



**QNAP**

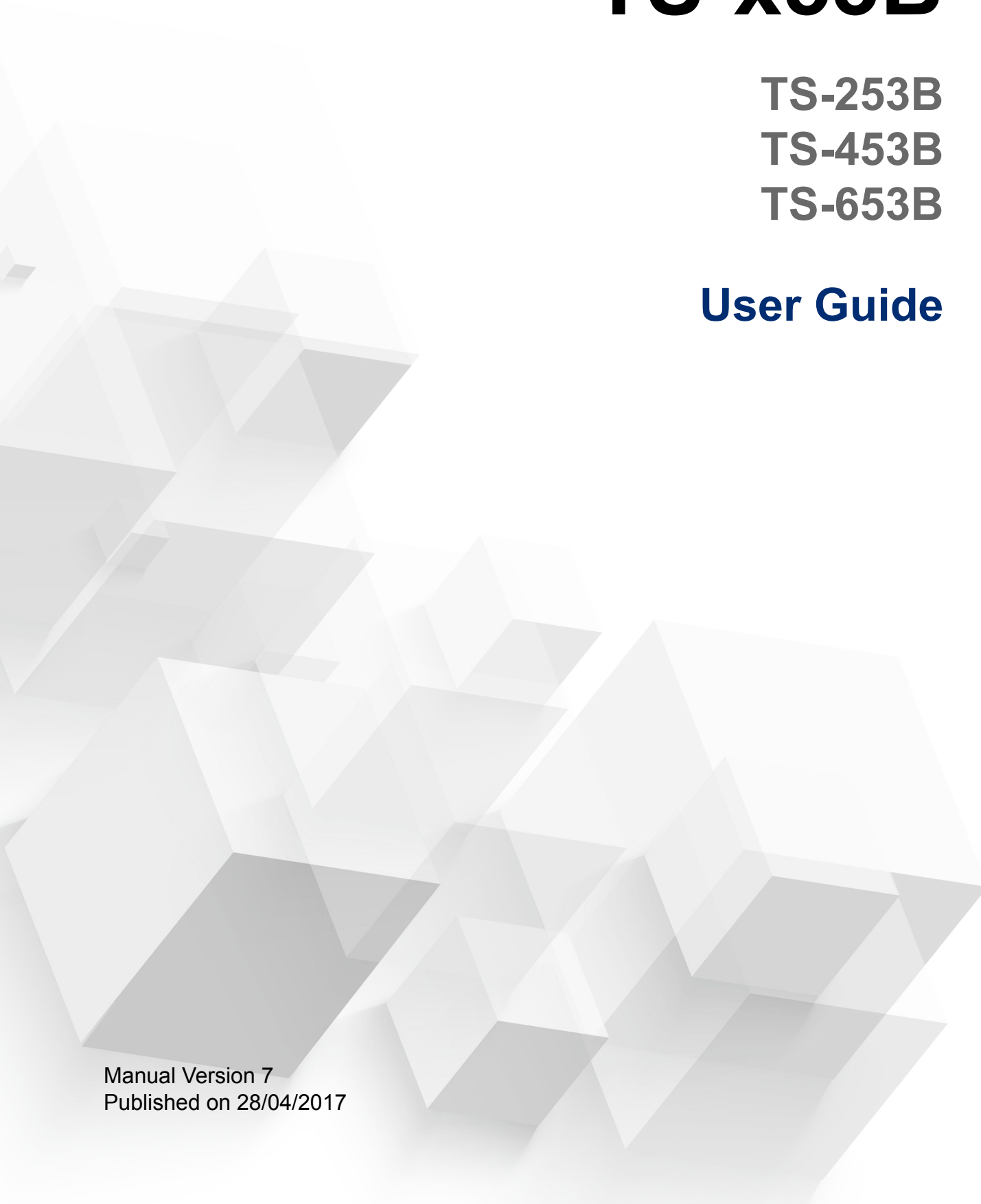
# **TS-x53B**

**TS-253B**

**TS-453B**

**TS-653B**

**User Guide**



Manual Version 7  
Published on 28/04/2017

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# 1. Preface





## About This Guide

This guide provides information on the QNAP TS-x53B NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

## Audience

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

## Document Conventions

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

## 2. Product Overview

This chapter provides basic information about the QNAP TS-x53B NAS.

### About TS-x53B

TS-x53B is powered by a next generation Intel® Celeron® J3455 quad-core 1.5 GHz processor with burst frequency up to 2.3 GHz and dual-channel 4 GB or 8 GB RAM. The NAS comes with two gigabit LAN ports that can be upgraded to a 10 GbE configuration for lightning-fast multi-tasking with low power consumption. The TS-x53B supports 4K (H.264) video playback, and 1080P or 4K real-time transcoding.

With an accelerated AES-NI engine, the TS-x53B also provides AES 256-bit encryption to enhance system performance and security, and to protect sensitive business data.

### Hardware Specifications



#### Important

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

Component	TS-253B	TS-453B	TS-653B
Ordering P/N	<ul style="list-style-type: none"> <li>TS-253B-4G</li> <li>TS-253B-8G</li> </ul>	<ul style="list-style-type: none"> <li>TS-453B-4G</li> <li>TS-453B-8G</li> </ul>	<ul style="list-style-type: none"> <li>TS-653B-4G</li> <li>TS-653B-8G</li> </ul>
Drive bays	2 x SATA 6Gb/s	4 x SATA 6Gb/s	6 x SATA 6Gb/s
Drive compatibility	<ul style="list-style-type: none"> <li>3.5-inch hard disk drives</li> <li>2.5-inch hard disk drives</li> <li>2.5-inch solid state drives</li> </ul>		
CPU	Intel® Celeron® J3455 quad-core 1.5 GHz, burst up to 2.3 GHz		
Encryption engine	AES-NI		
Graphics	Intel® HD Graphics 500		
Memory	<ul style="list-style-type: none"> <li>TS-253B-4G: 4 GB DDR3L (2 x 2 GB)</li> <li>TS-253B-8G: 8 GB DDR3L (2 x 4 GB)</li> </ul>	<ul style="list-style-type: none"> <li>TS-453B-4G: 4 GB DDR3L (2 x 2 GB)</li> <li>TS-453B-8G: 8 GB DDR3L (2 x 4 GB)</li> </ul>	<ul style="list-style-type: none"> <li>TS-653B-4G: 4 GB DDR3L (2 x 2 GB)</li> <li>TS-653B-8G: 8 GB DDR3L (2 x 4 GB)</li> </ul>
Maximum memory	8 GB (2 x 4 GB)		
Memory slots	2 x DDR3L SODIMM slots		
	<b>Note</b> To use the dual-channel configuration, you must install identical DDR3L modules.		
Flash memory	4 GB eMMC		
10 gigabit Ethernet ports	Optional: 10GbE port through a PCIe expansion card		
Gigabit Ethernet ports	2 x RJ45 ports		
PCIe slots	1 x PCIe 2.0 x2 slot		

Component	TS-253B	TS-453B	TS-653B
USB ports	<ul style="list-style-type: none"> <li>• Front: 1 x USB 3.0 port</li> <li>• Rear: 4 x USB 3.0 ports</li> </ul>		
USB QuickAccess ports	1 x USB Type-C port		
HDMI ports	2 x HDMI v1.4b ports (up to 3840 x 2160 @ 30Hz resolution)		
Audio inputs	2 x 3.5 mm microphone jacks		
Audio outputs	<ul style="list-style-type: none"> <li>• 1 x 3.5 mm line out jack</li> <li>• Speaker</li> </ul>		
Memory card reader	SD card		
OLED panel	0.96-inch monochrome OLED with capacitive sensing <b>Enter</b> & <b>Select</b> buttons		
Buttons	<ul style="list-style-type: none"> <li>• Power</li> <li>• USB One Touch Copy</li> <li>• Reset</li> </ul>		
LED indicators	<ul style="list-style-type: none"> <li>• Status</li> <li>• LAN</li> <li>• USB</li> <li>• SD Card</li> <li>• Drive 1-2</li> <li>• USB QuickAccess</li> </ul>	<ul style="list-style-type: none"> <li>• Status</li> <li>• LAN</li> <li>• USB</li> <li>• SD Card</li> <li>• Drive 1-4</li> <li>• USB QuickAccess</li> </ul>	<ul style="list-style-type: none"> <li>• Status</li> <li>• LAN</li> <li>• USB</li> <li>• SD Card</li> <li>• Drive 1-6</li> <li>• USB QuickAccess</li> </ul>
IR sensor	QNAP RM-IR004 remote control (MCE compatible)		
Security slot	Kensington security slot		
Form factor	Tower		
Dimensions (H x W x D)	168 x 105 x 226 mm 6.61 x 4.13 x 8.90 in	168 x 170 x 226 mm 6.61 x 6.69 x 8.90 in	168 x 235 x 226 mm 6.61 x 9.25 x 8.90 in
Net weight	1.66 kg (3.66 lbs)	2.33 kg (5.14 lbs)	3.01 kg (6.64 lbs)
System fans	1 x 7 cm	1 x 12 cm	2 x 9 cm
Power supply unit	65W AC adapter, 100-240V	90W AC adapter, 100-240V	120W AC adapter, 100-240V
Operating temperature	0 to 40°C (32 to 104°F)		
Relative humidity	<ul style="list-style-type: none"> <li>• Non-condensing relative humidity: 5 to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> </ul>		

**Note**

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

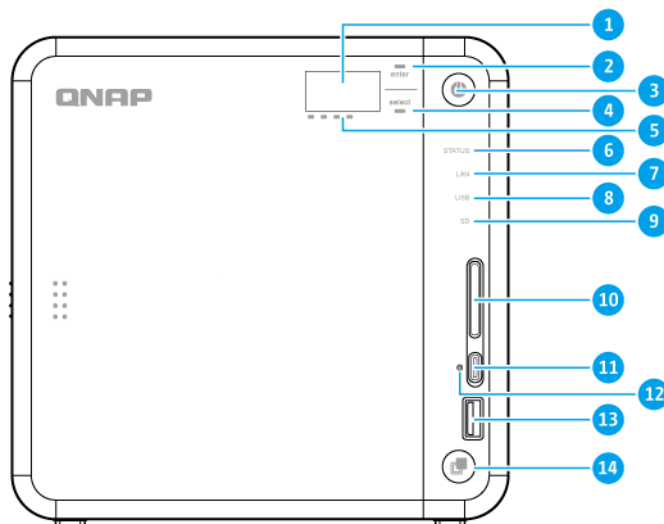
## Package Contents

Item	Quantity
TS-x53B NAS	1

Item	Quantity
AC power adapter	1
Power cord	1
Ethernet cable	2
RM-IR004 infrared (IR) remote control	1
Screws for 2.5-inch drives	<ul style="list-style-type: none"> <li>• TS-253B: 6</li> <li>• TS-453B: 12</li> <li>• TS-653B: 18</li> </ul>
Quick Installation Guide (QIG)	1

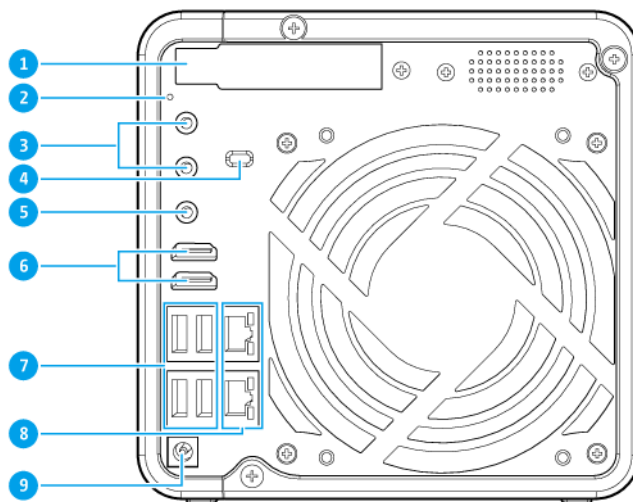
## Components

### Front Panel



No.	Component	No.	Component
1	OLED panel	8	USB LED
2	Enter button	9	SD Card LED
3	Power button	10	SD Card slot
4	Select button	11	USB QuickAccess port (Type-C)
5	Drive LEDs	12	USB QuickAccess LED
6	Status LED	13	USB 3.0 One Touch Copy port
7	LAN LED	14	USB One Touch Copy button

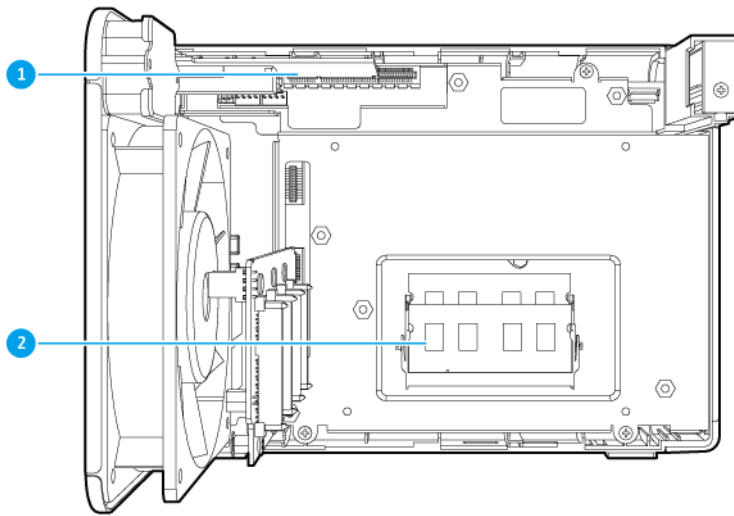
## Back Panel



No.	Component	No.	Component
1	PCIe slot with cover	6	HDMI ports
2	Reset button	7	USB 3.0 ports
3	3.5 mm microphone jacks	8	Gigabit RJ45 Ethernet ports
4	Kensington security slot	9	Power input
5	3.5 mm speaker jack		



## Right Panel



### Note

The image does not include the chassis.

No.	Component	No.	Component
1	PCIe slot	2	Memory slot

## Drive Numbering

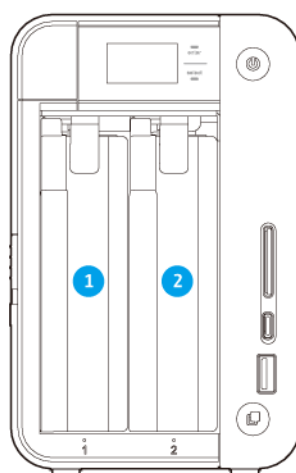
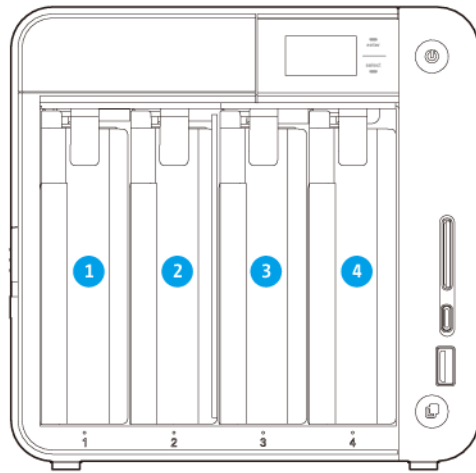
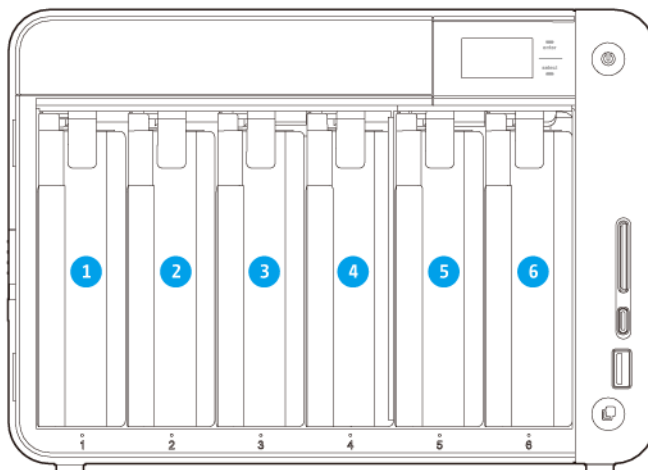


Figure 1. TS-253B



**Figure 2. TS-453B**



**Figure 3. TS-653B**

## Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> <li>• Room temperature: 0 to 40°C (32 to 104°F)</li> <li>• Non-condensing relative humidity: 5 to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> <li>• Flat, anti-static surface with no exposure to direct sunlight, liquids, and chemicals</li> </ul>

Category	Item
Hardware and peripherals	<ul style="list-style-type: none"> <li>• Storage drives For details on compatible drives, go to <a href="https://www.qnap.com/compatibility/">https://www.qnap.com/compatibility/</a>.</li> <li>• Network cable</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• Phillips #1 or #2 screwdriver</li> <li>• Anti-static wrist strap</li> </ul>

## Setting Up the NAS

1. Place your NAS device in an environment that meets the requirements.  
For details, see [Installation Requirements](#).
2. Verify that the intake vents on the bottom of the case are unobstructed.
3. Remove the protective films from the OLED screen and the front cover.
4. Install the drives.  
For details, see [Installing 3.5-inch Hard Drives](#) and [Installing 2.5-inch Hard Drives or Solid State Drives](#).
5. Connect the power cord and all applicable cables.
6. Power on the NAS.
7. Install QTS.  
For details, see [QTS Installation](#).
8. Log on to QTS.

## 3. Installation and Configuration

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

### Hardware Installation

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

### Installing Drives

The TS-x53B is compatible with 3.5-inch and 2.5-inch hard drives, and solid state drives.

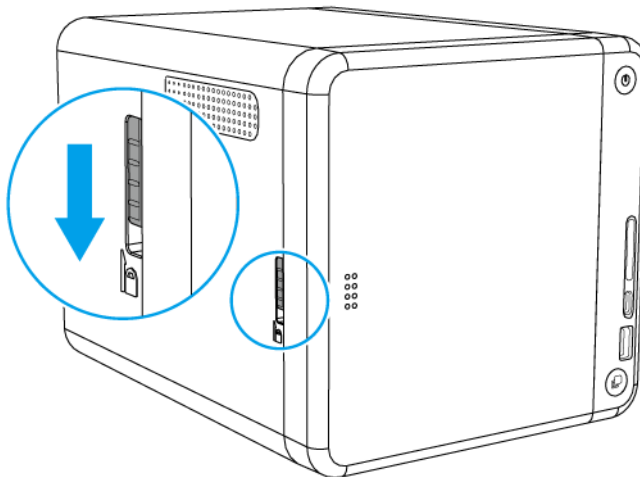
#### Installing 3.5-inch Hard Drives



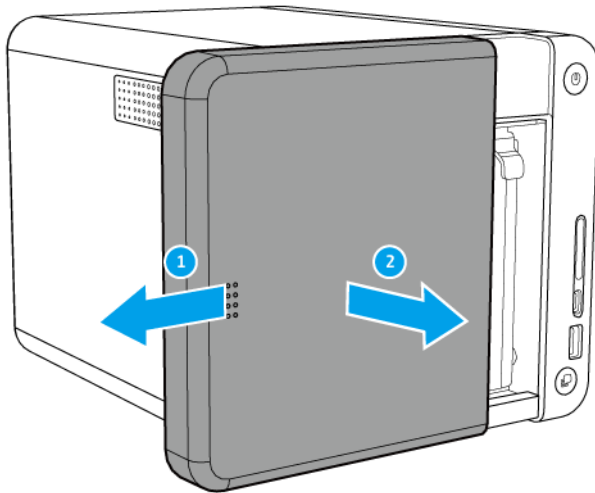
#### Warning

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

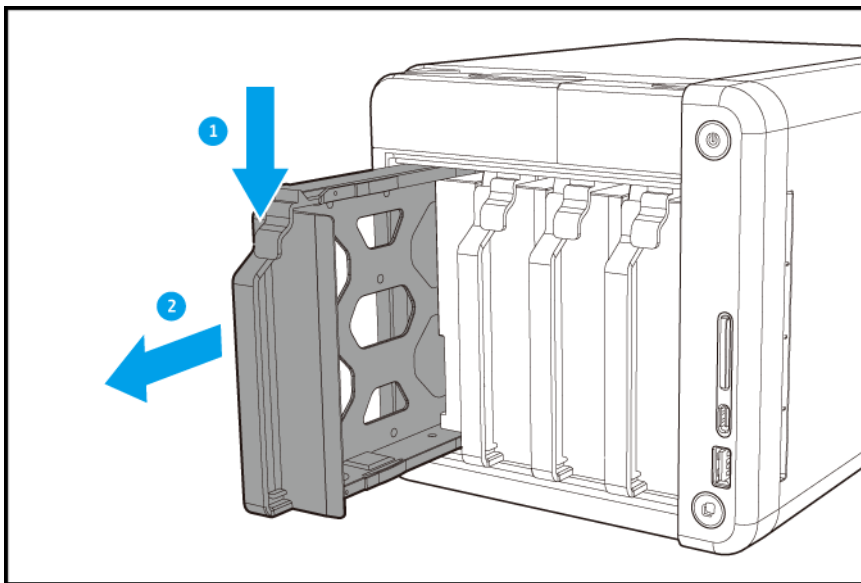
1. Power off the NAS.
2. Remove the front cover.
  - a. Locate the locking mechanism on the left side of the NAS.
  - b. Slide the lock down to release the front cover.



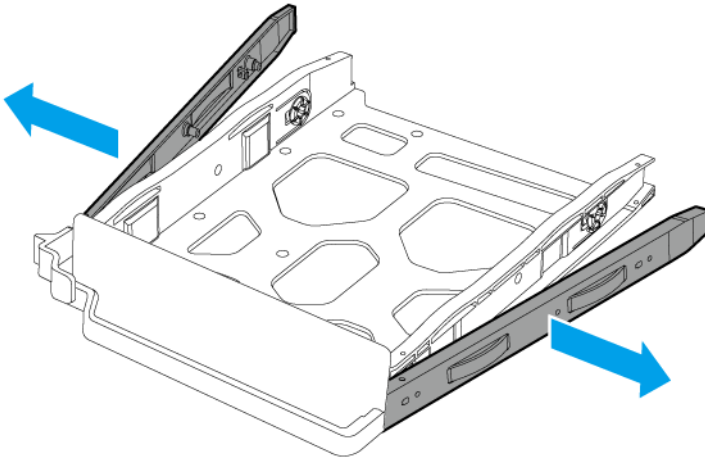
- c. Slide the front cover to the left and then pull.



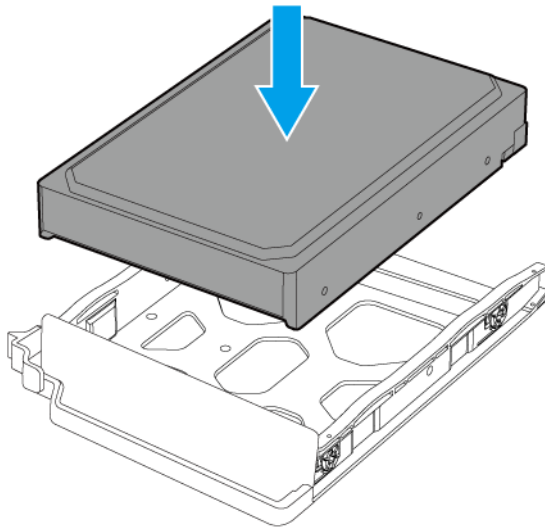
3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



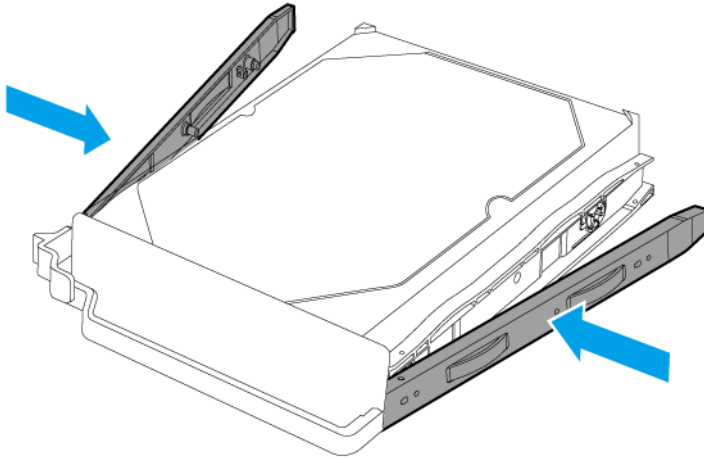
4. Install a drive on the tray.
  - a. Remove the fastening panels from the sides of the drive tray.



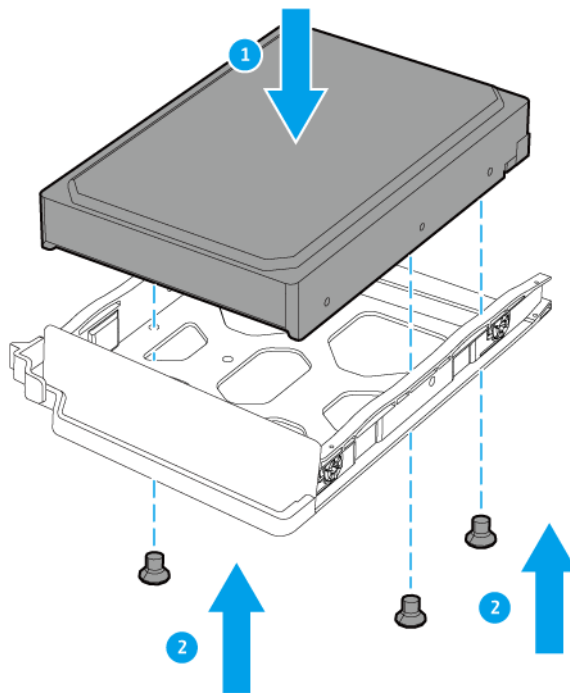
- b.** Place the hard drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.



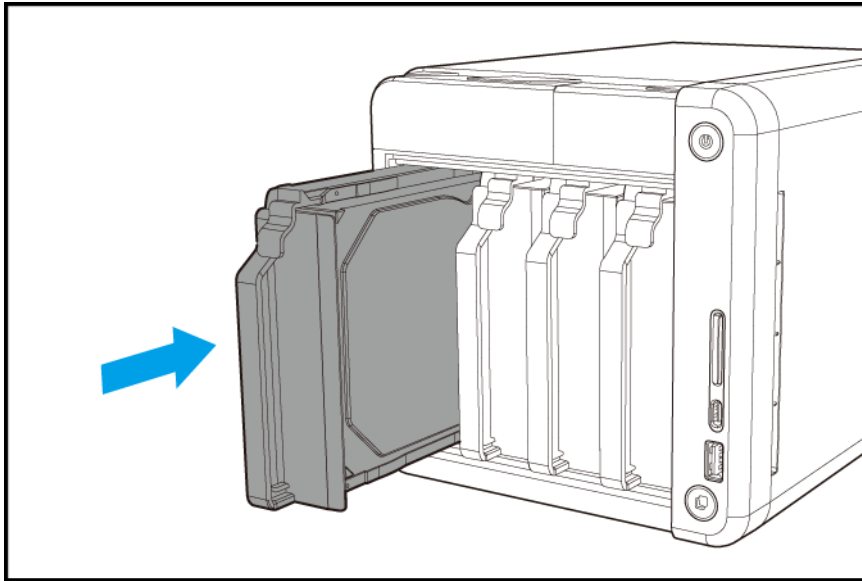
- c.** Attach the fastening panels to lock the drive to the tray.

**Tip**

You can also use 3.5-inch drive screws (part number: SCR-HDD35A-96). To purchase screws, go to [http://shop.qnap.com/index.php?route=product/product&product\\_id=162](http://shop.qnap.com/index.php?route=product/product&product_id=162).

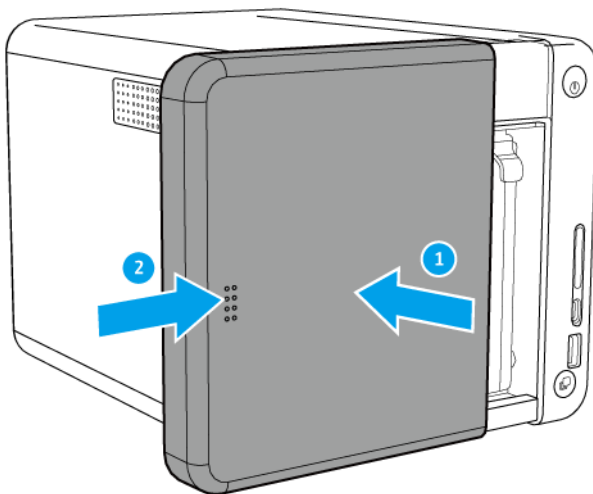


5. Load the tray into the drive bay.



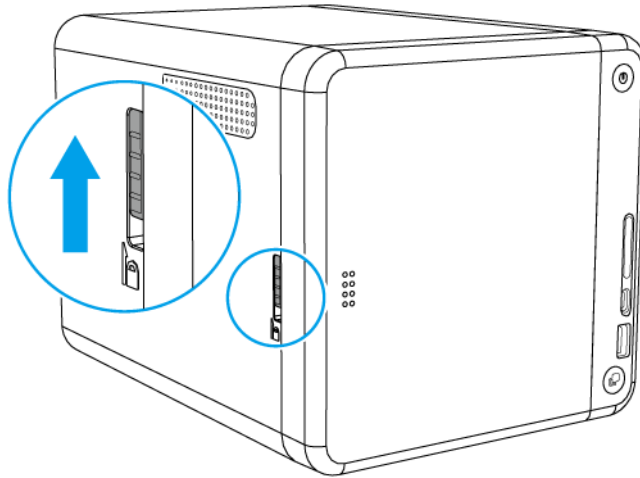
**6. Attach the front cover.**

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



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





7. Power on the NAS.

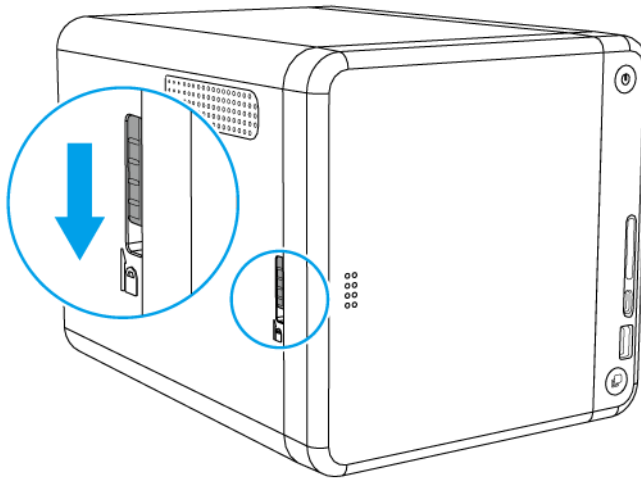
## Installing 2.5-inch Hard Drives or Solid State Drives



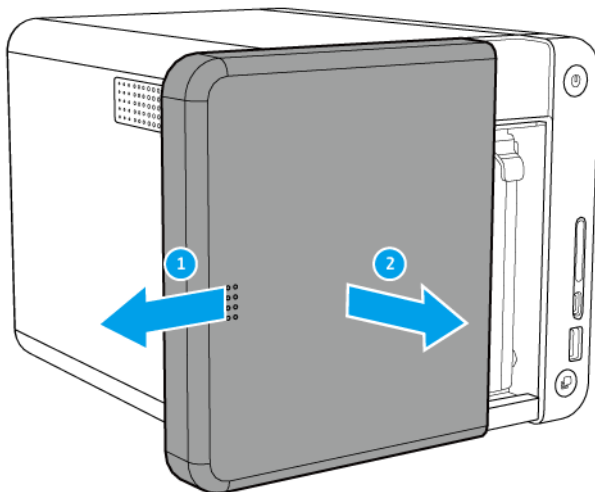
### Warning

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

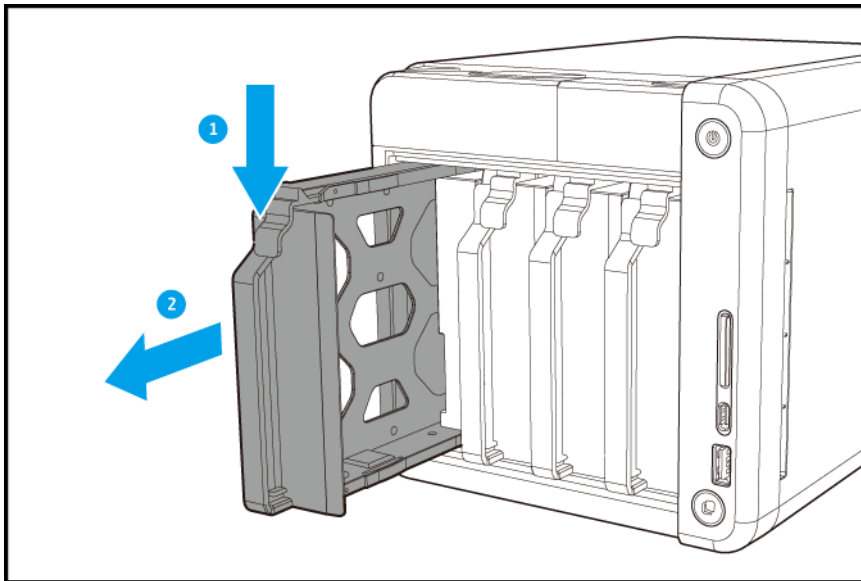
1. Power off the NAS.
2. Remove the front cover.
  - a. Locate the locking mechanism on the left side of the NAS.
  - b. Slide the lock down to release the front cover.



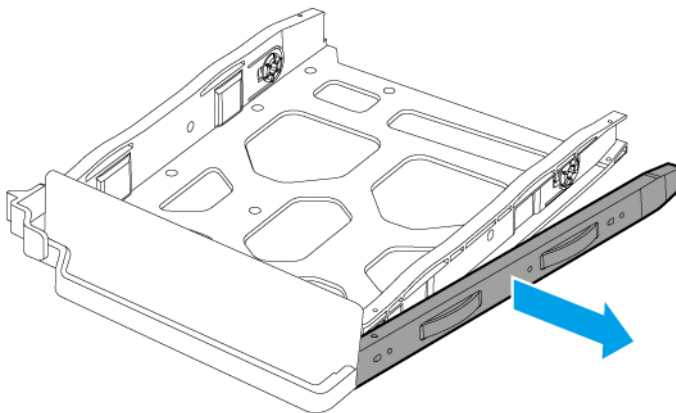
- c. Slide the front cover to the left and then pull.



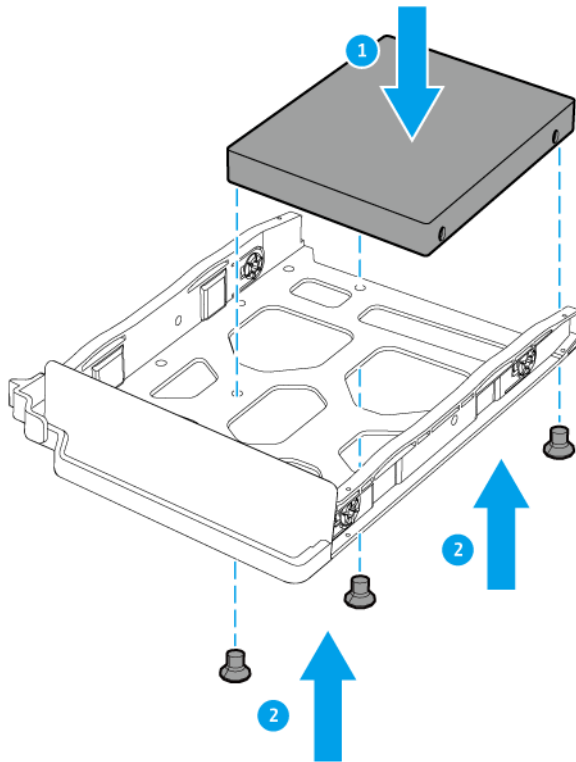
3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.



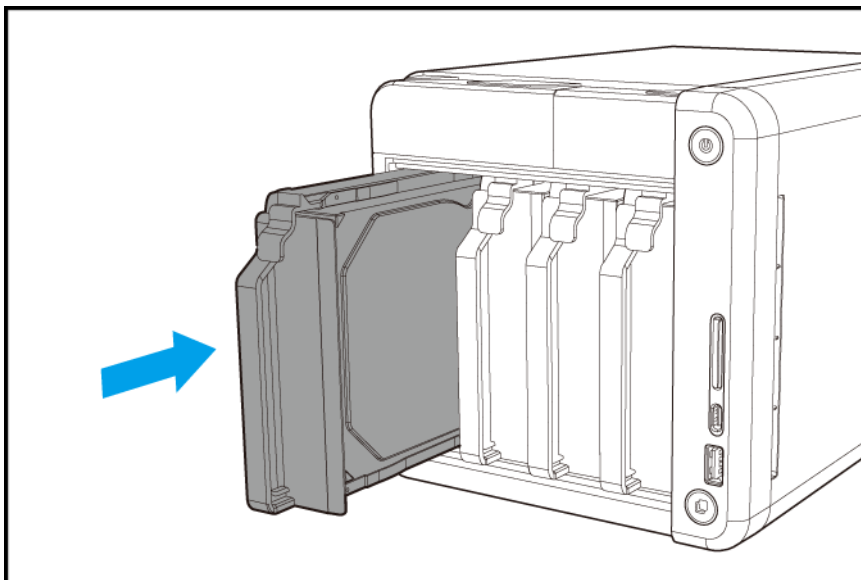
4. Install a drive on the tray.
  - a. Remove the right fastening panel from the drive tray.



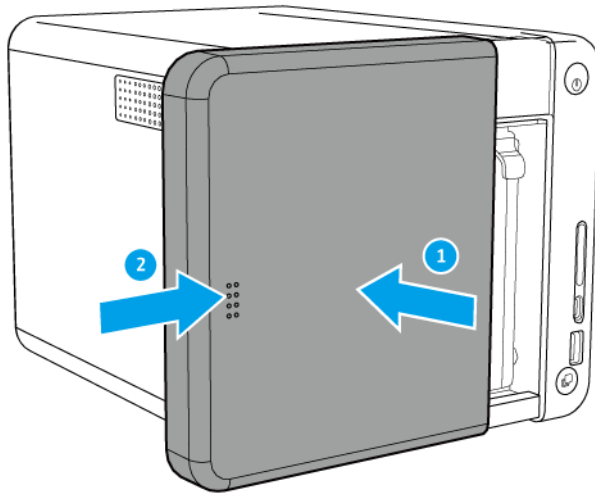
- b. Place the hard drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
    - c. Attach the screws to lock the drive to the tray.



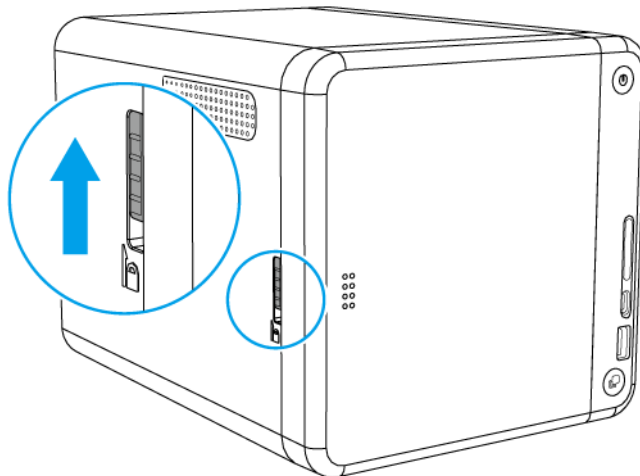
5. Load the tray into the drive bay.



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



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



7. Power on the NAS.

## Installing Expansion Cards

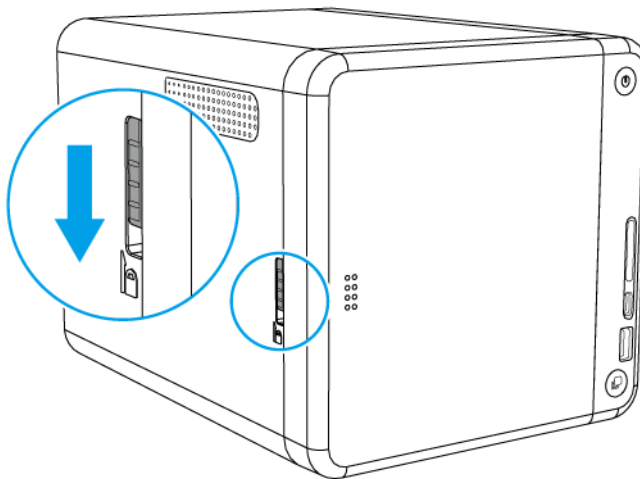
The NAS supports selected expansion cards, some of which require QNAP PCIe brackets. QNAP-branded expansion cards purchased from the company website are shipped with the brackets necessary to fit all QNAP NAS models. The TS-x53B series uses low-profile flat brackets.

For details on supported expansion cards and brackets, go to [www.qnap.com/compatibility](http://www.qnap.com/compatibility).

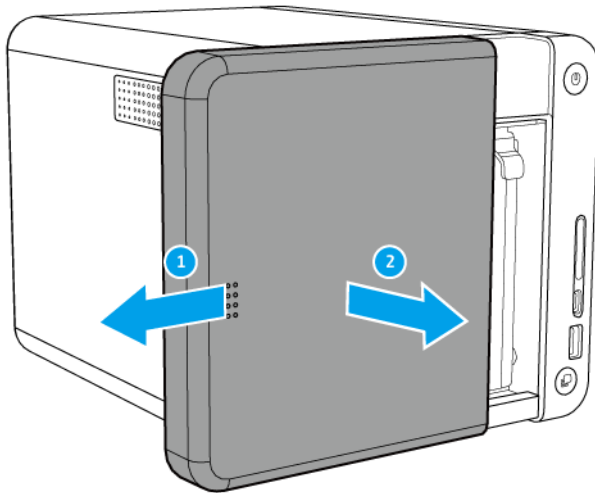


**Warning**

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
  - Observe electrostatic discharge (ESD) procedures to avoid damage to components.
1. Check the expansion cards and brackets supported by your model on the QNAP website.
    - a. Go to [www.qnap.com/compatibility](http://www.qnap.com/compatibility).
    - b. Click **Search by NAS**.
    - c. Specify the number of bays and the specific model of your NAS.
    - d. Under **Category**, select **Expansion Card**.
    - e. Locate the expansion card model in the list and then click the corresponding **Note** icon.
  2. Power off the NAS.
  3. Unplug the power cord from the electrical outlet.
  4. Disconnect all cables and external attachments.
  5. Remove the front cover.
    - a. Locate the locking mechanism on the left side of the NAS.
    - b. Slide the lock down to unlock the front cover.



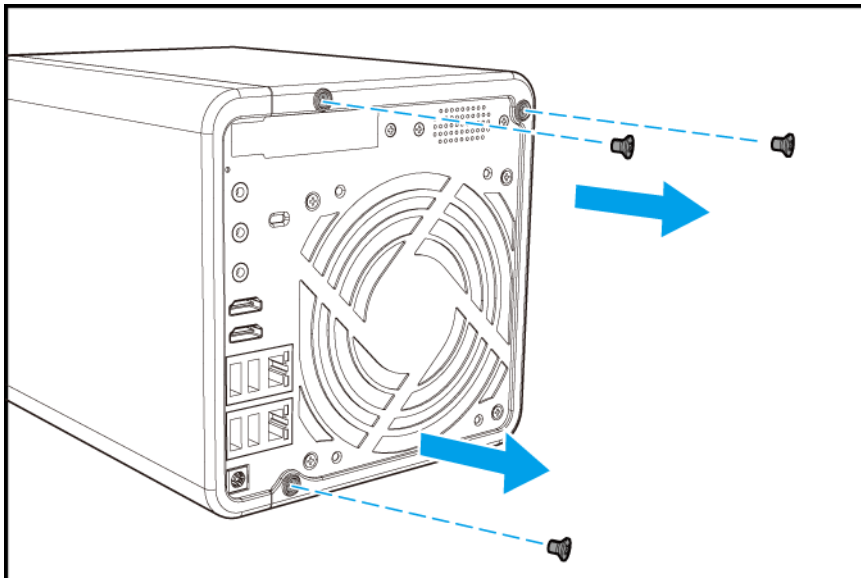
- c. Slide the front cover to the left and then pull.



**6. Remove the case cover.**

**a.** Remove the screws on the back of the NAS that connect the case cover to the chassis. The number of screws varies depending on the model.

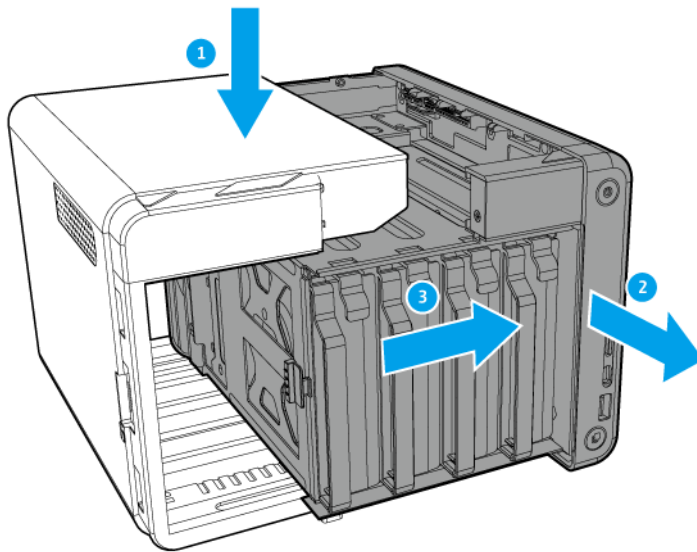
- TS-253B: 2 screws
- TS-453B: 3 screws
- TS-653B: 4 screws



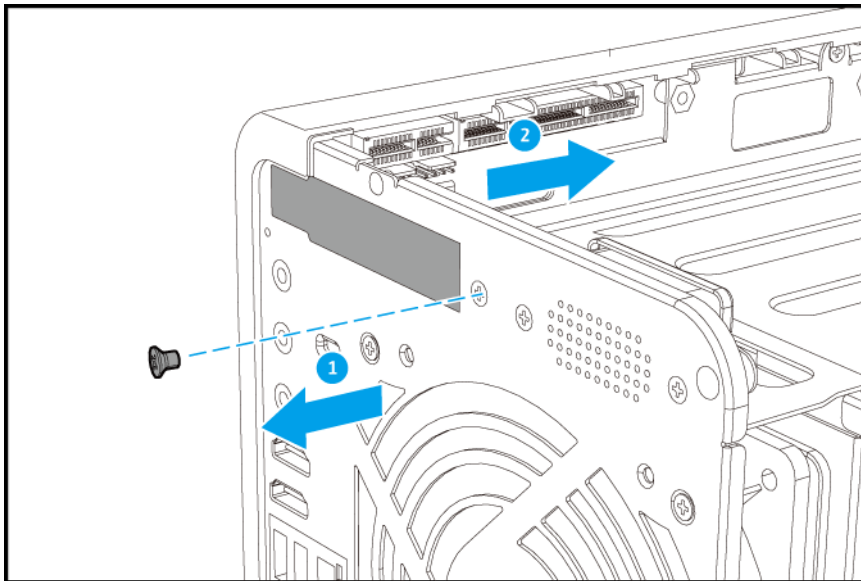
**Figure 4. TS-453B**

**b.** Push down on the top of the case cover and then pull the chassis.

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

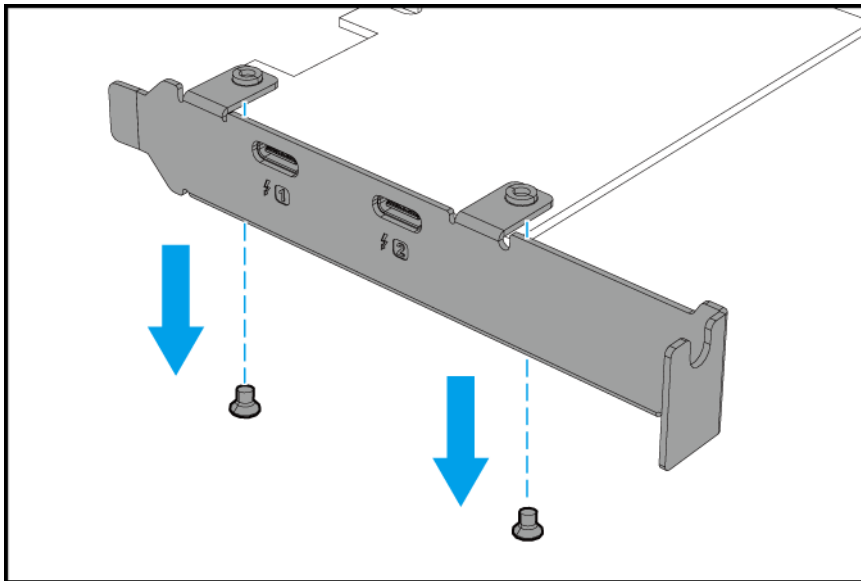


7. Remove the screw of the PCIe slot cover and then pull the cover off.

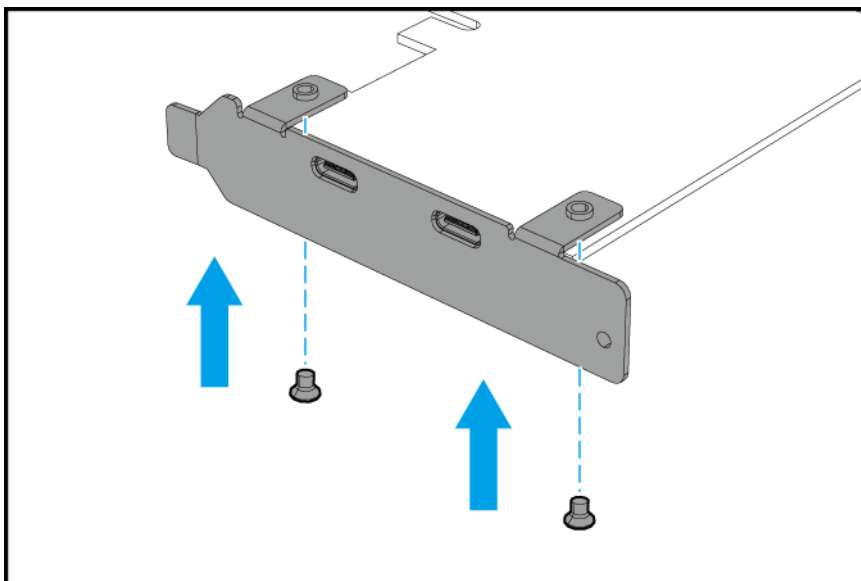


8. Optional: Attach the QNAP bracket to the expansion card.
  - a. Remove all screws of the existing bracket.

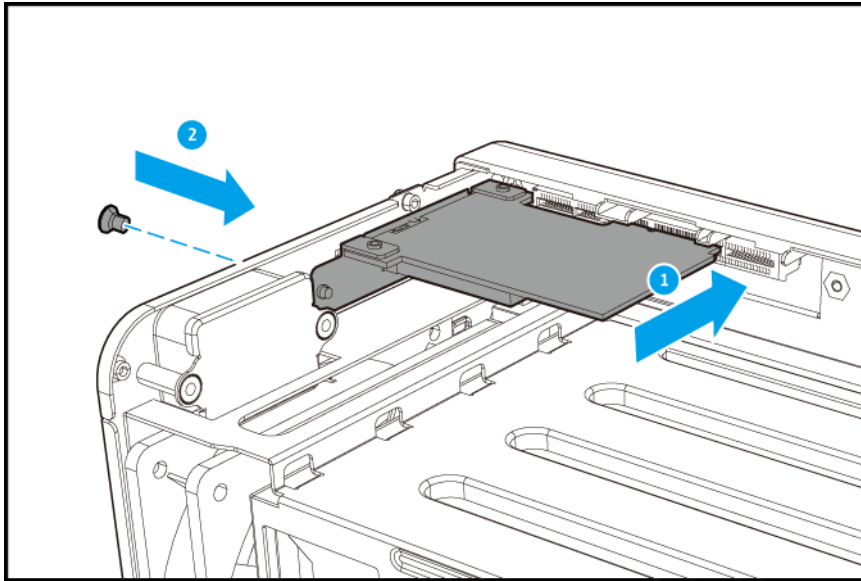




- b. Carefully pull the bracket away from the card.
- c. Attach the QNAP bracket to the card using the same screws.

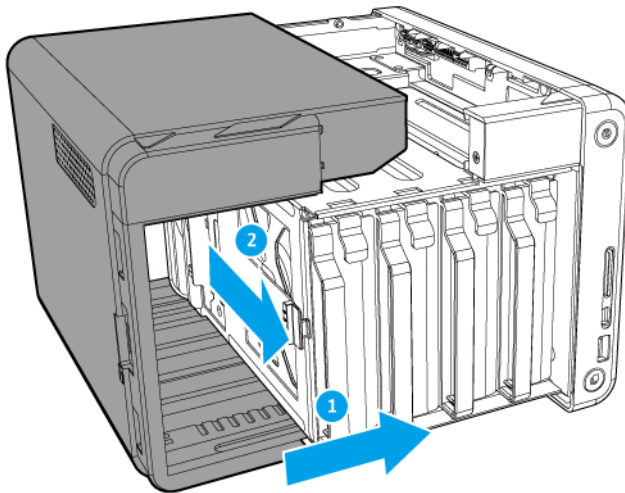


- d. Verify that the bracket does not move.
9. Install the expansion card.
- a. Hold the expansion card by the edges.
  - b. Insert the card into the slot.
  - c. Attach the screw.

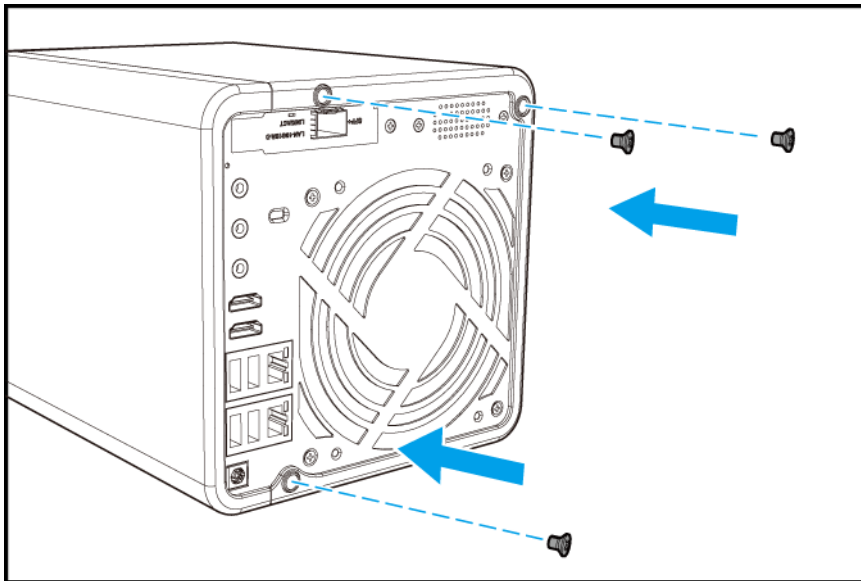


**10. Attach the case cover.**

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

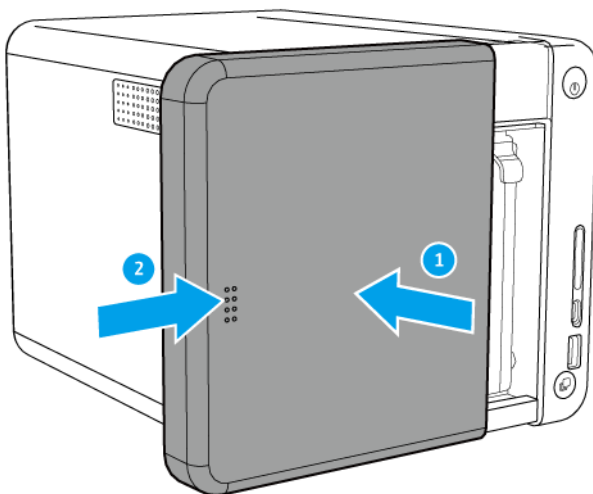


- b. Attach the screws to the back side of the case.

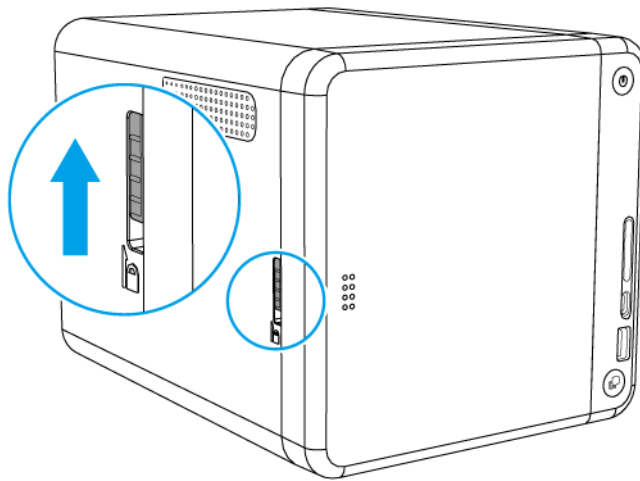


**Figure 5. TS-453B**

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



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



12. Connect all cables and external attachments.

13. Power on the NAS.

## Replacing Memory Modules

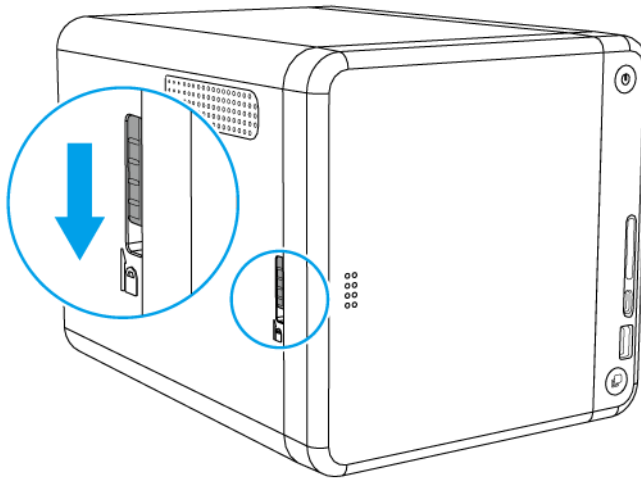
The NAS has two memory slots. Depending on the model, you can increase the memory capacity of the NAS by upgrading one or both modules. When using two modules, use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized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



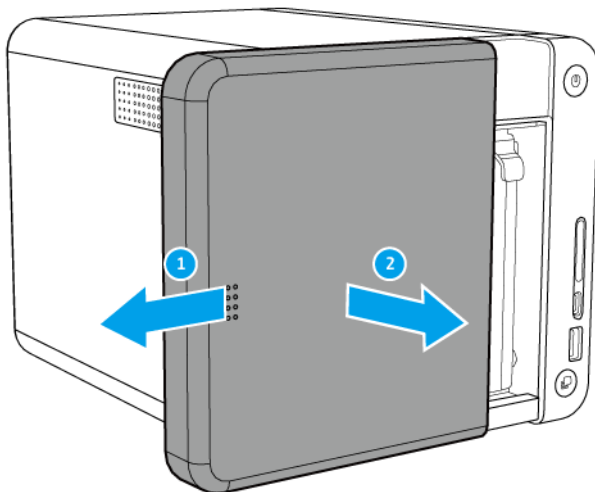
### Warning

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

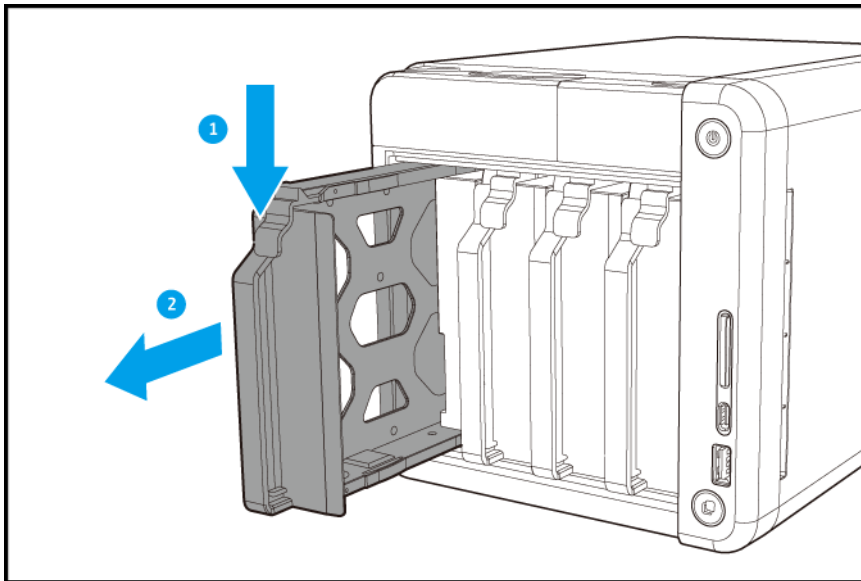
1. Power off the NAS.
2. Unplug the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the front cover.
  - a. Locate the locking mechanism on the left side of the NAS.
  - b. Slide the lock down to unlock the front cover.



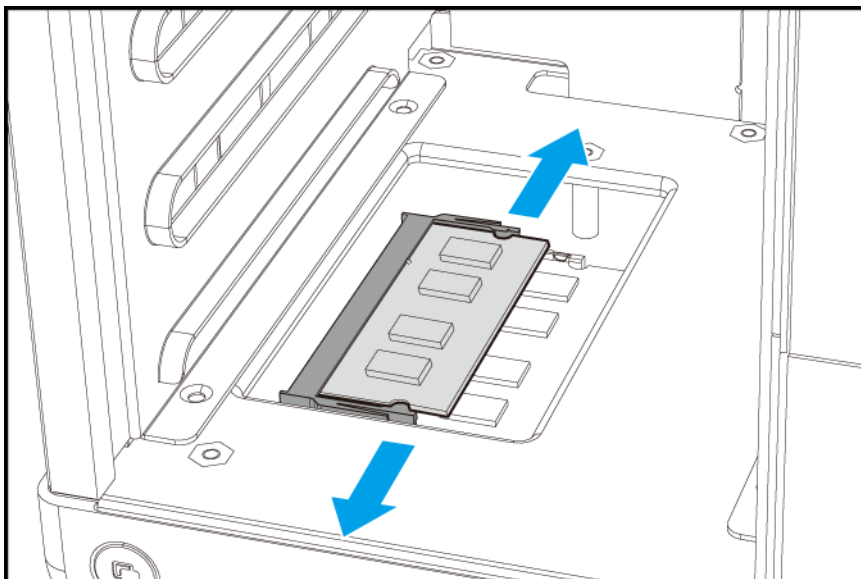
- c. Slide the front cover to the left and then pull.



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



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



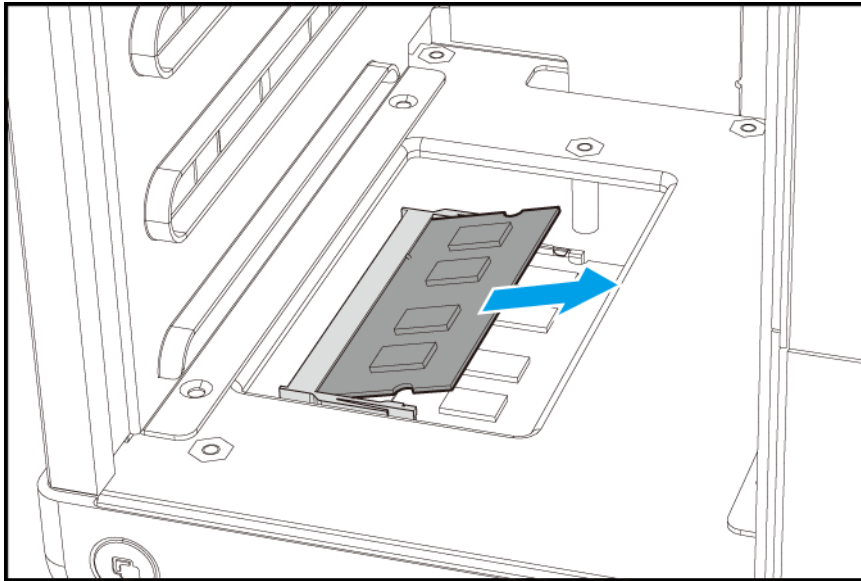
- b. Verify that the module has tilted upward and is completely released from the slot.



**Warning**

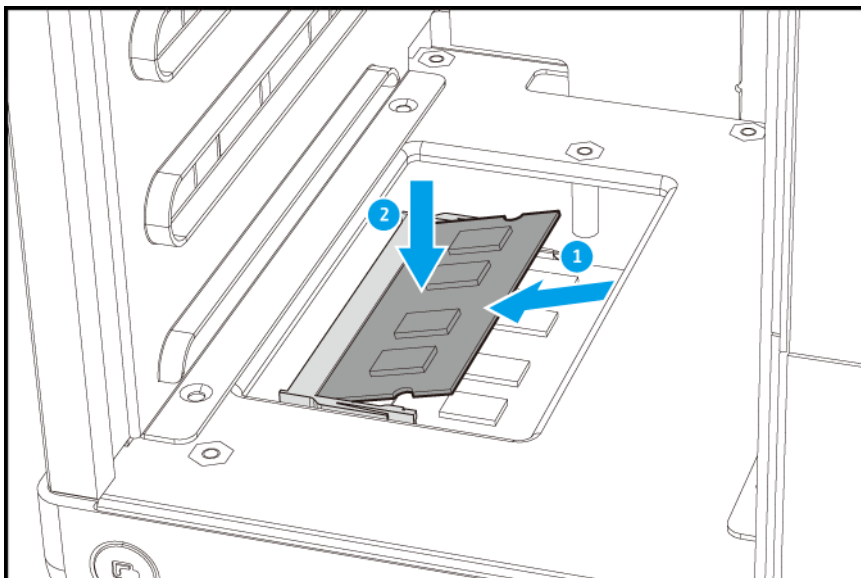
Attempting to remove a module that is not completely released may damage the module and the motherboard.

- c. Hold the module by the edges and then carefully slide it out of the slot.

**Warning**

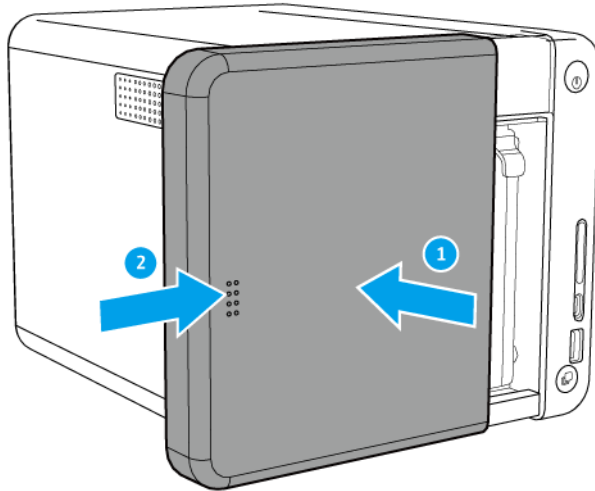
Do not touch the components, particularly the metal connectors.  
Do not bend the module.

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

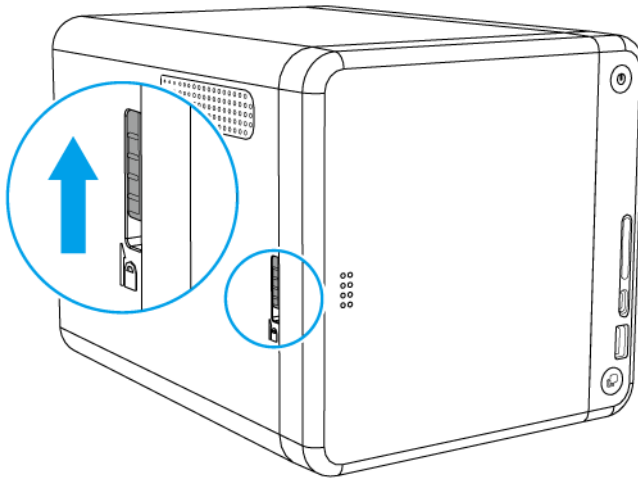


9. Attach the front cover.

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



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



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



## QTS Installation

TS-x53B uses the QNAP QTS operating system. You can install QTS using any of the following methods.

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

## Installing QTS Using Qfinder Pro



### Warning

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

1. Power on the NAS.
2. Connect the NAS to your local area network.
3. Run Qfinder Pro on a computer that is connected to the same local area network.  
To download Qfinder Pro, go to <https://www.qnap.com/utilities>.
4. Locate the NAS in the list and then double-click the name or IP address.  
The QTS Installation Wizard page loads in the default web browser.
5. Click **Start Smart Installation Guide**.  
The **Enter the NAS name and administrator's password** screen appears.
6. Specify the following information.
  - **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
  - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
7. Click **Next**.  
The **Set the date and time** screen appears.
8. Specify the time zone, date, and time.



### Tip

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

9. Click **Next**.  
The **Configure the network settings** screen appears.
10. Select **Obtain an IP address automatically (DHCP)**.
11. Click **Next**.  
The **Cross-platform file transfer service** screen appears.
12. Select the types of devices that you will use to access shared folders on the NAS.
13. Click **Next**.  
The **Select the disk configuration** screen appears.
14. Select **Configure disks later**.  
For details on configuring disks, see the Storage Manager section of the QTS User Guide.
15. Click **Next**.  
The **Enable multimedia functions** screen appears.
16. Select **No**.  
Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.  
For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

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



#### Warning

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

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

## Installing QTS Using USB QuickAccess



#### 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 computer using the USB type-C port on the front of the NAS.
3. Run Qfinder Pro on your computer.  
To download Qfinder Pro, go to <https://www.qnap.com/utilities>.
4. Locate the NAS in the list and then double-click the name or IP address.  
The **Smart Installation Guide** opens in the default web browser.
5. Click **Start Smart Installation Guide**.  
The **Enter the NAS name and administrator's password** screen appears.
6. Specify the following information.
  - **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
  - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
7. Click **Next**.  
The **Set the date and time** screen appears.
8. Specify the time zone, date, and time.



#### Tip

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

9. Click **Next**.  
The **Configure the network settings** screen appears.
10. Select **Obtain an IP address automatically (DHCP)**.
11. Click **Next**.  
The **Cross-platform file transfer service** screen appears.
12. Select the types of devices that you will use to access shared folders on the NAS.

13. Click **Next**.  
The **Select the disk configuration** screen appears.
14. Select **Configure disks later**.  
For details on configuring disks, see the Storage Manager section of the QTS User Guide.
15. Click **Next**.  
The **Enable multimedia functions** screen appears.
16. Select **No**.  
Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.  
For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.
17. Click **Next**.  
The **Summary** screen appears.
18. Review the settings.
19. Click **Apply**.  
A confirmation message appears.



#### **Warning**

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

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

## Installing QTS Using the Cloud Key



#### **Warning**

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

1. Power on the NAS.
2. Connect the NAS to the internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
  - On your computer, go to <http://install.qnap.com/>.
  - Scan the QR code on the NAS using a mobile device.
4. Specify the Cloud Key on the NAS.
5. Create an account or log in to myQNAPcloud.
6. Specify the myQNAPcloud name for the NAS.  
The myQNAPcloud name is used when remotely accessing the NAS.
7. Optional: Select **CloudLink**.  
CloudLink allows you to remotely access the NAS without having to configure port forwarding on your router. You can remotely access the NAS by logging into QTS or by using mobile apps.  
You can also enable CloudLink by installing the CloudLink app on the NAS.
8. Click **Next**.  
The **Smart Installation Guide** appears.

- Click **Start Smart Installation Guide**.  
The **Enter the NAS name and administrator's password** screen appears.

- 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.

- Click **Next**.  
The **Set the date and time** screen appears.

- 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.

- Click **Next**.  
The **Configure the network settings** screen appears.

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

- Click **Next**.  
The **Cross-platform file transfer service** screen appears.

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

- Click **Next**.  
The **Select the disk configuration** screen appears.

- Select **Configure disks later**.  
For details on configuring disks, see the Storage Manager section of the QTS User Guide.

- Click **Next**.  
The **Enable multimedia functions** screen appears.

- Select **No**.  
Enabling the multimedia functions allows you to install multimedia applications after configuring the disks in Storage Manager.  
For details on enabling multimedia functions on QTS, see the System Administration section of the QTS User Guide.

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

- Review the settings.

- Click **Apply**.  
A confirmation message appears.

**Warning**

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

- Click **Confirm**.  
QTS is installed.

## Installing QTS Using an HDMI Connection



### Warning

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

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



### Warning


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

11. Click **Next**.  
QTS is installed.

## 4. Basic Operations

This chapter describes basic NAS operations.

### Power Button

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

### Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default: <ul style="list-style-type: none"> <li>• System administrator password: admin</li> <li>• TCP/IP configuration: <ul style="list-style-type: none"> <li>• Obtain IP address settings automatically via DHCP</li> <li>• Disable jumbo frames</li> <li>• If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".</li> </ul> </li> <li>• System port: 8080 (system service port)</li> <li>• Security level: Low (Allow all connections)</li> <li>• LCD panel password: (blank)</li> <li>• VLAN: Disabled</li> </ul>
Advanced system reset	Press and hold the button for 10 seconds.	The default factory settings are restored. <ul style="list-style-type: none"> <li>• To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</li> </ul>

### USB One-Touch Copy Button

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

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

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

## OLED Panel

The OLED panel allows you to perform the following operations:

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

## Viewing TCP/IP Settings

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

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

## Configuring TCP/IP Settings

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

- IP address
  - Subnet mask
  - Default gateway
  - Primary DNS
  - Secondary DNS
1. Press **Enter** or **Select**.



The panel displays the NAS name and QTS version.

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

Button	Usage
<b>Enter</b>	<ul style="list-style-type: none"> <li>• Display a configuration screen.</li> <li>• Move to the next item on a configuration screen.</li> </ul>
<b>Select</b>	<ul style="list-style-type: none"> <li>• Move to the next item on a menu.</li> <li>• Modify a value on a configuration screen.</li> </ul>

## Viewing Drive Information

The OLED panel can display the temperature and capacity of each drive installed in the NAS. To go to drive information:

1. Press **Enter** or **Select** to turn on the screen.  
The panel displays the NAS name and QTS version.
2. Press and hold the **Enter** button for 2 seconds to enter the `Main Menu`.  
The panel displays `Main Menu 1. TCP/IP`.
3. Repeatedly press and hold the **Enter** button until `Main Menu 2. Physical disk` appears.
4. Press and hold the **Enter** button. The panel displays the temperature and capacity of the drive in slot 1.
5. Press and hold the **Select** button to view information of the next drive. The panel displays the temperature and capacity of the next drive.
6. Optional: Repeat step 5 as needed.

## Viewing Volume Information

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

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

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

## Viewing System Information

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

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

## Powering Off the NAS

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

## Restarting the NAS

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

## Changing the OLED Password

The OLED panel can have a password set to protect it from unauthorized use. To go to change password screen:

1. Press **Enter** or **Select** to turn on the screen.  
The panel displays the NAS name and QTS version.
2. Press and hold the **Enter** button for 2 seconds to enter the **Main Menu**.

The panel displays `Main Menu 1. TCP/IP.`

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

Button	Usage
<b>Enter</b>	Move to the next item in the <code>New Password</code> .
<b>Select</b>	Change a number in the <code>New Password</code> and <code>Verify Password</code> screens.

7. Press **Enter** after you set the password.

## OLED Error Messages

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

## LEDs

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

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

LED	Status	Description
System Status	Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> <li>The drive is being formatted.</li> <li>The NAS is being initialized.</li> <li>The operating system is being updated.</li> <li>RAID rebuilding is in progress.</li> <li>Online RAID Capacity Expansion is in progress.</li> <li>Online RAID Level Migration is in progress.</li> </ul>
	Red	<ul style="list-style-type: none"> <li>The drive is invalid.</li> <li>The disk volume has reached its full capacity.</li> <li>The disk volume is about to reach its full capacity.</li> <li>The system fan is not functioning.</li> <li>An error occurred when accessing (read/write) the data.</li> <li>A bad sector is detected on the hard drive.</li> <li>The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read).</li> <li>Hardware self-test error</li> </ul>
	Flashes red every 0.5 seconds	The NAS is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
	Flashes green every 0.5 seconds	<ul style="list-style-type: none"> <li>The NAS is starting up.</li> <li>The NAS is not configured.</li> <li>A drive is not formatted.</li> </ul>
	Flashes green every 2 seconds	The NAS is in S3 sleep mode.
	Green	The NAS is ready.
	Off	All drives are in standby mode.
LAN	Orange	A read/write error occurred while another device is accessing data.
	Flashes orange	The NAS is being accessed from the network.
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occurred.
	Flashes green	The data is being accessed.
	Green	The drive can be accessed.

LED	Status	Description
USB	Flashes blue every 0.5 sec	<ul style="list-style-type: none"> <li>• A USB device (connected to the front USB port) is detected.</li> <li>• A USB device (connected to the front USB port) is being removed from the NAS.</li> <li>• A USB device (connected to the front USB port of the NAS) is being accessed.</li> <li>• Data is being copied to or from a USB or eSATA device.</li> </ul>
	Blue	A USB device is detected in the front USB port.
	Off	<ul style="list-style-type: none"> <li>• No USB device is detected.</li> <li>• The NAS has finished copying data to or from the USB device connected to the front USB port.</li> </ul>

## Beep Alarm

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

## 5. Troubleshooting

This chapter describes basic troubleshooting information.

### Forcing Qfinder Pro or myQNAPcloud to Locate the NAS

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

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

### Hot-Swapping Failed Drives

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

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

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

## Recovering Unintentionally Removed Healthy Drives

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

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

## Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	<a href="http://docs.qnap.com">http://docs.qnap.com</a>
Help Desk	<a href="http://helpdesk.qnap.com">http://helpdesk.qnap.com</a>
Downloads	<a href="http://download.qnap.com">http://download.qnap.com</a>
Community Forum	<a href="http://forum.qnap.com">http://forum.qnap.com</a>

## 6. Glossary

### **CloudKey**

Unique 8-digit code assigned to each NAS device

### **myQNAPcloud**

Provides various remote access services such as DDNS and CloudLink

### **Qfinder Pro**

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

### **QTS**

QNAP NAS operating system



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Version 3, 29 June 2007

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2. This device must accept any interference received, including interference that may cause undesired operation.



#### Note

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- 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.



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