



QNAP

TS-x53E

TS-253E

TS-453E

User Guide

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1. Preface





About This Guide

This guide provides information about the device and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

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

Document Conventions

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

2. Product Overview

This chapter provides basic information about the QNAP device.

About the TS-x53E

The TS-x53E comes with an Intel® Celeron® J6412 4-core processor and 8 GB onboard memory. It has two 2.5 Gigabit Ethernet ports and two HDMI 1.4b ports for enhanced connectivity and multimedia support. Besides two M.2 SSD slots for extra storage, the TS-x53E also features USB One Touch Copy for easy and efficient 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](#).

Ordering P/N	Processor	Pre-installed memory	Drive bays
TS-253E-8G	Intel® Celeron® J6412	8 GB RAM (non-expandable)	2
TS-453E-8G			4

Component	TS-253E	TS-453E
Processor		
CPU	Intel® Celeron® J6412	
Frequency	4-core/4-thread 2.00 GHz base/2.60 GHz burst	
Architecture	x86 64-bit	
Encryption engine	AES-NI	
Memory		
Pre-installed memory	8 GB RAM (non-expandable)	
Maximum memory	8 GB RAM (non-expandable)	
Flash memory	4 GB (dual-boot OS protection)	
Storage		
Drive bays	2 x 3.5-inch SATA 6 Gbps	4 x 3.5-inch SATA 6 Gbps
	 Tip The drive bays are backward compatible with SATA 3 Gbps drives.	

Component	TS-253E	TS-453E
Drive compatibility	3.5-inch bays: <ul style="list-style-type: none"> • 3.5-inch SATA hard disk drives • 2.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives 	
Drive tray type	Key lock	
M.2 SSD slots	2 x PCIe Gen 3 x2	
M.2 SSD form factor	2280	
SSD cache acceleration support	This device supports SSD cache acceleration for all drives.	
Hot-swapping	The device supports hot-swapping drives except for the following: <ul style="list-style-type: none"> • M.2 SSDs 	
Network		
2.5 Gigabit network interface	2 x 2.5 GbE RJ45 <div style="display: flex; align-items: center; margin-top: 10px;">  <div> <p>Note</p> <p>The 2.5 Gigabit Ethernet port supports the following network connectivity speeds: 2.5 GbE, 1 GbE, 100 Mb, and 10 Mb.</p> </div> </div>	
Wake-on-LAN	Yes (RJ45)	
External I/O Ports		
USB ports	Front: <ul style="list-style-type: none"> • 1 x USB 3.2 Gen 2 Type-A <div style="display: flex; align-items: center; margin-top: 10px;">  <div> <p>Note</p> <p>This USB port supports One Touch Copy.</p> </div> </div> Rear: <ul style="list-style-type: none"> • 2 x USB 2.0 Type-A • 1 x USB 3.2 Gen 2 Type-A 	
HDMI ports	2 x HDMI 1.4b	
Interface		
Buttons	<ul style="list-style-type: none"> • Power • Reset • USB One Touch Copy 	
Dimensions		
Form factor	Tower	
Dimensions (H x W x D)	168.5 x 102 x 225 mm (6.63 x 4.02 x 8.86 in)	177 x 180 x 235 mm (6.97 x 7.09 x 9.25 in)
Net weight	1.28 kg (2.82 lbs)	3 kg (6.61 lbs)
Others		
Power supply unit	External 60W/65W Adapter, 100-240V AC, 50/60 Hz	External 90W Adapter, 100-240V AC, 50/60 Hz

Component	TS-253E	TS-453E
System battery	CR2032 lithium battery (3V, 220 mAh)	
	 Warning 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.	
Fans	System: 1 x 70mm, 12V DC fan	System: 1 x 120mm, 12V DC fan
	 Warning  To avoid potential injury or damage to components, do not touch the fans while the NAS is connected to a power source.	
Operating temperature	0°C to 40°C (32°F to 104°F)	
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) 	
Security slot	Kensington security slot	

**Tip**

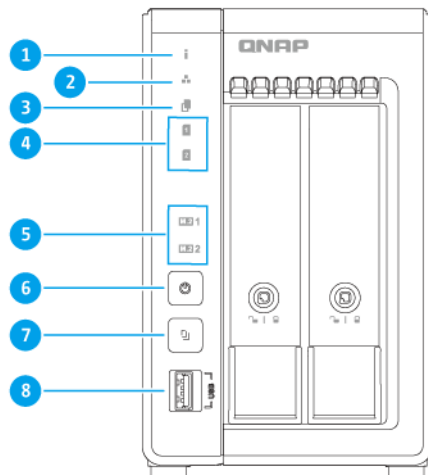
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

Package Contents

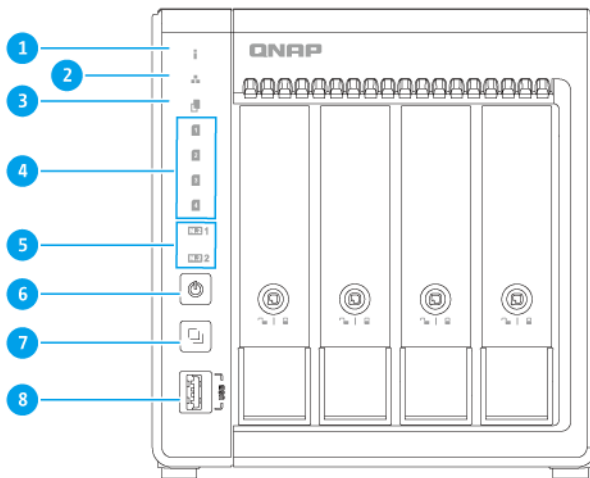
Item	Quantity
TS-253E / TS-453E	1
AC power adapter	1
Power cord	1
Ethernet cable	1 x Cat5e
Drive trays	<ul style="list-style-type: none"> • TS-253E: 2 • TS-453E: 4
Drive tray keys	2
Screws for 3.5-inch drives	<ul style="list-style-type: none"> • TS-253E: 8 • TS-453E: 16
Screws for 2.5-inch drives	<ul style="list-style-type: none"> • TS-253E: 6 • TS-453E: 12
Screws for M.2 SSDs	2
Quick Installation Guide (QIG)	1

Components

Front Panel



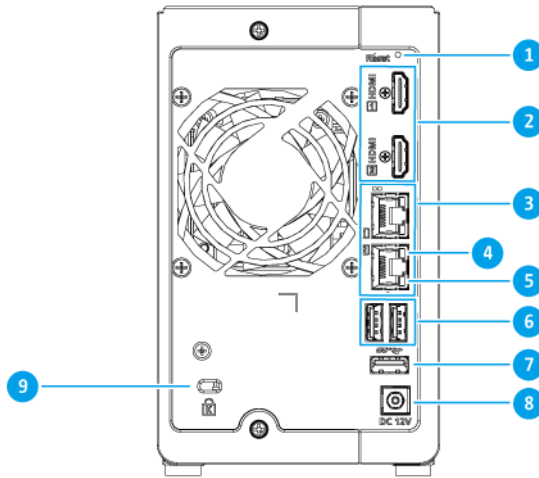
TS-253E



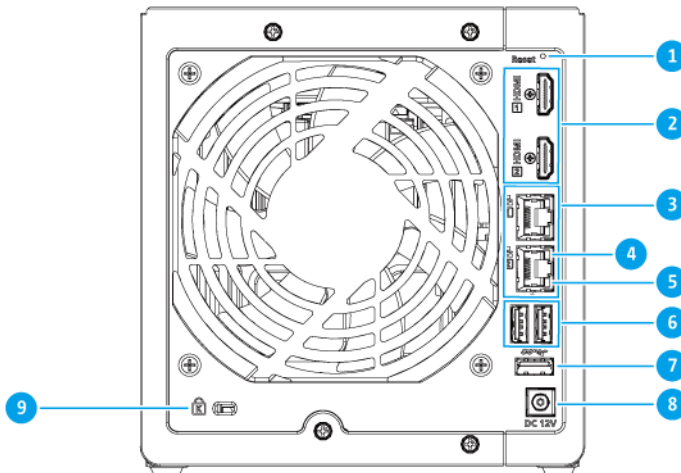
TS-453E

No.	Component	No.	Component
1	System status and power LED	5	M.2 SSD LEDs
2	LAN LED	6	Power button
3	USB One Touch Copy LED	7	USB One Touch Copy button
4	Drive LEDs	8	USB 3.2 Gen 2 One Touch Copy Type-A port

Rear Panel



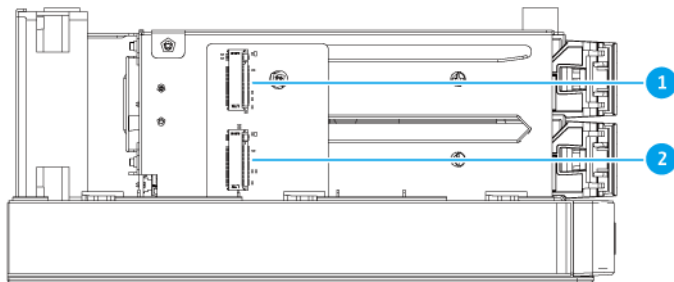
TS-253E



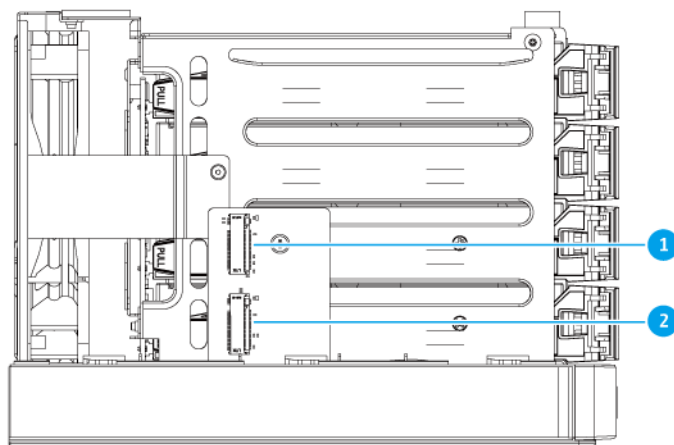
TS-453E

No.	Component	No.	Component
1	Reset button	6	USB 2.0 Type-A ports
2	HDMI 1.4b ports	7	USB 3.2 Gen 2 Type-A port
3	2.5 Gigabit Ethernet ports (RJ45)	8	Power input
4	2.5 Gigabit Ethernet activity LED	9	Kensington security slot
5	2.5 Gigabit Ethernet speed LED	-	-

Top Panel



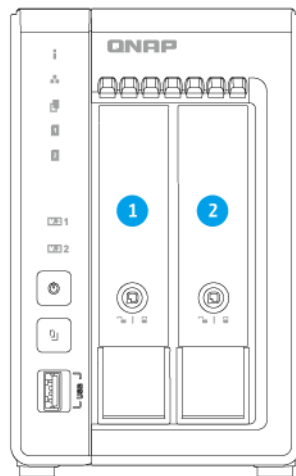
TS-253E



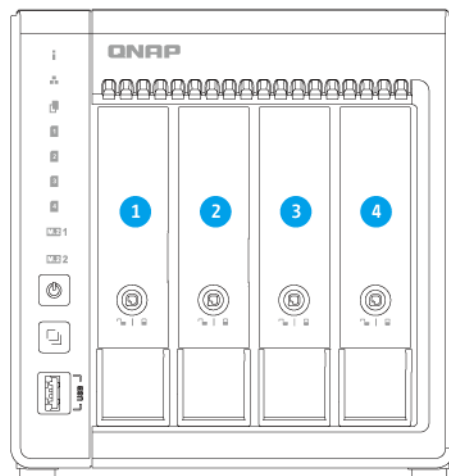
TS-453E

No.	Component	No.	Component
1	M.2 SSD slot 1	2	M.2 SSD slot 2

Drive Numbering



TS-253E



TS-453E

Safety Information

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

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.
- 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.

- The device is not suitable for use in locations where children are likely to be present.

Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> • Room temperature: 0°C to 40°C (32°F to 104°F) • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) • Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals • Free from objects that may obstruct device ventilation or apply pressure to the device or power cord
Hardware and peripherals	<ul style="list-style-type: none"> • Storage drives For the list of compatible drive models, go to https://www.qnap.com/compatibility. • Network cable

Category	Item
Tools	<ul style="list-style-type: none"> • Phillips #1 or #2 screwdriver • Flat head screwdriver • Anti-static wrist strap

Setting Up the NAS



Note

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

1. Place your NAS device in an environment that meets the requirements.
For details, see [Installation Requirements](#).
2. Install drives.
For details, see the following topics:
 - [Installing 2.5-inch Hard Drives or Solid-State Drives on 3.5-inch Trays](#)
 - [Installing 3.5-inch Hard Drives on 3.5-inch Trays](#)
 - [Installing M.2 Solid-State Drives on the Top Panel](#)
3. Optional: Connect expansion units.
For details, see [Connecting USB Expansion Units](#).
4. Connect the power cord and all applicable cables.
5. Power on the NAS.
6. Install QTS.
For details, see [QTS Installation](#).
7. 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 and connecting USB expansion units.

Drive Installation

The NAS is compatible with 3.5-inch and 2.5-inch SATA hard drives, 2.5-inch solid-state drives, and M.2 solid-state drives.

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.

•



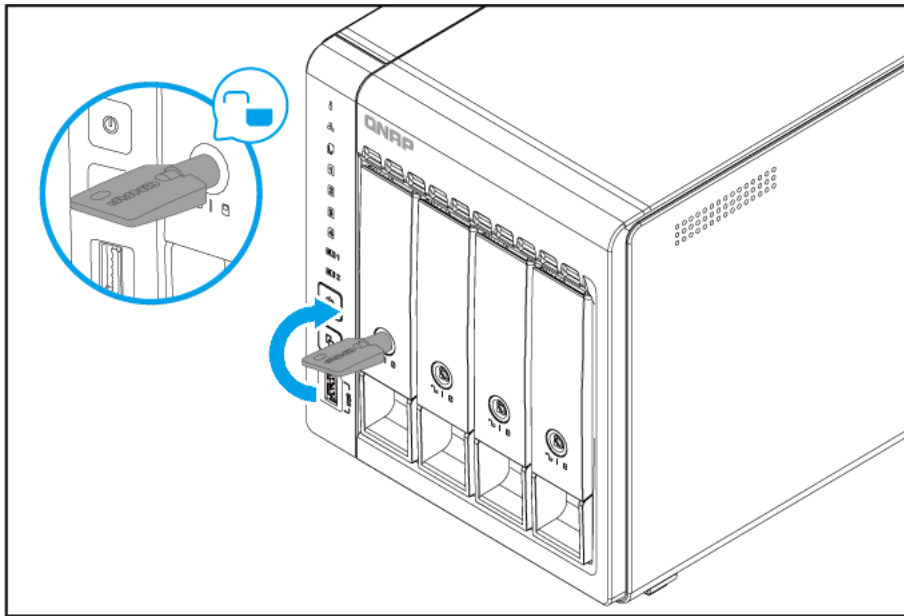
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

•



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

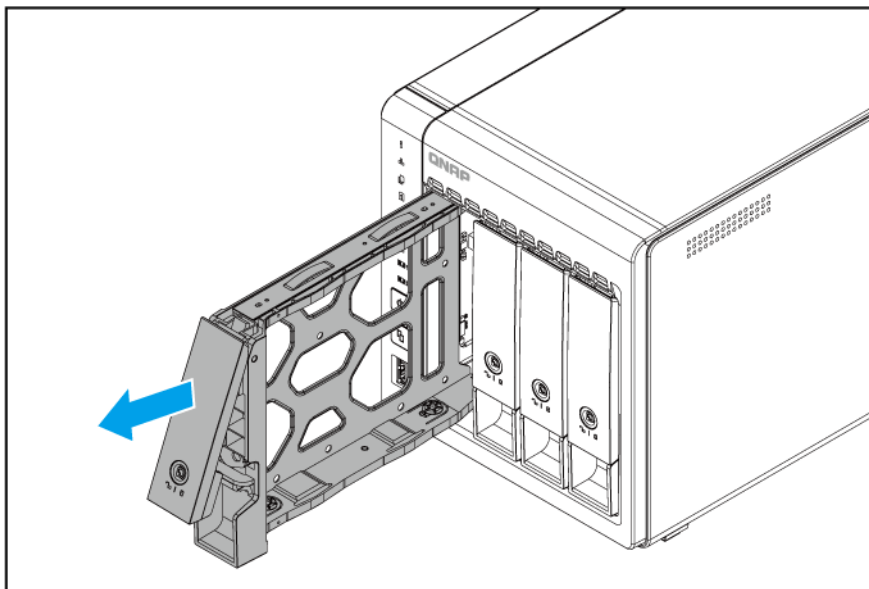
1. Power off the NAS.
2. Remove the drive tray.
 - a. Optional: Unlock the tray.



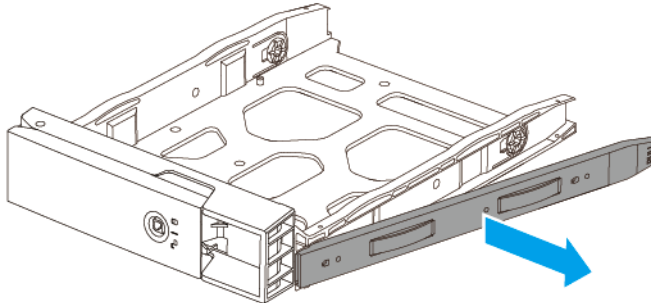
Note

The preinstalled drive trays come unlocked.

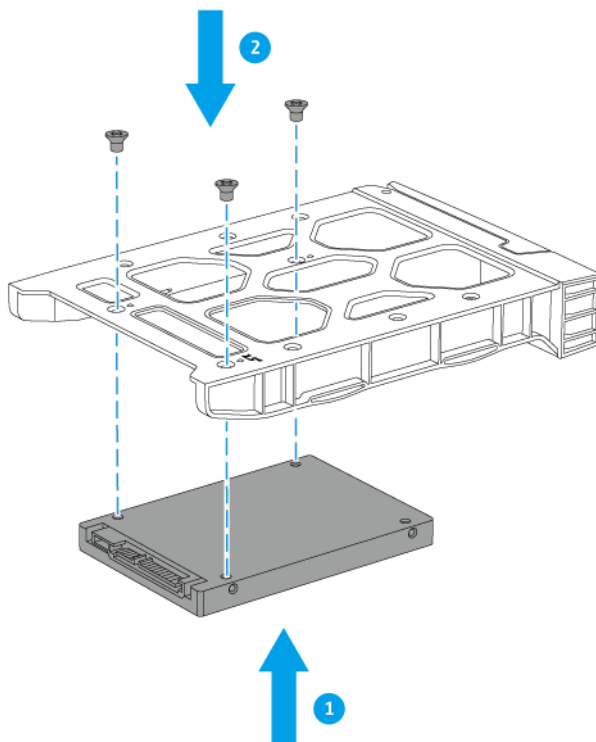
- b. Pull the handle to release the tray.
- c. Pull the tray out.



3. Install a drive on the tray.
 - a. Remove the right fastening panel from the drive tray.

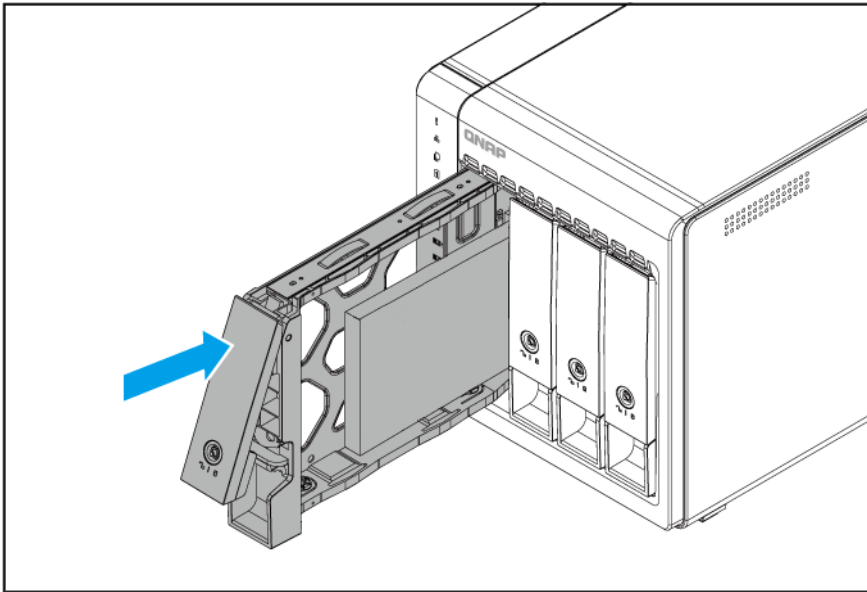


- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the screws.

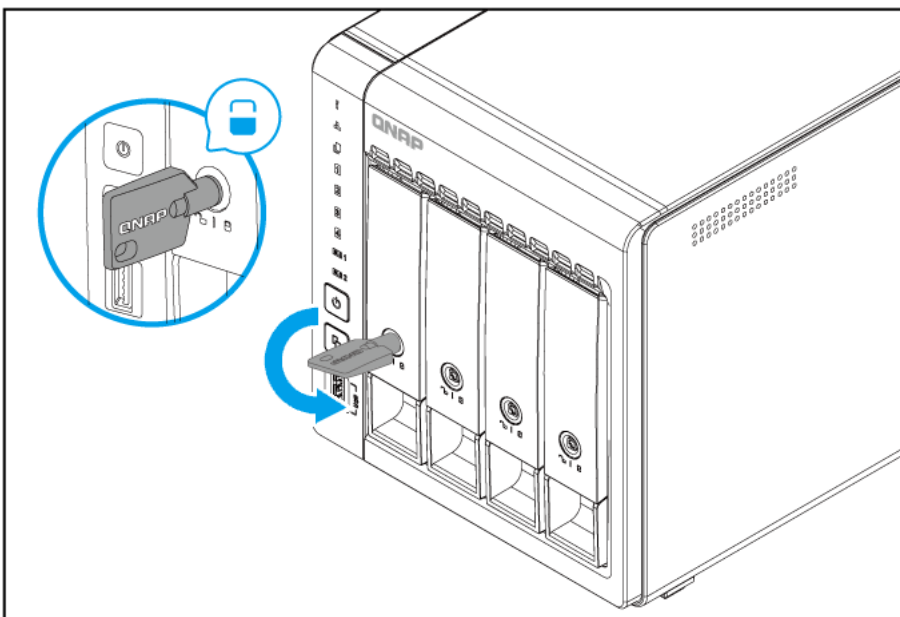


- 4.** Load the tray into the bay.
 - a.** Insert the tray into the bay.

b. Push the handle.



c. Lock the tray.



5. Power on the NAS.

Installing 3.5-inch Hard Drives on 3.5-inch Trays



Warning

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

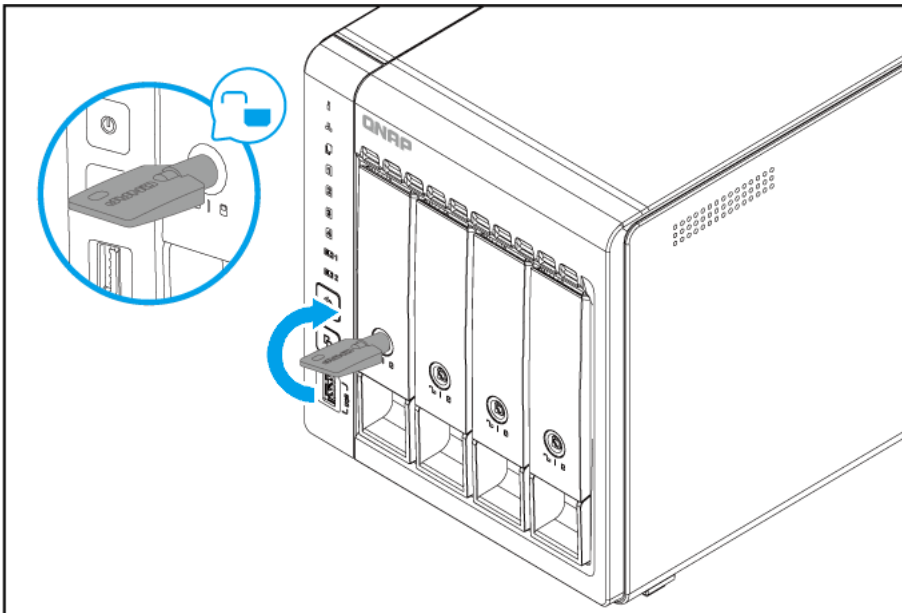


Moving fan blades: Keep your hands and other body parts away from moving fan blades.



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

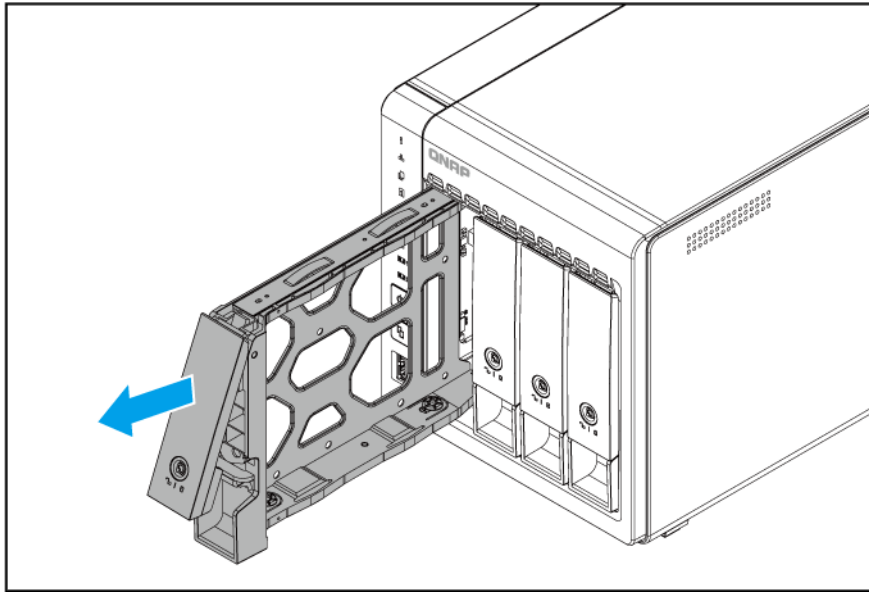
1. Power off the NAS.
2. Remove the drive tray.
 - a. Optional: Unlock the tray.



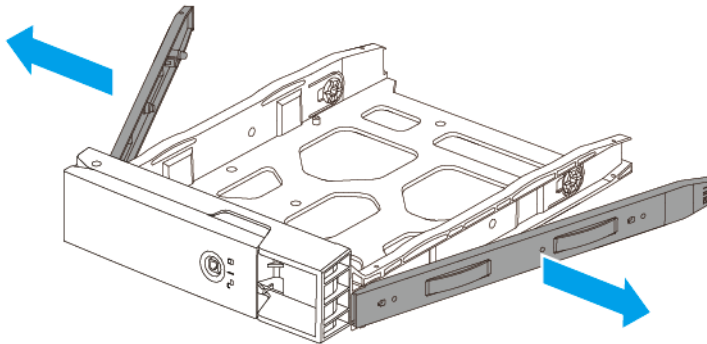
Note

The preinstalled drive trays come unlocked.

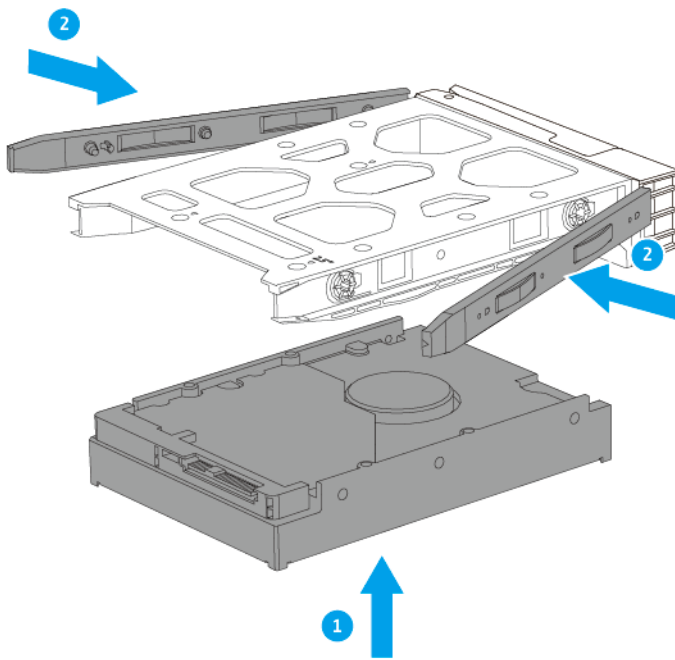
- b. Pull the handle to release the tray.
- c. Pull the tray out.



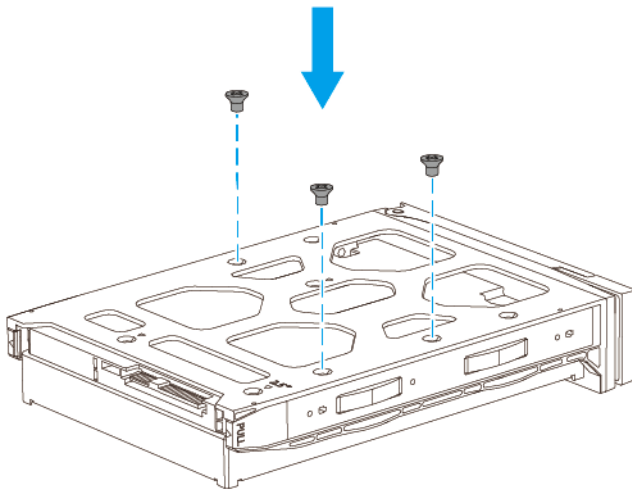
3. Install a drive on the tray.
 - a. Remove the fastening panels from the sides of the drive tray.



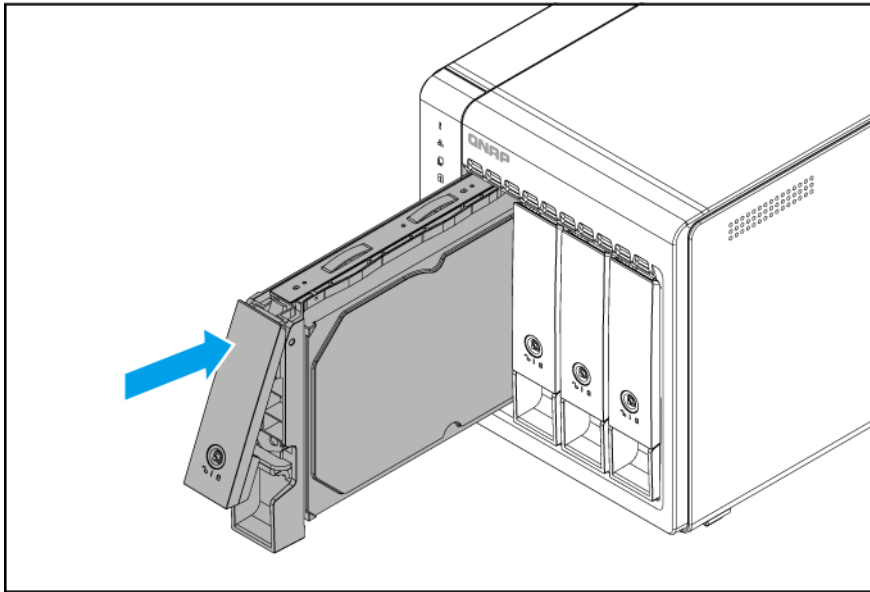
- b. Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
 - c. Attach the fastening panels to lock the drive to the tray.



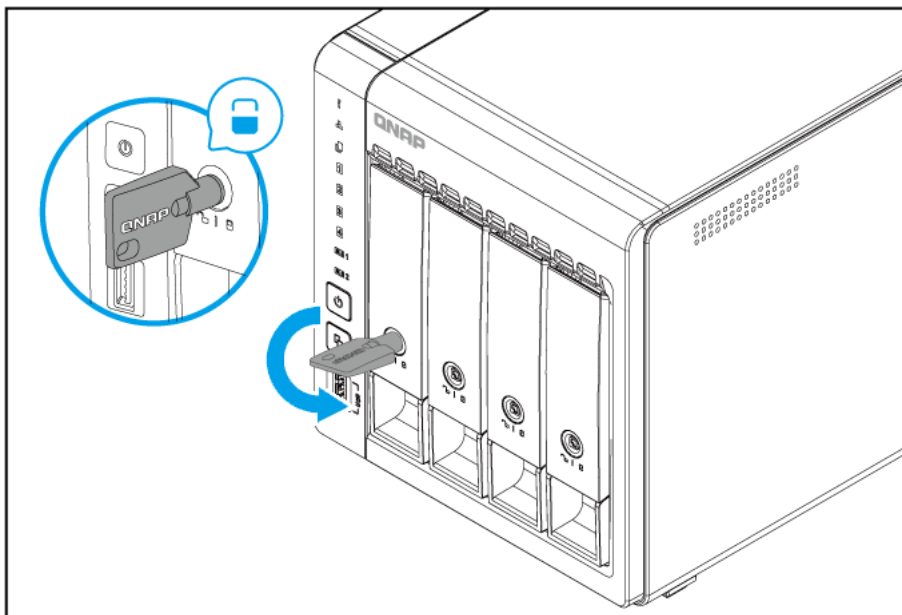
d. Optional: Attach the screws to further secure the drive.



- 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 M.2 Solid-State Drives on the Top Panel

The NAS has two M.2 SSD slots on the top panel.

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



Warning

- Installing a drive deletes all data on the drive.

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

-



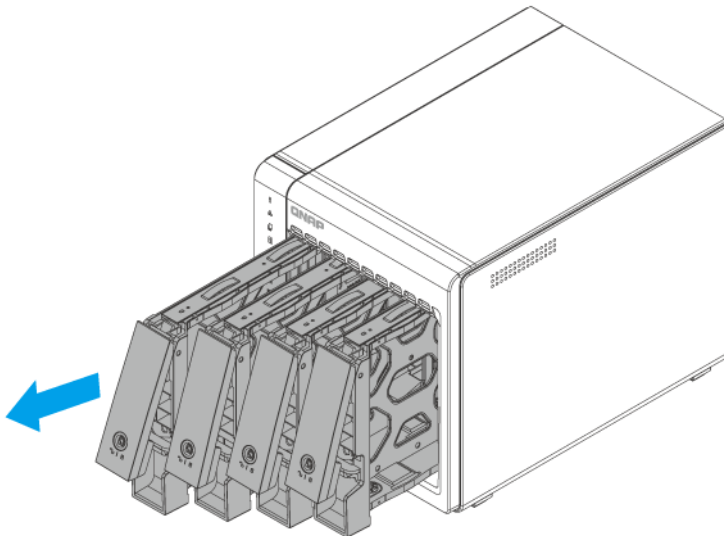
Moving fan blades: Keep your hands and other body parts away from moving fan blades.

-

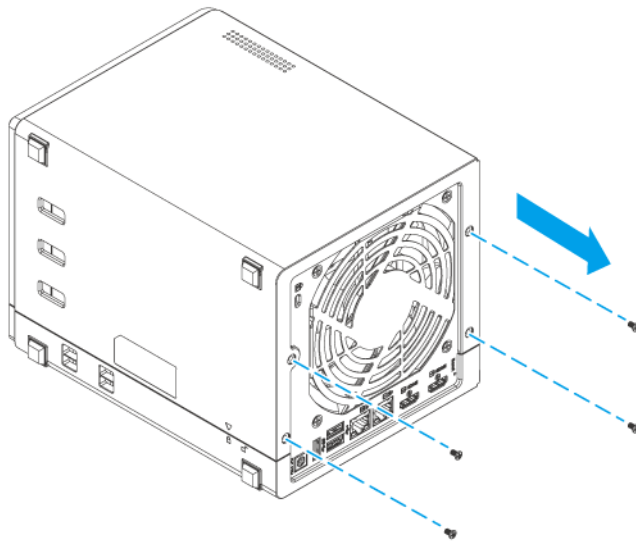


Other moving components: Keep your hands and other body parts away from other moving components.

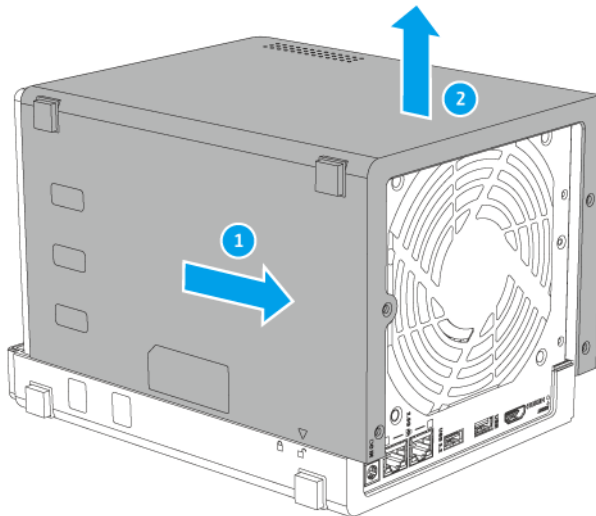
1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
 - a. Remove all drive trays.



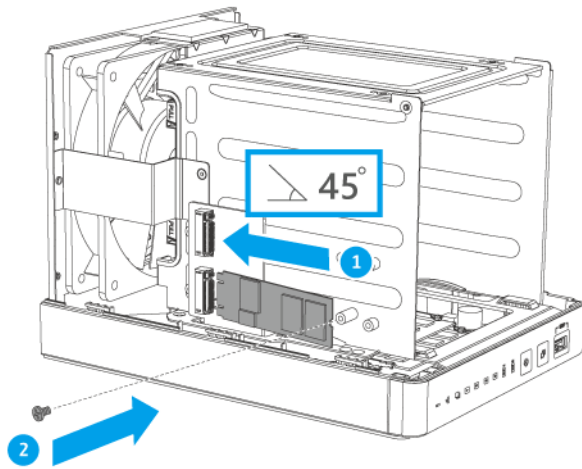
- b. Position the NAS on its left side.
- c. Remove the screws on the rear panel.



- d.** Slide the cover back.
- e.** Lift the cover until it is completely detached from the chassis.



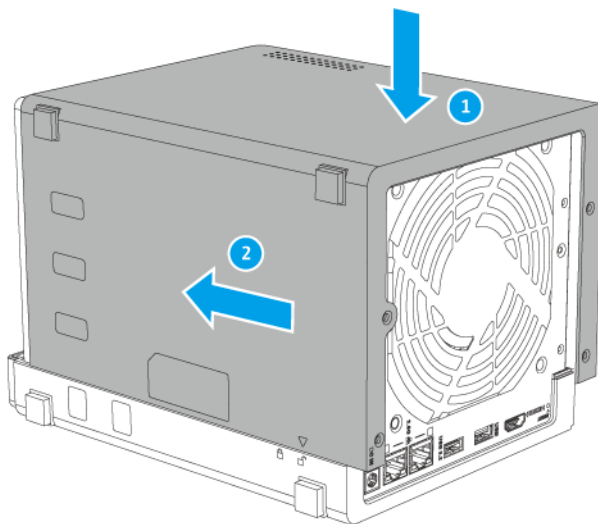
- 5.** Install the M.2 SSD.
 - a.** Insert the M.2 SSD into the slot.
 - b.** Attach the screw.



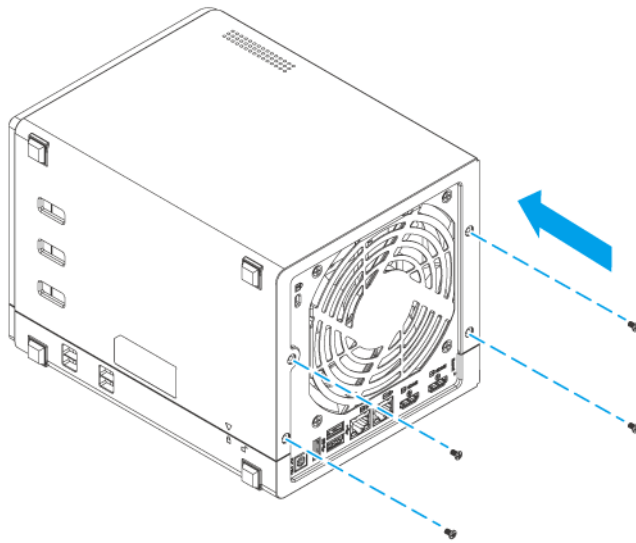
6. Optional: Install an additional M.2 SSD.

7. Attach the case cover.

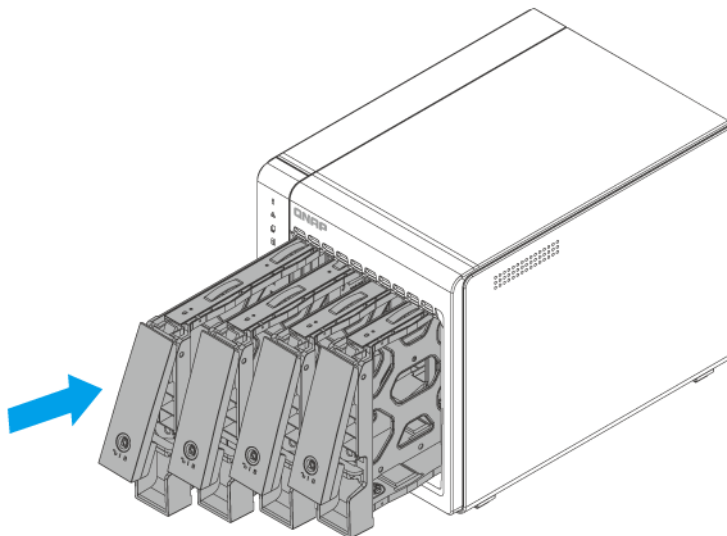
- a. Place the cover on the device.
- b. Slide the cover forward.



c. Attach the screws on the rear panel.



- d. Place the NAS in its normal upright position.
- e. Slide each drive tray back into the NAS.



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

Connecting USB Expansion Units

The NAS supports USB expansion units. For details, see the table below.

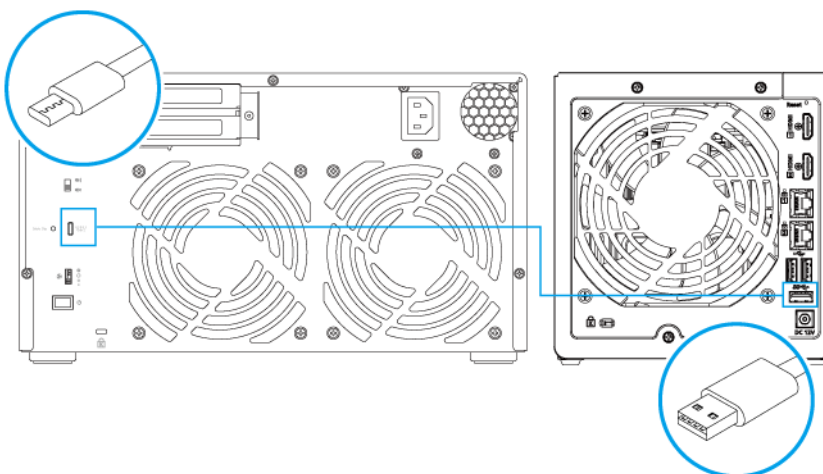
You can purchase storage expansion accessories from QNAP or an authorized reseller.

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

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

Expansion Unit Model	Description	Required Accessories
TR-002	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	USB 3.2 Gen 2 Type-A to Type-C cable
TR-004U	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 1 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 1 Type-A to Type-C cable • RAIL-B02
TL-D800C	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	USB 3.2 Gen 2 Type-A to Type-C cable
TL-R1200C-RP	<ul style="list-style-type: none"> • Uses a USB 3.2 Gen 2 Type-C interface • Supports SATA HDD/SDD 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 Type-A to Type-C cable • RAIL-B02

1. Verify that the NAS is powered off.
2. 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 2 Type-A port on the NAS.





Note

This image shows the TL-D800C connecting to the TS-453E.

3. Power on the expansion units.
4. Power on the NAS.
5. 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)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> • Locate the NAS using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. <p> Note For details see, Installing QTS Using Qfinder Pro.</p>	<ul style="list-style-type: none"> • Computer • Network cable • Qfinder Pro installer
Cloud installation	<p>If the NAS is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> • Scan the QR code on the NAS. • 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. <p> Note For details see, Installing QTS Using the Cloud Key</p>	<ul style="list-style-type: none"> • Computer or mobile device • myQNAPcloud account • Cloud Key
Local installation	<p>If the NAS supports HDMI output, you can do the following:</p> <ul style="list-style-type: none"> • Connect the NAS to the required hardware. • Complete the steps in the Smart Installation Guide wizard. 	<ul style="list-style-type: none"> • Monitor • HDMI cable • USB keyboard or Remote control (not available on all models)

Installing QTS Using Qfinder Pro



Warning

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



Important

To protect your NAS from brute force attacks, create a new system administrator account during QTS installation to disable the default "admin" account.

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. Click **Next**.
The QNAP **Warranty Service** page opens in the default web browser.
5. Click **Check warranty**.
The QNAP **Warranty Service** window opens in a new web page.



Important

You can check your device warranty policy or purchase an extended warranty plan at [QNAP Warranty Service](#).

6. Close the warranty page.
The **Smart Installation Guide** opens in the default web browser.
7. Click **Next**.
The **Enter the NAS name and administrator's password** screen appears.
8. 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.
 - **Username:** Specify an administrator username that contains 1 to 32 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.
The username cannot contain the following special characters: grave accent (`), asterisk (*), equal sign (=), plus sign (+), square brackets ([]), backslash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), slash (/), question mark (?), percent sign (%)
 - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
 - **Confirm Password:** Enter the new administrator password again.
9. Click **Next**.
The **Set the date and time** screen appears.
10. Specify the time zone, date, and time using any of the following methods:

**Tip**

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

Methods	User Actions
Synchronize with computer or device time	Select Same as the computer/device time The NAS time will be the same as your computer or device used to configure the time.
Enter manually	<ol style="list-style-type: none"> a. Select Input Manually. b. Specify the date and time. The NAS date and time will be the same as the configured time.
Synchronize with an Internet time server automatically	Click Synchronize with an Internet time server automatically . The NAS time will be the same as the NTP server.

11. Click **Next**.
The **Configure the network settings** screen appears.
12. Configure the network settings using any of the following methods.

Methods	User Actions
Obtain an IP address automatically (DHCP)	Select Obtain an IP address automatically (DHCP) The system automatically detects and configures the IP address settings.
Use static IP address	<ol style="list-style-type: none"> a. Select Use static IP address. The IP address configuration page appears. b. Specify the following IP address configurations: <ul style="list-style-type: none"> • Interface • IP Address • Subnet Mask • Default Gateway • Primary DNS server • Secondary DNS server

13. Click **Next**.
The **Thunderbolt Connection** page appears.

**Note**

This page only appears if your device supports Thunderbolt. You will need to connect your device to a computer using a Thunderbolt cable.

14. Click **Next**.
The **Summary** screen appears.
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.



Important

To protect your NAS from brute force attacks, create a new system administrator account during QTS installation to disable the default "admin" account.

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 your respective region's site to download QTS:
 - China: <https://install.qnap.com.cn>
 - Global: <https://install.qnap.com>
 - Scan the QR code on the NAS using a mobile device.

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

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



Note

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

The installation wizard opens in the default web browser

5. Create an account or sign in to myQNAPcloud.



Note

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

6. Specify the myQNAPcloud device name for the NAS.



Note

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

7. Click **Next**.
The QNAP **Warranty Service** page opens in the default web browser.

8. Click **Check warranty**.

The QNAP **Warranty Service** window opens in a new web page.



Important

You can check your device warranty policy or purchase an extended warranty plan at [QNAP Warranty Service](#).

9. Close the warranty page.

The **Smart Installation Guide** opens in the default web browser.

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.
- **Username:** Specify an administrator username that contains 1 to 32 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.
The username cannot contain the following special characters: grave accent (`), asterisk (*), equal sign (=), plus sign (+), square brackets ([]), backslash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), slash (/), question mark (?), percent sign (%), or "admin".
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

11. Click **Next**.

The **Set the date and time** screen appears.

12. Specify the time zone, date, and time using any of the following methods:



Tip

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

Methods	User Actions
Synchronize with computer or device time	Select Same as the computer/device time The NAS time will be the same as your computer or device used to configure the time.
Enter manually	<p>a. Select Input Manually.</p> <p>b. Specify the date and time. The NAS date and time will be the same as the configured time.</p>
Synchronize with an Internet time server automatically	Click Synchronize with an Internet time server automatically . The NAS time will be the same as the NTP server.

13. Click **Next**.

The **Configure the network settings** screen appears.

14. Configure the network settings using any of the following methods.

Methods	User Actions
Obtain an IP address automatically (DHCP)	Select Obtain an IP address automatically (DHCP) The system automatically detects and configures the IP address settings.
Use static IP address	<p>a. Select Use static IP address. The IP address configuration page appears.</p> <p>b. Specify the following IP address configurations:</p> <ul style="list-style-type: none"> • Interface • IP Address • Subnet Mask • Default Gateway • Primary DNS server • Secondary DNS server

15. Click **Next**.
The **Thunderbolt Connection** page appears.

**Note**

This page only appears if your device supports Thunderbolt. You will need to connect your device to a computer using a Thunderbolt cable.

16. Click **Next**.
The **Summary** screen appears.
17. Review the settings.
18. Click **Apply**.
A confirmation message appears.

**Warning**

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

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

Installing QTS Using an HDMI Connection

**Warning**

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

**Important**

To protect your NAS from brute force attacks, create a new system administrator account during QTS installation to disable the default "admin" account.

1. Connect an HDMI display to the NAS.
2. Connect a USB keyboard to the NAS or prepare the QNAP IR remote control (not available on all models).
3. Power on the NAS.

The **Welcome** screen of the Smart Installation Guide appears.

4. Select Start Smart Installation Guide.

The **Enter the NAS name and administrator's password** screen appears.

5. 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.
- **Username:** Specify an administrator username that contains 1 to 32 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.
The username cannot contain the following special characters: grave accent (`), asterisk (*), equal sign (=), plus sign (+), square brackets ([]), backslash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), slash (/), question mark (?), percent sign (%)
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

6. Click Next.

The **Thunderbolt Connection** page appears.



Note

This page only appears if your device supports Thunderbolt. You will need to connect your device to a computer using a Thunderbolt cable.

7. Click Next.

The **Summary** screen appears.

8. Review the settings.

9. Click Next.

The **Confirm** screen appears.



Warning

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



10. Click Next.

QTS is installed.

4. Basic Operations

This chapter describes basic NAS operations.

Power Button


Operation	User Action	Result
Power on	Press the button once.	The device powers on.
Power off	Press and hold the button for 1.5 seconds.	The device powers off.
Force power off	Press and hold the button for 10 seconds.	<p>The device powers off.</p> <p> Important Use this method only when the device is unresponsive.</p> <p> Note After forcing the device to power off, the fans will spin very fast for about 3 seconds. This is normal and to be expected.</p>

Reset Button



Important

- The default "admin" account is automatically enabled after the system reset.
- To protect your device from brute force attacks, QNAP recommends disabling the default "admin" account after a system reset. To disable the account, change the default admin password, log out of QTS, and then log in to QTS with another admin account.

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> System administrator password: The default password is the first MAC address in uppercase letters without special characters. For example, if the first MAC address is 00-08-9B-F6-15-75, then the admin password would be 00089BF61575. <p> Tip You can find the first MAC address with Qfinder Pro or attached to a label on the device listed as MAC1.</p> <ul style="list-style-type: none"> The admin account is automatically enabled. TCP/IP configuration: <ul style="list-style-type: none"> Obtain IP address settings automatically via DHCP Disable jumbo frames If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)". System port: 8080 (system service port) Security level: Low (Allow all connections) LCD panel password: (blank) VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	<p>The default factory settings are restored.</p> <ul style="list-style-type: none"> To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

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.

To configure the behavior of the button when an external device is connected to the button's USB port, install and use Hybrid Backup Sync on your QNAP operating system. For details, see the [Hybrid Backup Sync](#) documentation.

LEDs

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

For details on the location of the LEDs, see [Front Panel](#) and [Rear Panel](#).

LED	Status	Description
System status and power	Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> The drive is being formatted. The device is being initialized. The operating system is being updated. RAID rebuilding is in progress. Online RAID Capacity Expansion is in progress. Online RAID Level Migration is in progress.
	Red	<ul style="list-style-type: none"> The drive is invalid. The disk volume has reached its full capacity. The disk volume is about to reach its full capacity. The system fan is not functioning. An error occurred when accessing (read/write) the data. A bad sector is detected on the hard drive. The device is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read). A hardware self-test error occurred.
	Flashes red every 0.5 seconds	The device is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
	Flashes green every 0.5 seconds	<ul style="list-style-type: none"> The device is not configured. A drive is not formatted.
	Green	The device is ready.
	Off	<ul style="list-style-type: none"> All drives are in standby mode. The device is powered off.
LAN	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	The device is not connected to a network.
USB One Touch Copy	Flashes blue every 0.5 seconds	<ul style="list-style-type: none"> A USB device connected to the USB One Touch Copy port is detected. A USB device connected to the front USB port is being removed from the device. A USB device connected to the front USB port is being accessed.
	Blue	A USB device is detected in the front USB port.
	Off	<ul style="list-style-type: none"> No USB device is detected. The NAS has finished copying data to or from the USB device connected to the front USB port.

LED	Status	Description
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occurred.
	Flashes green	Data is being accessed.
	Green	The drive is ready.
	Off	No drive was detected.
M.2 SSD	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occurred.
	Flashes green	Data is being accessed.
	Green	The drive is ready.
	Off	No drive was detected.
2.5 Gigabit Ethernet speed	Green	The network connection is operating at 2.5 Gbps.
	Orange	<ul style="list-style-type: none"> The network connection is operating at 1 Gbps. The network connection is operating at 100 Mbps.
	Off	<ul style="list-style-type: none"> The network connection is operating at 10 Mbps. There is no network connection.
2.5 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	There is no network connection.

Audio Alerts

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> The NAS is starting up. When the reset button is pressed for 3 seconds, the NAS resets configurations. When the reset button is pressed for 15 seconds, the NAS resets configurations and reboots. The operating system was updated. The device is starting USB One Touch Copy.
	2	The USB device has been removed (USB One Touch Copy button).
	3	<ul style="list-style-type: none"> Cannot detect installed disk. The firmware was updated.

Duration	Frequency	Description
Long beep (1.5 seconds)	3 (every 5 minutes)	<ul style="list-style-type: none"> • A power error occurred. • The system fan is not functioning. • The fan module has been removed. • The NAS data cannot be copied to the external storage device connected to the front USB port.
	2	<ul style="list-style-type: none"> • The storage pool is about to reach full capacity. • The storage pool has reached full capacity. • A storage pool status error occurred. • The disk volume is about to reach its full capacity. • The disk volume has reached its full capacity. • The drives are in degraded mode. • The drive is rebuilding. • The USB device is being removed (USB One Touch Copy button). • A drive is plugged in or out.
	1	<ul style="list-style-type: none"> • The NAS is powering off. • The NAS was powered off by force shutdown (hardware shutdown). • The NAS was powered on successfully and is ready.

5. NAS Migration

You can migrate data and settings from your current NAS to another NAS model with minimal disruptions by installing all the hard drives from the source NAS to the destination NAS. RAID configuration and other settings are retained on the destination NAS after migration.

NAS Migration Requirements

You can only migrate drives to specific NAS models, depending on your source NAS. For the list of NAS models compatible with direct NAS migration, see <https://www.qnap.com/go/nas-migration>.

Your device must meet the following requirements:

- QTS NAS supports several types of NAS migration:
 - ARM NAS to an ARM NAS
 - x86 NAS to an x86 NAS
 - ARM NAS to an x86 NAS



Note


You cannot migrate from an x86 NAS to an ARM NAS.




- The destination NAS must run on the same QTS version as the source NAS (or later).
- The destination NAS must have sufficient free drive bays to accommodate all the drives that you are migrating from the source NAS.

For NAS models that do not support NAS migration, you can migrate existing data using HBS 3. For details, see [Migrating NAS Data Using HBS 3](#).

Status and Setting Changes after NAS Migration

The status of NAS data and settings varies after migration.

Data and Settings	After NAS Migration
Registered myQNAPcloud name	Your registered myQNAPcloud name is not migrated.
Encrypted disk volumes	<p>If the NAS does not support file system encryption, encrypted disk volumes are not migrated.</p> <p> Warning To prevent data loss, back up and save the encryption keys of encrypted disk volumes in a safe place. You can also choose to decrypt disk volumes before migration.</p>

Data and Settings	After NAS Migration
Shared folders	<p>All shared folders and the downloaded files stored in them are retained.</p> <p> Warning To prevent data loss, back up and save encryption keys or passwords of encrypted shared folders in a safe place before migration.</p> <p> Important Folder permissions on the destination NAS must be reconfigured after migration.</p>
Network	<ul style="list-style-type: none"> • If the number of network ports or network port specifications on the destination NAS is different from the source NAS, the following network and virtual settings may change and require reconfiguration: port trunking, virtual machines, Thunderbolt, USB QuickAccess, and more. • You must reconfigure network settings when the source NAS is running on QTS 4.3.5 or earlier versions.
Windows AD configuration	Windows AD configurations must be reconfigured.
Licenses	<p>Licenses are not migrated.</p> <p> Warning To prevent losing all your software licenses, QNAP recommends deactivating licenses on the source NAS before data migration.</p>
Applications	If the destination NAS has less RAM than the source NAS, the following features and applications might not function: Virtualization Station, Qsirch, and Snapshots.
Services	Only services supported by the destination NAS are available.
Multimedia features	Some multimedia features are disabled by default.

Migrating a NAS



Important

Before performing NAS migration, ensure that you understand all requirements and possible changes after migration. For details see the following topics:

- [NAS Migration Requirements](#)
- [Status and Setting Changes After NAS Migration](#)

1. Power off the source NAS and the destination NAS.
2. Remove the drives.



Important

QNAP recommends following the source NAS drive order when installing the drives. Take note of the drive tray order when removing the drives.

- a. Remove the drives from the source NAS.
 - b. Remove the drive trays from the destination NAS.
3. Install the drives.
 - a. Install source NAS drives onto the destination NAS drive trays.
 - b. Insert the drive trays into the destination NAS.
4. Power on the destination NAS.
5. Log on to QTS as an administrator on the destination NAS.
The destination NAS automatically checks for the latest firmware update.

Migrating NAS Data Using HBS 3

For NAS models that do not support direct migration, you can initialize the destination NAS then copy data from the source NAS to the destination NAS using HBS 3.

Preparing the Destination NAS



1. Log on to QTS.
2. Create one or more storage pools.
For details, see the [Creating a Storage Pool](#) topic in the QTS user guide.
3. Create one or more volumes.
For details, see the [Volume Creation](#) topic in the QTS user guide.
4. Create shared folders on the destination NAS.
For details, see the [Creating a Shared Folder](#) topic in the QTS user guide.
5. Install HBS 3 onto the destination NAS.
 - a. Go to **App Center**.
 - b. Search for HBS 3.
 - c. Click **Install**.
HBS 3 is installed on the destination NAS.
6. Enable the remote server settings on the destination NAS.
 - a. Go to **App Center > HBS 3 > Services > RTRR Server**.
 - b. Click **Enable RTRR Server**.
The RTRR server settings window appears.
 - c. Specify the **RTRR Server** settings.

Setting	Description
Password	Specify a password that contains 1 to 16 characters from any of the following groups: <ul style="list-style-type: none"> • Letters: A to Z, a to z • Numbers: 0 to 9 • Special characters: . - _ ~ ! @ # \$ % ^ & () { } • Does not start or end with a space.
Port	Specify a port number to access the RTRR server.

7. Click **Apply**.
A confirmation window appears.
8. Click **OK**.
The remote server settings are completed.

Creating a One-Way Sync Job

1. On the source NAS, go to **App Center > HBS 3 > Sync**.
2. Click **Sync Now**.
3. Select **One-way Sync Job**.
The **Create a Sync Job** window appears.
4. Click **Remote NAS**.
5. Click **Add New Account**.
The **Create a Storage Space** window appears.
6. Select the destination NAS as the destination storage space and specify the following:

Setting	Description
Name	The name used to identify the storage space.
IP address / Host name	The IP address or hostname used to access the storage space.  Tip Click  to scan for available devices.
Port	The port number used to access the storage space. This value must be between 1 to 65535.
Password	The password used to access the storage space.
Use SSL connection	Requires SSL connection when accessing the remote NAS.

7. Optional: Test the connection.

Test	Description
Detect Server	Tests the accessibility of the selected storage space.
Speed Test	Tests the network connection speed of the selected storage space.

8. Click **Create**.
9. Click **Select**.

10. Select the paired folders.



Important

- All subfolders and files in the selected folder are selected.
- You can only sync up to 16 paired folders per job.

- a. Under the source, click **+**.
A dialog box opens.
- b. Select a folder.
- c. Click **OK**.
The dialog box closes.
- d. Under the destination, click **+**.
A dialog box opens.
- e. Select a folder.
- f. Click **OK**.
- g. Optional: Add more paired folders if necessary.

11. Click **Next**.
The **Schedule** screen appears.

12. Select **Sync now**.

13. Click **Next**.
The **Rules** screen appears.

14. Optional: Configure job rules.

15. Click **Next**.
The **Summary** screen appears.

16. Review the job summary.

17. Click **Create**.
The source NAS runs the created one-way sync job.



Note

It may take several minutes to migrate shared folders from the source NAS to the destination NAS.

Importing Local Users or Group Settings to the Destination NAS

1. Power on the source NAS.
2. Back up the users or group settings from the source NAS.
 - a. Log on to QTS.
 - b. Go to **Control Panel > Privilege > Users**.
 - c. Click **Create**, and then click **Import/Export Users**.
The **Import/Export Users** window appears.

- d. Select **Export user and user group settings**.
 - e. Click **Next**.
The NAS user and user group settings are exported as a file and downloaded onto your computer.
3. Import user settings on the source NAS to the destination NAS.
 - a. On the destination NAS, log on to QTS.
 - b. Go to **Control Panel > Privilege > Users** .
 - c. Click **Create**, and then click **Import/Export Users**.
 - d. Select **Import user and user group settings**.

**Note**

You can select whether to send a notification mail to newly created users or overwrite duplicate users.

- e. On your computer, select the user settings file exported from the source NAS.
The source NAS user settings file is imported to the destination NAS.

6. Troubleshooting

This chapter describes basic troubleshooting information.

Forcing Qfinder Pro or myQNAPcloud to Locate the NAS

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

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

Hot-Swapping Failed Drives

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

RAID Type	Situation
RAID 1	One member drive fails.
RAID 5	One member drive fails.
RAID 6	One or two member drives fail.
RAID 10	<ul style="list-style-type: none"> • One member drive fails. • Two member drives in two different pairs 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 device.
6. Wait for 20 seconds or until the device 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 > Storage/Snapshots** .
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 groups from unintentional disconnection or removal of drives. Users can recover an inactive RAID 1, RAID 5, RAID 6, or RAID 10 group from degraded mode.

RAID Type	RAID Recovery Support	Disk Failure Tolerance
Single	No	N/A
JBOD	No	N/A
RAID 0	No	N/A
RAID 1	Yes	1
RAID 5	Yes	1
RAID 6	Yes	2
RAID 10	Yes	One disk per subgroup fails.

Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	https://download.qnap.com
Compatibility List	https://www.qnap.com/compatibility
NAS Migration Compatibility	https://www.qnap.com/go/nas-migration
Expansion Unit Compatibility	https://www.qnap.com/go/compatibility-expansion
Service Portal	https://service.qnap.com
Product Support Status	https://www.qnap.com/go/product/eol.php
Downloads	https://download.qnap.com
Community Forum	https://forum.qnap.com
QNAP Accessories Store	https://shop.qnap.com

7. Glossary

Cloud Key

Unique 8-digit code assigned to each NAS device

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

myQNAPcloud Link

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

Qfinder Pro

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

QNAP ID

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

QTS

QNAP NAS operating system

8. Notices

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

Limited Warranty

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

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Back up the system periodically to avoid any potential data loss is recommended. QNAP disclaims any responsibility of all sorts of data loss or recovery.

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

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

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

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Version 3, 29 June 2007

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FCC Notice

FCC Class B Notice



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



Important

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VCCI Notice



VCCI-B

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SJ/T 11364-2006



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