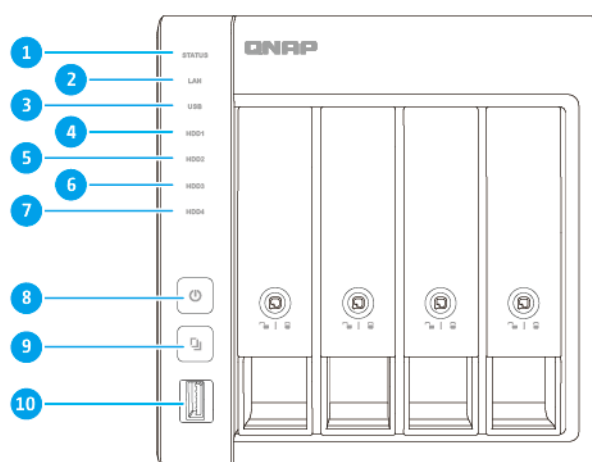
Component	TS-431KX-2G	TS-431X3-4G
Processor		
CPU	Annapurna Labs Alpine AL-214	Annapurna Labs Alpine AL-314
Frequency	4-core/1.7 GHz	4-core/1.7 GHz
Architecture	ARM 32-bit	
Encryption engine	AES-256	
Memory		

Component	TS-431KX-2G	TS-431X3-4G
Pre-installed memory	2GB RAM: 1 x 2 GB SODIMM DDR3L	4 GB RAM: 1 x 4 GB SODIMM DDR3L
Memory slots	 Important • Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications. • Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.	
Maximum memory	8GB RAM: 1 x 8 GB	
Flash memory	512 MB (dual-boot OS protection)	
Storage		
Drive bays	 Note The SATA 6 Gbps drive bays are backward compatible with SATA 3 Gbps drives.	
Drive compatibility	3.5-inch bays: • 3.5-inch SATA hard disk drives • 2.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives	
SSD cache acceleration support	3.5-inch drive bays:1 to 4	
Hot-swapping	Supported	
Network		
10 Gigabit Ethernet ports	1 x 10 GbE SFP+	
2.5 Gigabit Ethernet port	None	1 x 2.5 GbE RJ45
Gigabit Ethernet ports	2 x GbE RJ45	1 x GbE RJ45
Wake-on-LAN	Yes (GbE RJ45)	
External I/O Ports & Expansion Slots		
USB ports	Front panel: • 1 x USB 3.2 Gen 1 port (5Gbps) Type-A  Note This USB port supports One Touch Copy. Rear panel: • 2 x USB 3.2 Gen 1 ports (5Gbps) Type-A	
Interface		

Component	TS-431KX-2G	TS-431X3-4G
Buttons	• Power • Reset • USB One Touch Copy	
Dimensions		
Form factor	Tower	
Dimensions (H x W x D)	169 x 160 x 219 mm (6.65 x 6.3 x 8.62 in)	
Net weight	3 kg (6.61 lbs)	
Others		
Power supply unit	90W, 100-240V AC, 50/60 Hz	
System battery	CR2032 lithium battery (3V, 225 mAh)	
Sound level	19.5 dB(A)  Note The sound level was tested at a bystander position, which is within one meter of the NAS. The test NAS operated at low speed with the maximum number of drives installed.	
Fans	System fan: 1 x 120mm, 12V DC smart fan	
Operating temperature	0°C to 40°C (32°F to 104°F)	
Relative humidity	• Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F)	
Security slot	Kensington security slot	

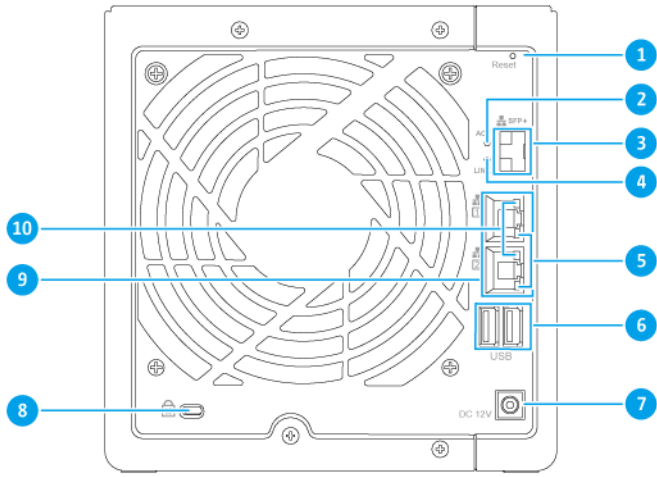
Components

Front Panel



No.	Component	No.	Component
1	Status LED	6	Drive 3 LED
2	LAN LED	7	Drive 4 LED
3	USB LED	8	Power button
4	Drive 1 LED	9	USB One Touch Copy button
5	Drive 2 LED	10	USB 3.2 Gen 1 One Touch Copy Type-A port

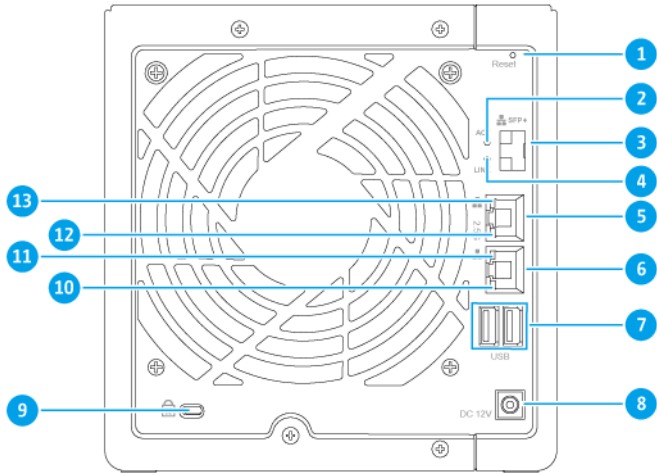
Rear Panel



TS-431KX

No.	Component	No.	Component
1	Reset button	6	USB 3.2 Gen 1 (5Gbps) Type-A ports
2	10 Gigabit Ethernet activity LED	7	Power input
3	10 Gigabit Ethernet port (SFP+)	8	Kensington security slot
4	10 Gigabit Ethernet link LED	9	Gigabit Ethernet ports (RJ45)
5	Gigabit Ethernet activity LEDs	10	Gigabit Ethernet speed LEDs

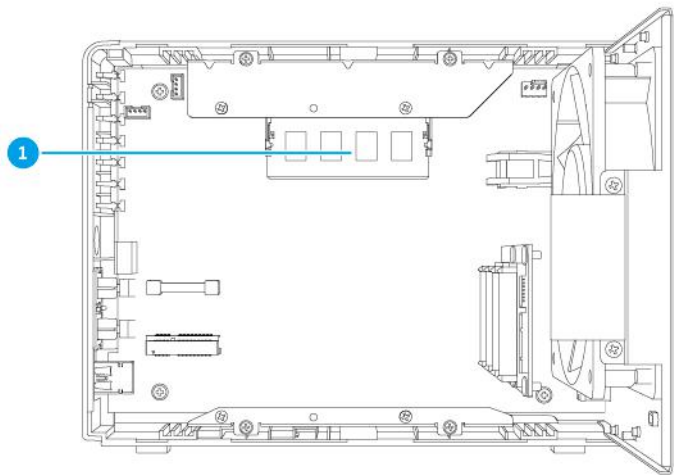
**Note**
Only these ports support Wake-on-LAN configurations.



TS-431X3

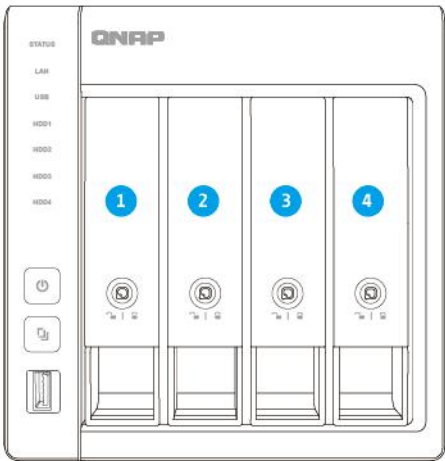
No.	Component	No.	Component
1	Reset button	8	Power input
2	10 Gigabit Ethernet activity LED	9	Kensington security slot
3	10 Gigabit Ethernet port (SFP+)	10	Gigabit Ethernet activity LED
4	10 Gigabit Ethernet link LED	11	Gigabit Ethernet speed LED
5	2.5 Gigabit Ethernet port (RJ45)	12	2.5 Gigabit Ethernet activity LED
6	Gigabit Ethernet port (RJ45)	13	2.5 Gigabit Ethernet speed LED
	Note Only this port supports Wake-on-LAN configuration.		
7	USB 3.2 Gen 1 (5Gbps) Type-A ports	-	-

System Board



No.	Component	No.	Component
1	Memory slot	-	-

Drive Numbering



Package Contents

Item	Quantity
TS-431KX or TS-431X3	1
AC power adapter	1

Item	Quantity
Power cord	1
Ethernet cable	TS-431KX: 2 x Cat5e TS-431X3: 1 x Cat5e
Screws for 3.5-inch drives	16
Screws for 2.5-inch drives	12
Quick Installation Guide (QIG)	1

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.

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

System Battery

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

Moving Parts

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



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

Installation Requirements

Category	Item
Environment	- Room temperature: 0°C to 40°C (32°F to 104°F) - Non-condensing relative humidity: 5% to 95% - Wet-bulb temperature: 27°C (80.6°F) - Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals - Free from objects that may obstruct NAS ventilation or apply pressure to the NAS or power cord
Hardware and peripherals	- Storage drives - For the list of compatible drive models, go to https://www.qnap.com/compatibility. - Network cable
Tools	- Phillips #1 or #2 screwdriver - Flat head 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.

2. Install the drives.

For details, see the following topics:

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

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

3. Connect the NAS to the network.

4. Connect the USB expansion units.

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

5. Connect the power cord and all applicable cables.

6. Power on the NAS.

For details, see [Front Panel](#).

7. Install QTS.

For details, see [QTS Installation](#).

3. Installation and Configuration

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

Hardware Installation

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

Drive Installation

The TS-431KX and the TS-431X3 are compatible with 3.5-inch hard drives, 2.5-inch hard drives, and 2.5-inch solid-state drives.

Installing 3.5-inch Drives on a 3.5-inch Tray



Warning

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

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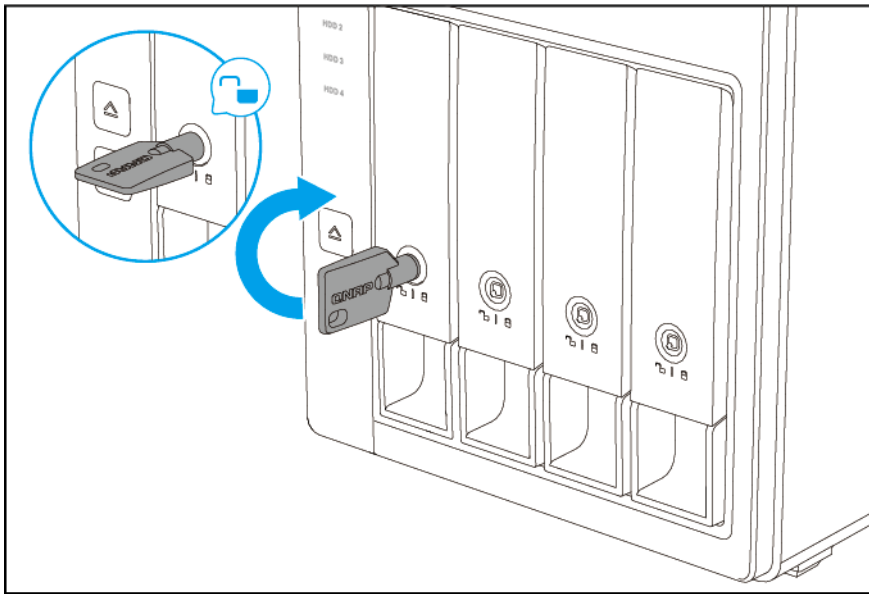
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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

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

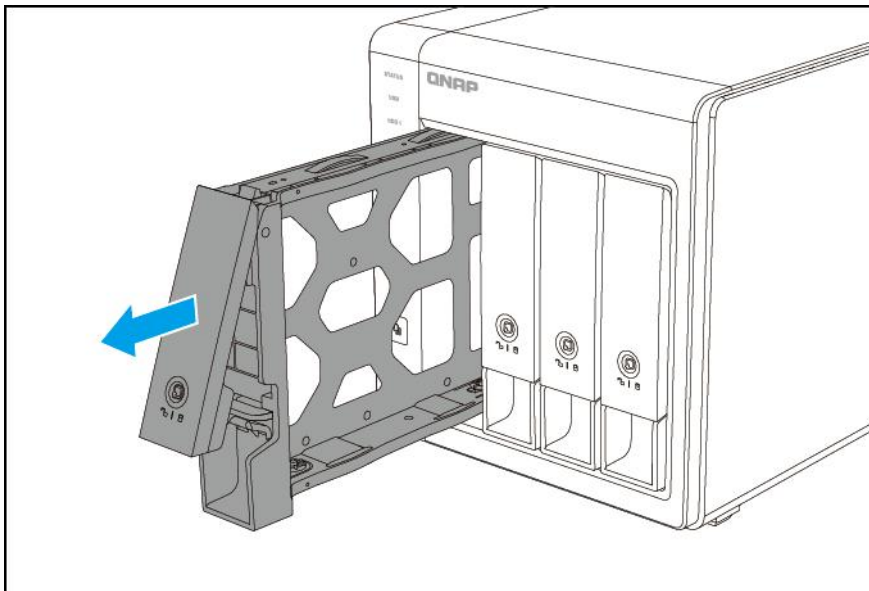
**Note**

The preinstalled drive trays come unlocked.

**Important**

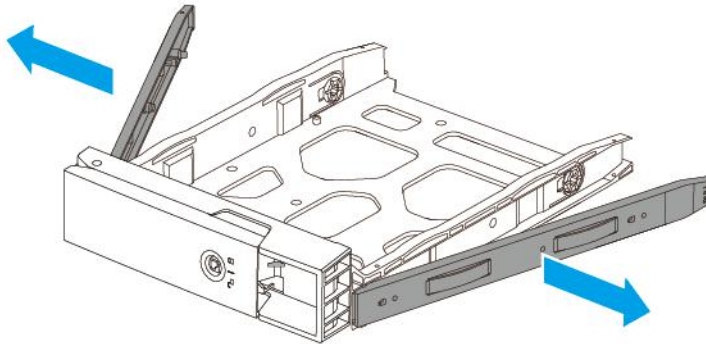
Ensure the drive tray keys are stored in a safe place.

- b. Pull the handle to release the tray.
- c. Pull the tray out.

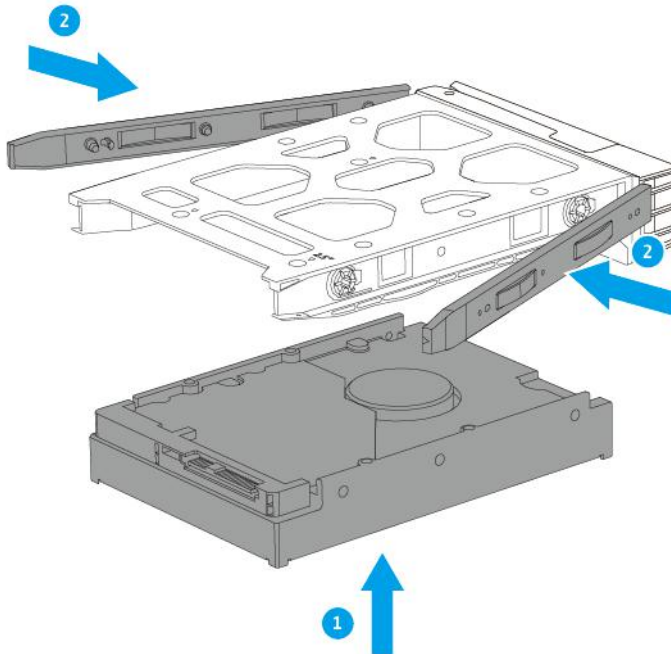


3. Install a drive on the tray.

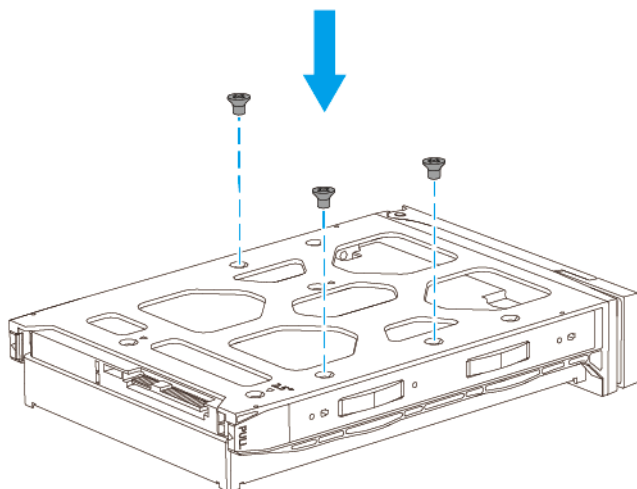
- a. Remove the fastening panels from the sides of the drive tray.



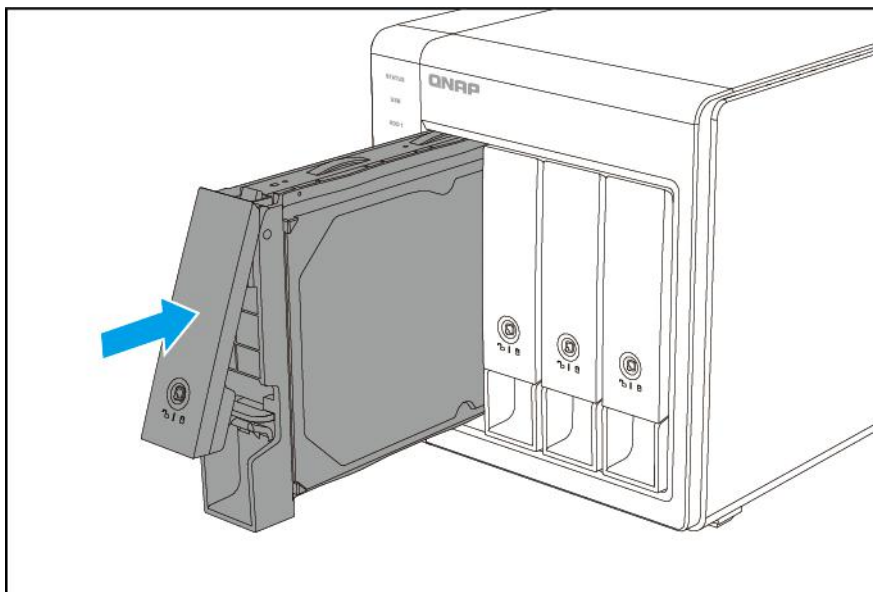
- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the fastening panels.



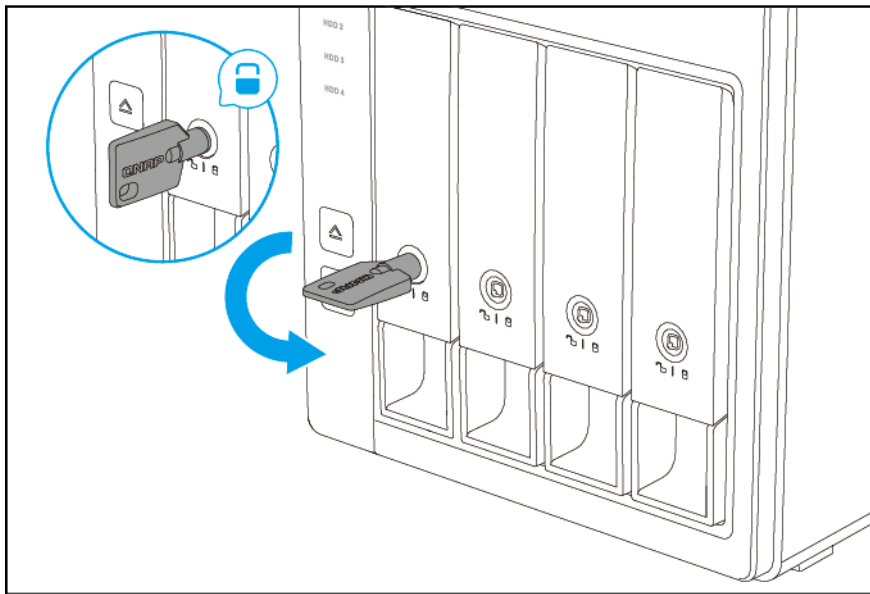
- d.** Optional: Attach the screws to further secure the drive.



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



- c. Lock the tray.



5. Power on the NAS.

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



Warning

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

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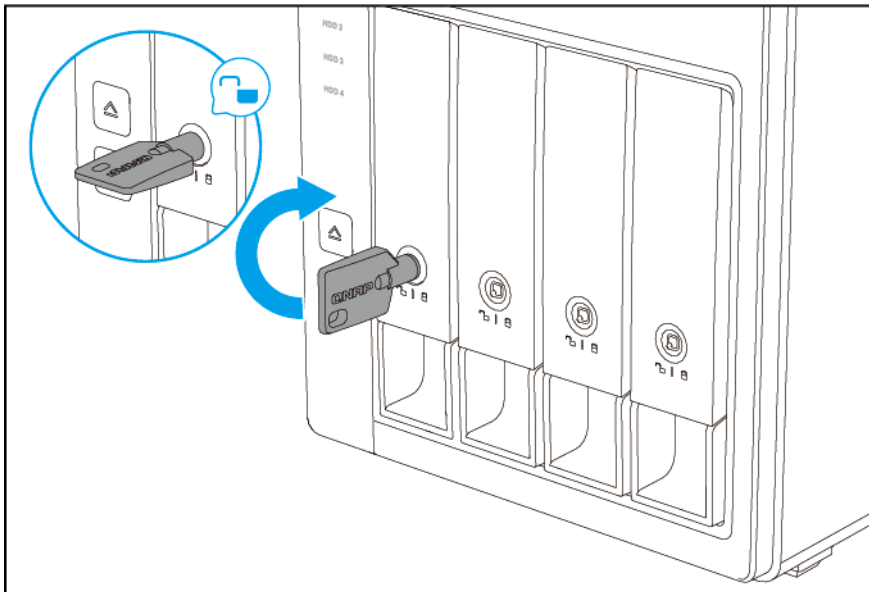
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

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

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

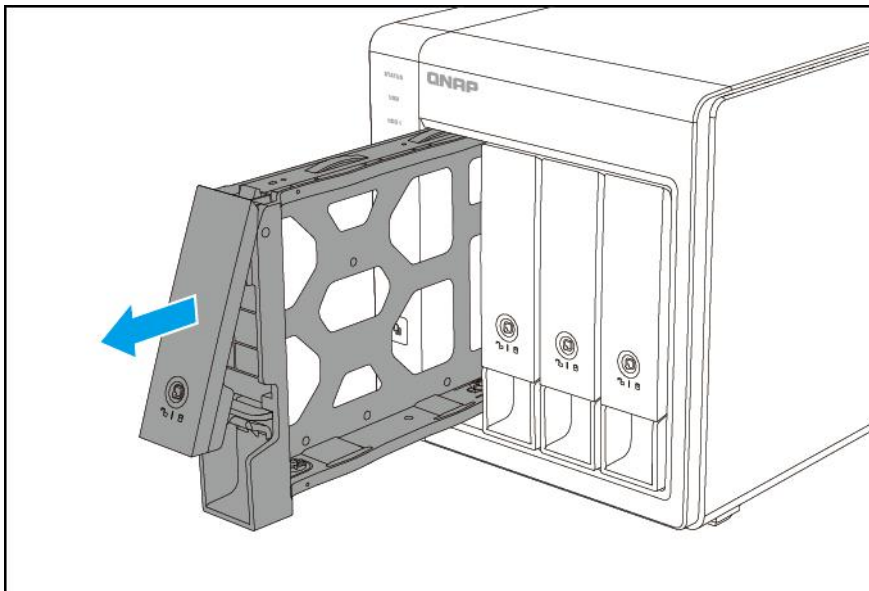
**Note**

The preinstalled drive trays come unlocked.

**Important**

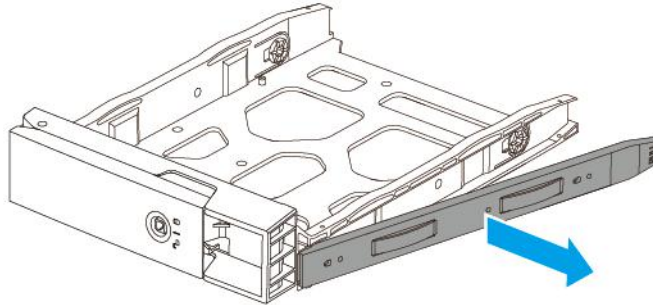
Ensure the drive tray keys are stored in a safe place.

- b. Pull the handle to release the tray.
- c. Pull the tray out.

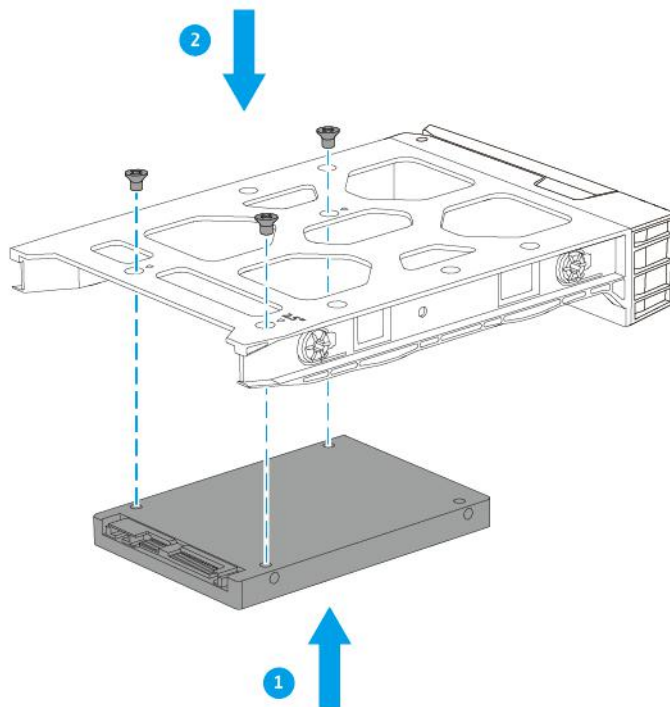


3. Install a drive on the tray.

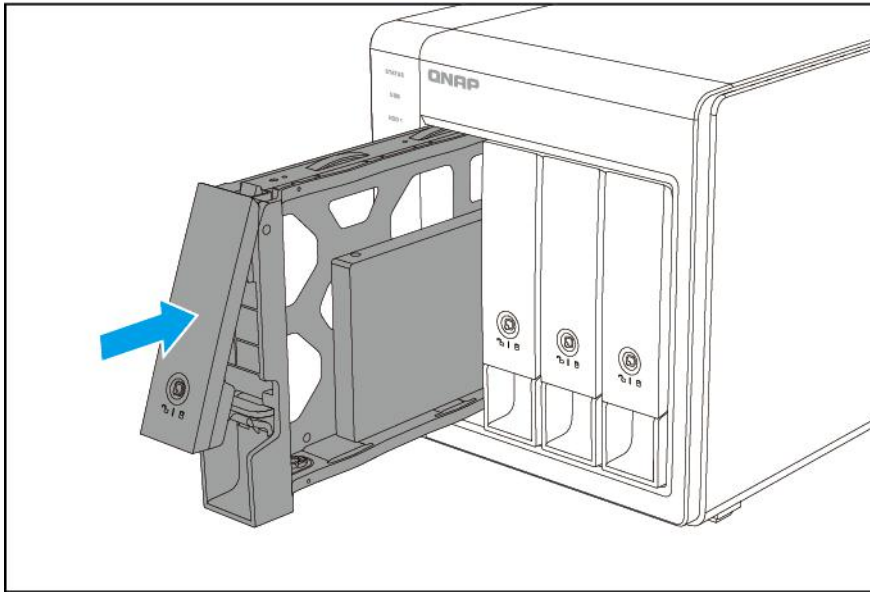
- a. Remove the fastening panels from the sides of the drive tray.



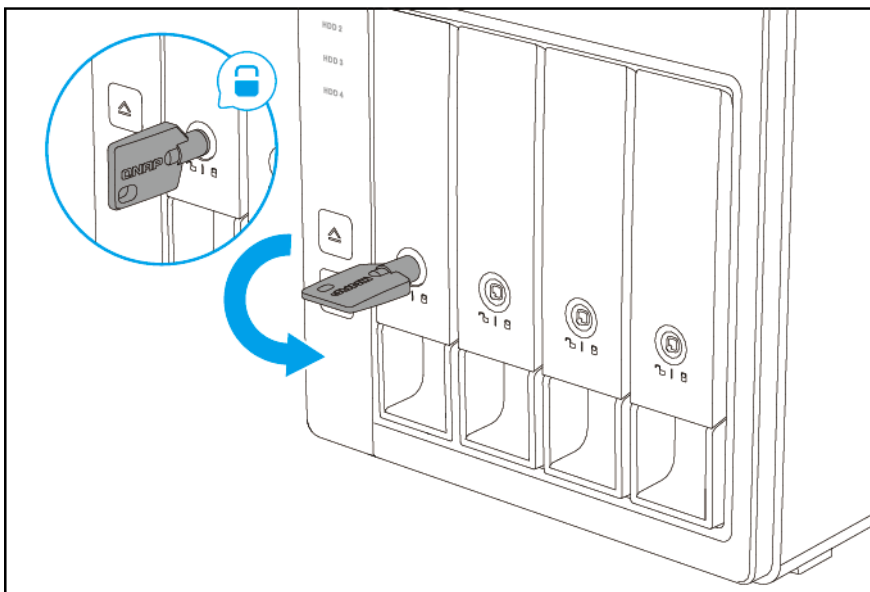
- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the screws.



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



c. Lock the tray.



5. Power on the NAS.

Replacing Memory Modules

Use only QNAP memory modules to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.



Warning

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

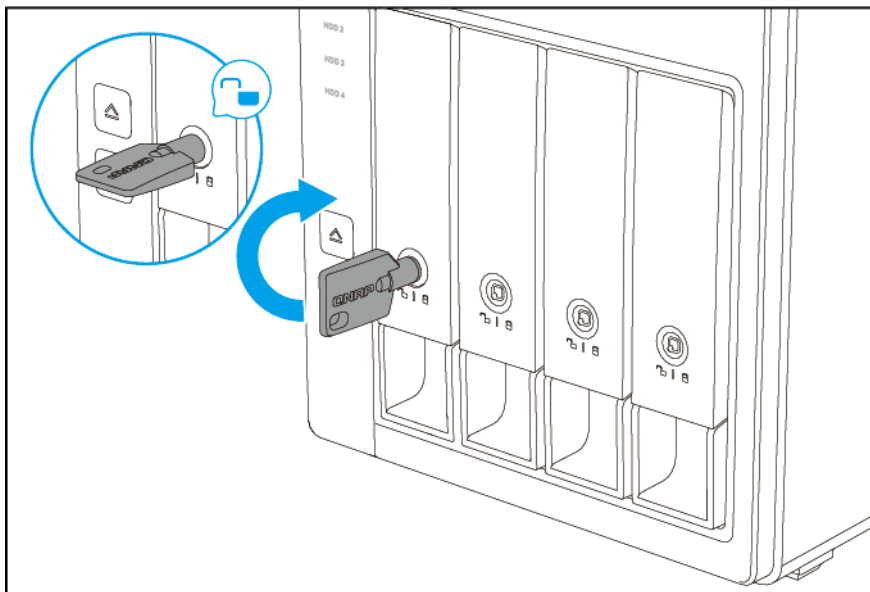


Moving fan blades: Keep your hands and other body parts away from moving fan blades.



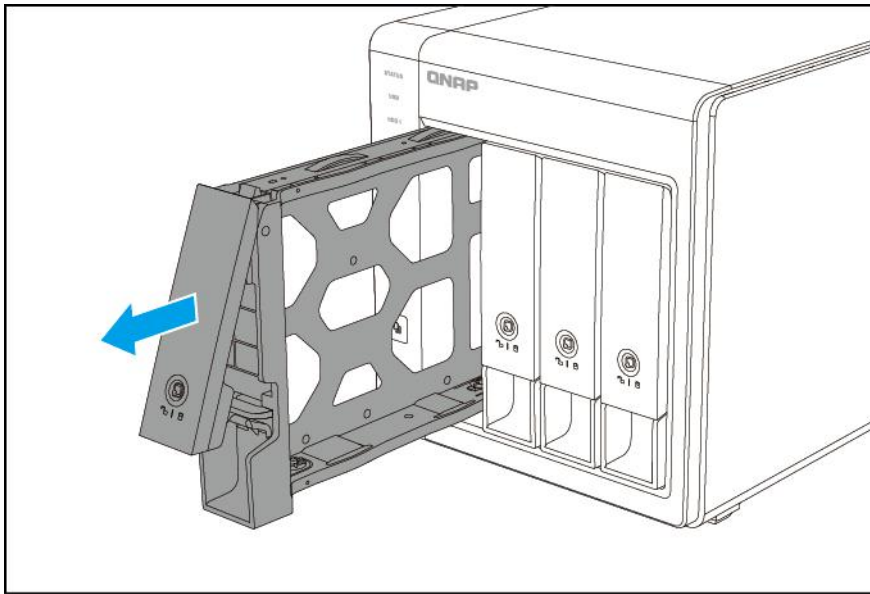
Other moving components: Keep your hands and other body parts away from other moving components.

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the drive trays.
 - a. Optional: Unlock the drive tray.



Note

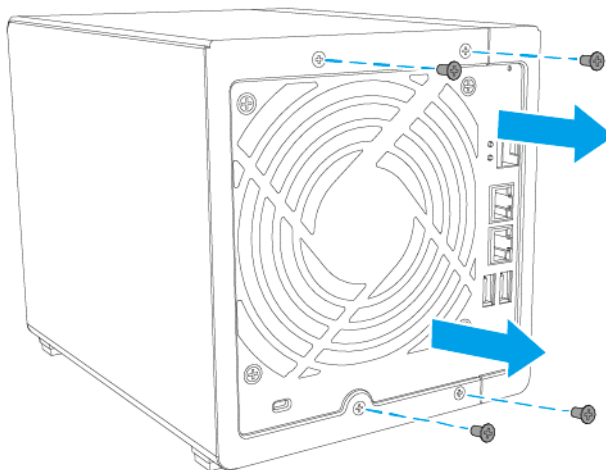
- The preinstalled drive trays come unlocked.
 - Ensure the drive tray keys are stored in a safe place.
- b. Remove each drive tray by simultaneously pressing the latch and pulling the tray.



Important

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

5. Remove the case cover.
 - a. Loosen the screws.

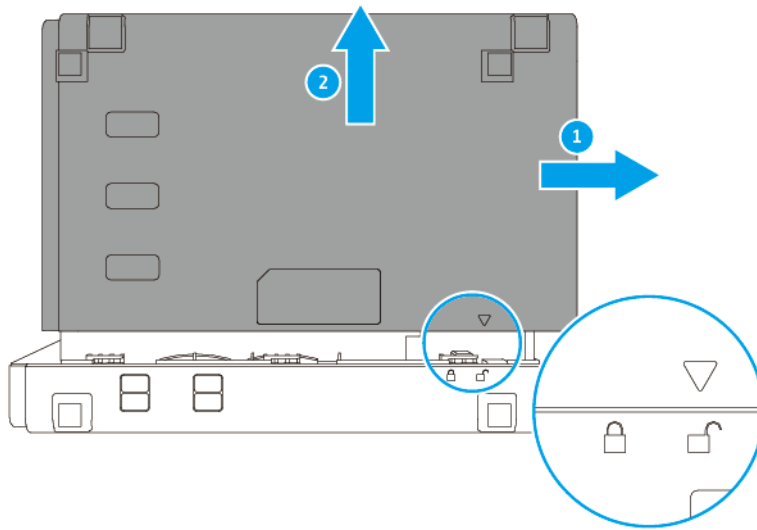


Note

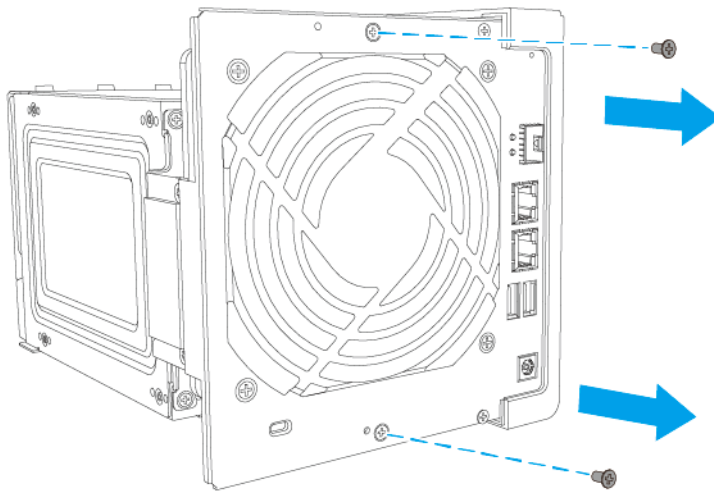
The case cover screws are longer than other removed screws.

- b. Place the NAS on its left side.
 - c. Slide the case cover to the right so that the triangle aligns with the unlock icon.

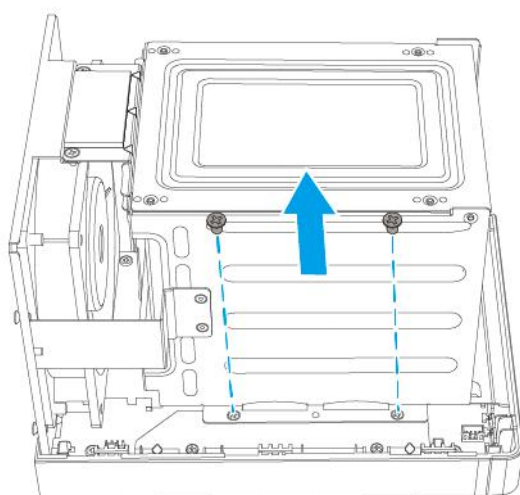
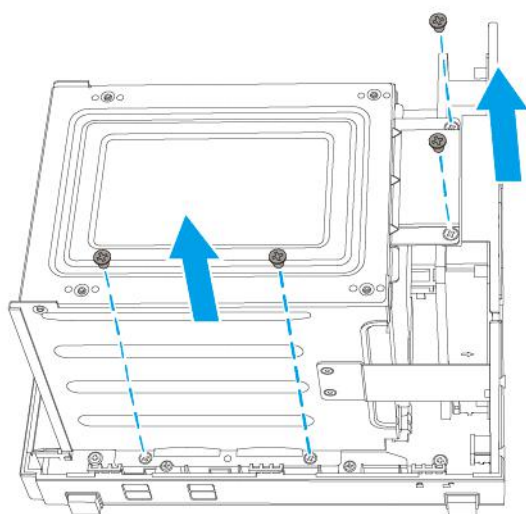
- d. Pull the case cover up until it completely detaches from the chassis.



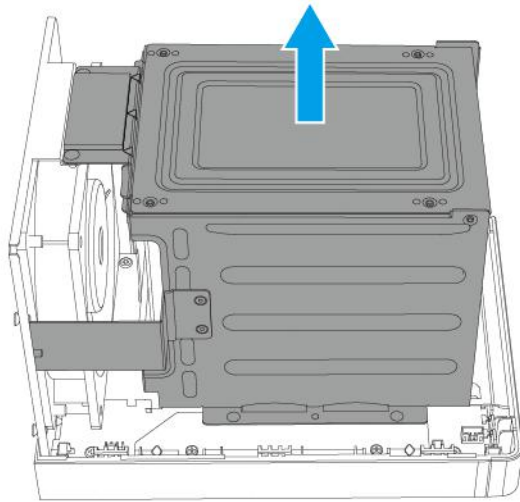
6. Remove the top and bottom screws on the back of the NAS.



7. Place the NAS on its left side.
8. Remove the 6 screws that connect the drive tray chassis to the NAS.

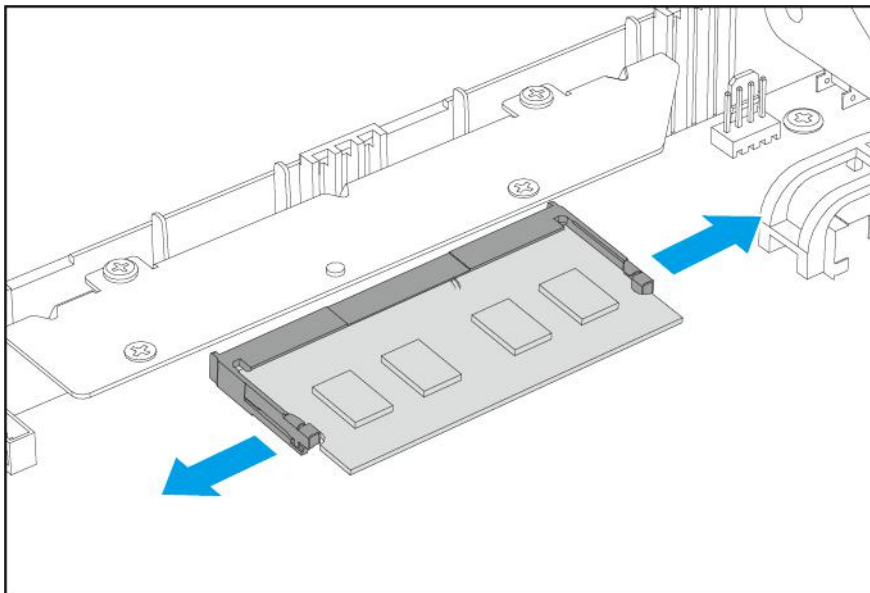


9. Carefully remove the drive tray chassis.



10. Remove an existing module.

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



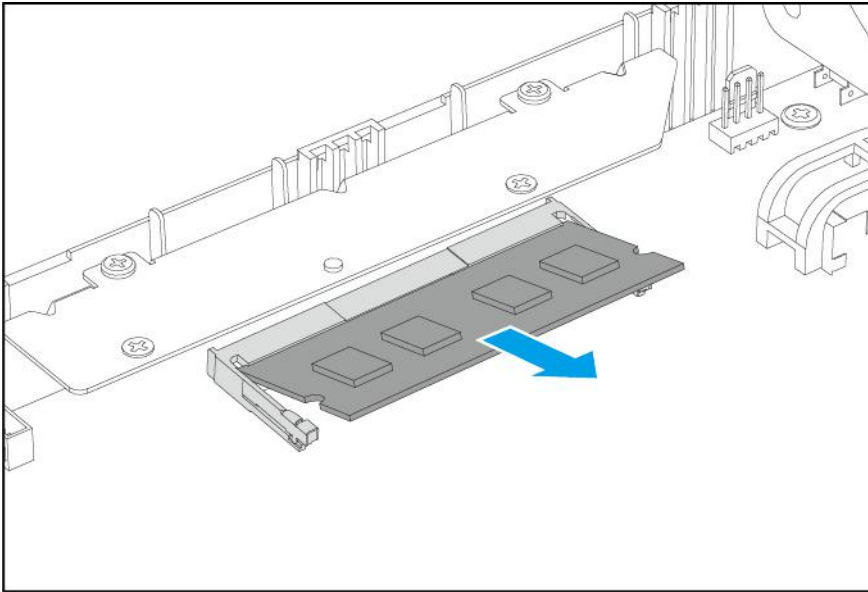
- b. Verify that the module has tilted upward and is completely released from the slot.



Warning

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

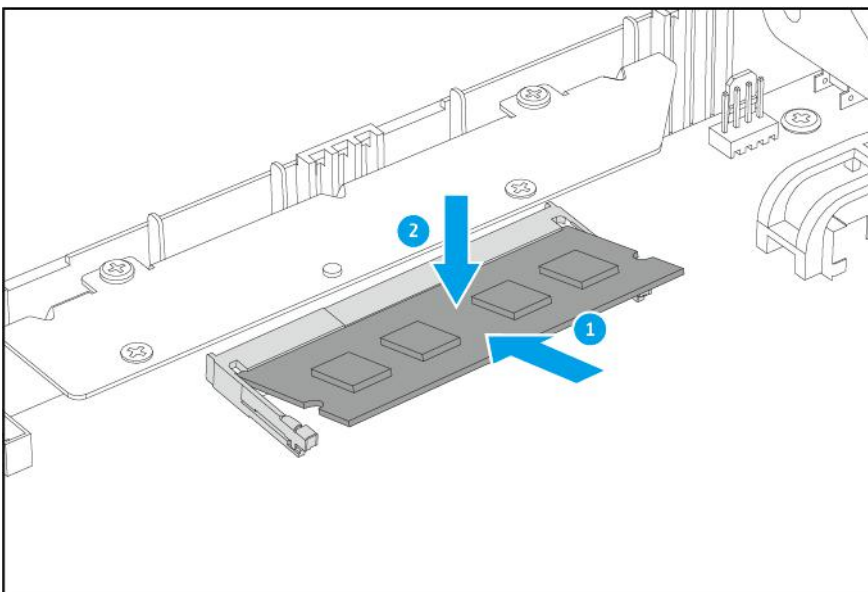
- c. Hold the module by the edges.
- d. Carefully slide the module out of the slot.

**Warning**

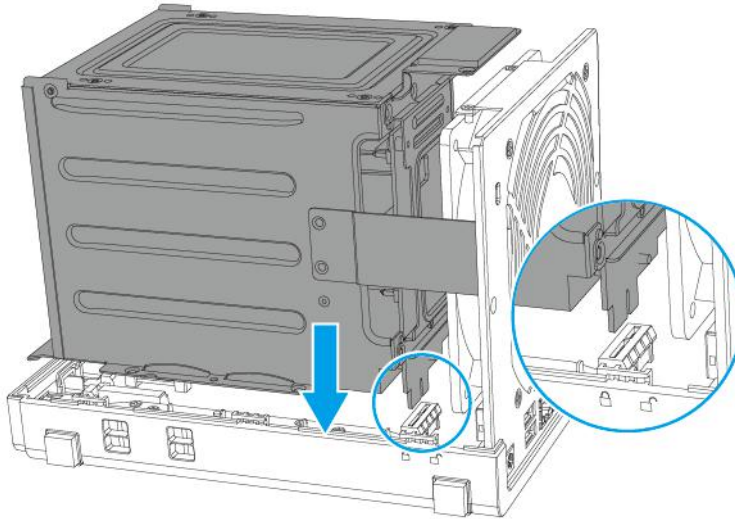
- Do not touch the internal components, particularly the metal connectors.
- Do not bend the module.

11. Install a new module.

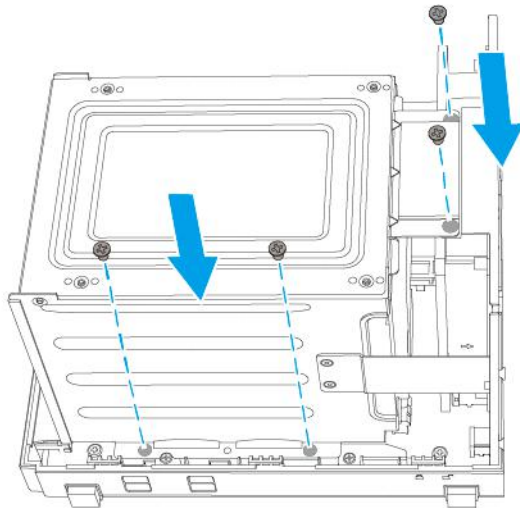
- Align the notch with the ridge in the slot.
- Insert the module into the slot.
- Verify that the metal connectors are completely inserted into the slot.
- Carefully press down on the module until the retention clips lock the module into place.

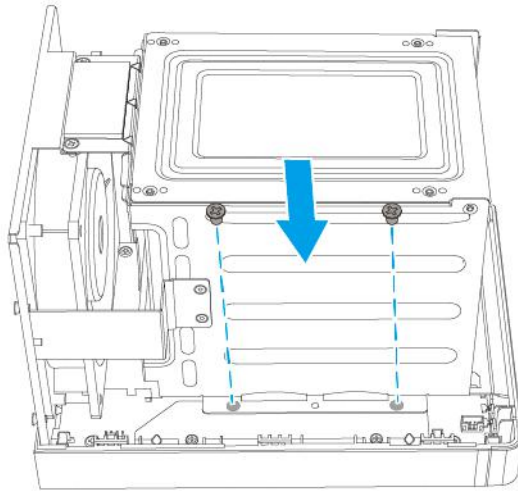


- 12.** Place the drive tray chassis onto the NAS.
- a.** Line up the SATA connector on the drive tray chassis to the SATA socket on the motherboard.
 - b.** Carefully insert the SATA connector into the SATA socket.

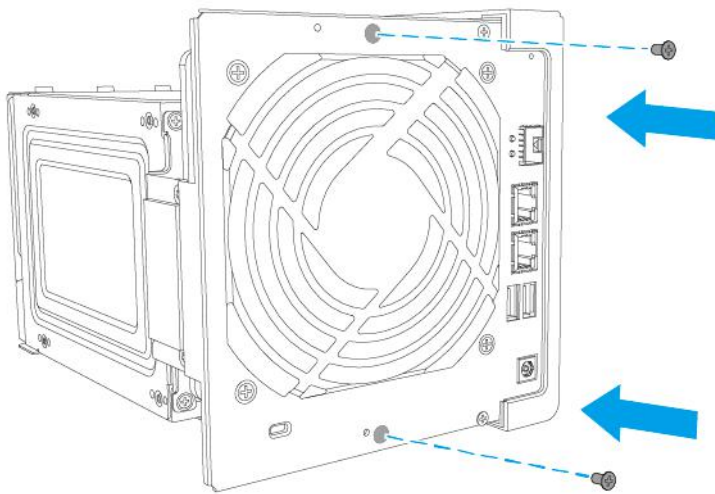


- 13.** Attach the 6 screws that connect the drive tray chassis to the NAS.



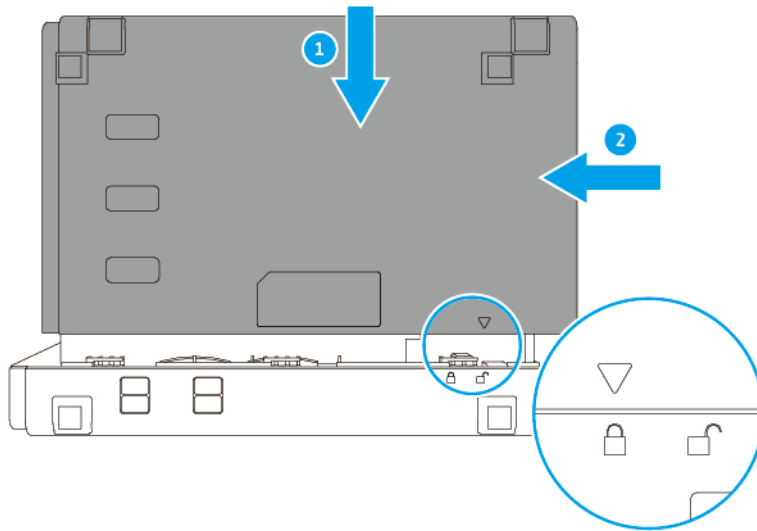


14. Attach the top and bottom screws on the back of the NAS.

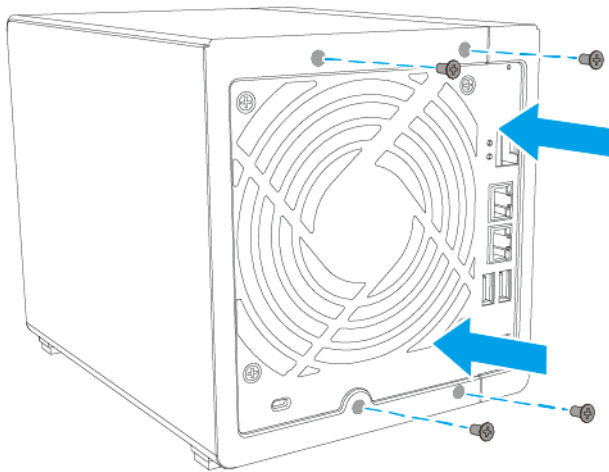


15. Attach the case cover.

- a. Place the NAS on its left side.
- b. Align the triangle icon on the case cover with the unlock icon on the chassis.
- c. Slide the case cover onto the chassis.
- d. Slide the case cover to the left so that the triangle aligns with the lock icon.

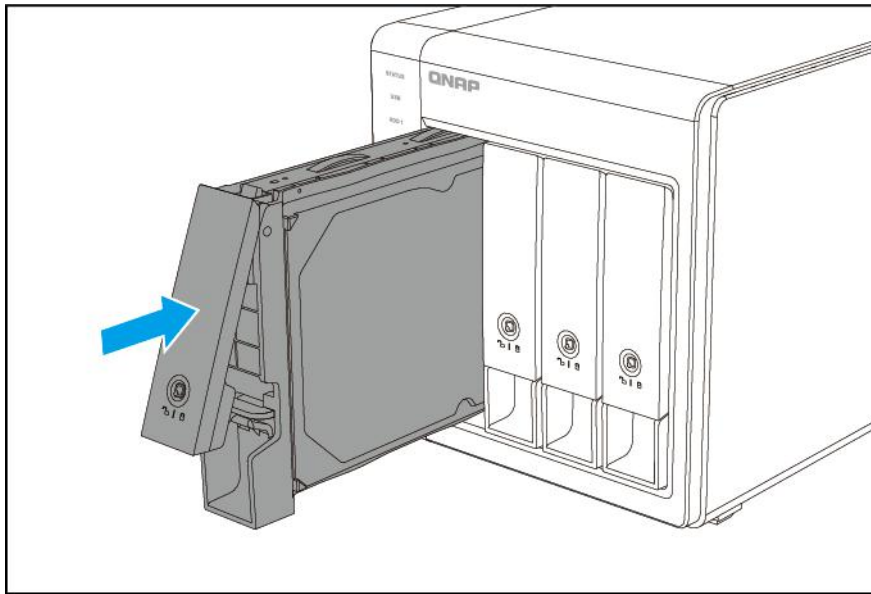


- e. Attach the screws to the back side of the case.



16. Return drive trays into their original bays.

- a. Slide the drive tray into the drive bay.
- b. Push in the handle



17. Connect all cables and external attachments.
18. Power on the NAS.
19. 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**.

Connecting USB Expansion Units

The TS-431KX and the TS-431X3 supports USB expansion units. For details, please see table below.

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

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

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



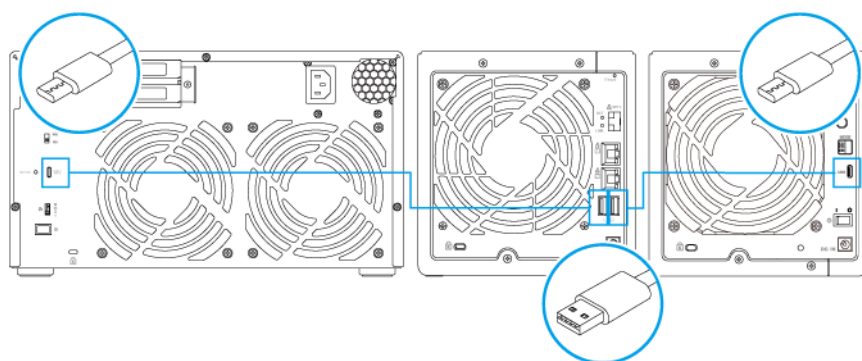
Note

The USB 3.2 Gen 2 Type-C to Type-C cables and RAIL-B02 are optional and must be purchased separately.

Expansion Unit Model	Description	Required Accessories
TR-002	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	• USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TR-004	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA drives	
TR-004U	• Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA drives	• USB 3.2 Gen 1 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable • RAIL-B02
TL-D800C	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	• USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable
TL-R1200C-RP	• Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA drives	• USB 3.2 Gen 2 Type-A to Type-C cable • USB 3.2 Gen 2 Type-C to Type-C cable • RAIL-B02

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.

QTS Installation

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

Installing QTS Using Qfinder Pro



Warning

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

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



Note

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

4. Locate the NAS in the list and then double-click the name or IP address.
5. Perform any of the following actions.
 - To check for the latest available version, click **Start**.
The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the **Smart Installation Guide**.

- To install the out-of-the-box version, click **Skip**.

6. Click **Start Smart Installation Guide**.

7. Specify the following information.

- **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

8. Click **Next**.

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



Tip

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

10. Click **Next**.

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

12. Click **Next**.

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

14. Click **Next**.

15. Review the settings.

16. Click **Apply**.

A confirmation message appears.



Warning

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

17. Click **Confirm**.

QTS is installed.

Installing QTS Using the Cloud Key



Warning

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

1. Power on the NAS.

2. Connect the NAS to the internet.

3. Go to the QNAP Cloud Installation page using one of the following methods:

- On your computer, go to <http://install.qnap.com/>.
- Scan the QR code on the NAS using a mobile device.

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

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

**Note**

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

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.

**Note**

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

6. Specify the myQNAPcloud device name for the NAS.

**Note**

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

7. Click **Next**.

8. Perform any of the following actions.

- To check for the latest available version, click **Start**.
The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the **Smart Installation Guide**.
- To install the out-of-the-box version, click **Skip**.

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

10. Specify the following information.

- **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

11. Click **Next**.

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

**Tip**

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

13. Click **Next**.

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

15. Click **Next**.

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

17. Click **Next**.

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

**Warning**

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

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

4. Basic Operations

This chapter describes basic NAS operations.

Power Button

Operation	User Action	Result
Power on	Press the button once.	The 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: 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.  Tip You can find the MAC address of adapter 1 using Qfinder Pro. A label attached to the device also lists the address as MAC1. - TCP/IP configuration: - Obtain IP address settings automatically via DHCP - Disable jumbo frames - If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)". - System port: 8080 (system service port) - Security level: Low (Allow all connections) - LCD panel password: (blank) - VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

LEDs

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

For details on the location of the LEDs, see [Components](#).



Note

The 2.5 Gigabit Ethernet LEDs are only applicable to TS-431X3.

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. - The firmware is being updated.  Important When updating the firmware, do not remove the power cable or USB cable, and do not force-exit the application.
	Red	- The drive is invalid. - The disk volume has reached its full capacity. - The disk volume is about to reach its full capacity. - The system fan is not functioning. - An error occurred when accessing (read/write) the data. - A bad sector is detected on the hard drive. - The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read). - A hardware self-test error occurred.
	Flashes red every 0.5 seconds	The 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.
	Green	The NAS is ready.
	Off	All drives are in standby mode.

LED	Status	Description
LAN	Orange	A read/write error occurred while another device is accessing data.
	Flashes orange	The NAS is being accessed from the network.
10 Gigabit Ethernet link	Green	The network is operating at 10 Gbps.
	Off	There is no network connection.
10 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	Data is being transmitted.
	Off	There is no network connection.
2.5 Gigabit Ethernet speed	Green	The network connection is operating at 2.5 Gbps.
	Orange	The network connection is operating at 1 Gbps.
	Off	- The network connection is operating at 100 Mbps. - There is no network connection.
2.5 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	The NAS is being accessed from the network.
	Off	There is no network connection.
1 Gigabit Ethernet speed	Green	The network connection is operating at 1 Gbps.
	Orange	The network connection is operating at 100 Mbps.
	Off	- The network connection is operating at 10 Mbps. - There is no network connection.
1 Gigabit Ethernet activity	Green	A network connection has been established.
	Flashes Green	The NAS is being accessed from the network.
	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 read/write error occurred while another device is accessing data.
	Flashes orange	The NAS is being accessed from the network.
	Green	The drive can be accessed.
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 being 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.

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.

Audio Alert

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.

Hot-swapping Failed Drives

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

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

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

Forcing Qfinder Pro or myQNAPcloud to Locate the NAS

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

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

Recovering Unintentionally Removed Healthy Drives

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

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

Support and Other Resources

QNAP provides the following resources:

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

6. Glossary

Cloud Key

Unique 8-digit code assigned to each NAS device

myQNAPcloud Link

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

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

myQNAPcloud ID

Email address that was used to register for a myQNAPcloud account

Qfinder Pro

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

QTS

QNAP NAS operating system

7. Notices

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Version 3, 29 June 2007

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END OF TERMS AND CONDITIONS

CE Notice



This QNAP NAS complies with CE Compliance Class B.

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.

VCCI Notice



VCCI-B

BSMI Notice



SJ/T 11364-2006



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显示	0	0	0	0	0	0
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金属螺帽	0	0	0	0	0	0
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