

# **TS-x53BU**

**TS-453BU**

**TS-853BU**

**TS-1253BU**

**TS-453BU-RP**

**TS-853BU-RP**

**TS-1253BU-RP**

## **User Guide**

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# 1. Preface

## About This Guide

This guide provides information on the QNAP TS-x53BU 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-x53BU NAS.

### About the TS-x53BU

The TS-x53BU is powered by an Intel® Celeron® J3455 quad-core 1.5 GHz processor and up to 8 GB DDR3L memory. The NAS provides four, eight, or twelve hot-swappable SATA drive bays that support both hard disk drives and solid-state drives. The TS-x53BU also features four gigabit Ethernet ports, four USB 3.0 ports, one HDMI port, and one PCIe 2.0 x2 slot for various applications and expansion options.

### Hardware Specifications



#### Note

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.

| Ordering P/N    | Drive Bays | Power Supply | Memory |
|-----------------|------------|--------------|--------|
| TS-453BU        |            |              |        |
| TS-453BU-4G     | 4          | Single       | 4 GB   |
| TS-453BU-8G     |            |              | 8 GB   |
| TS-453BU-RP     |            |              |        |
| TS-453BU-RP-4G  | 4          | Redundant    | 4 GB   |
| TS-453BU-RP-8G  |            |              | 8 GB   |
| TS-853BU        |            |              |        |
| TS-853BU-4G     | 8          | Single       | 4 GB   |
| TS-853BU-8G     |            |              | 8 GB   |
| TS-853BU-RP     |            |              |        |
| TS-853BU-RP-4G  | 8          | Redundant    | 4 GB   |
| TS-853BU-RP-8G  |            |              | 8 GB   |
| TS-1253BU       |            |              |        |
| TS-1253BU-4G    | 12         | Single       | 4 GB   |
| TS-1253BU-8G    |            |              | 8 GB   |
| TS-1253BU-RP    |            |              |        |
| TS-1253BU-RP-4G | 12         | Redundant    | 4 GB   |
| TS-1253BU-RP-8G |            |              | 8 GB   |

| Component         | TS-453BU<br>TS-453BU-RP   | TS-853BU<br>TS-853BU-RP | TS-1253BU<br>TS-1253BU-RP |
|-------------------|---|-------------------------|---------------------------|
| Processor         |   |                         |                           |
| CPU               | Intel® Celeron® J3455 quad-core 1.5 GHz processor (burst up to 2.3 GHz) |                         |                           |
| Architecture      | 64-bit  |                         |                           |
| Encryption engine | AES-256   |                         |                           |
| Memory            |   |                         |                           |

| Component                            | TS-453BU<br>TS-453BU-RP  | TS-853BU<br>TS-853BU-RP                       | TS-1253BU<br>TS-1253BU-RP                     |
|--------------------------------------|--|---|---|
| Pre-installed memory                 | <ul style="list-style-type: none"> <li>4 GB memory: 2 x 2 GB SODIMM DDR3L</li> <li>8 GB memory: 2 x 4 GB SODIMM DDR3L</li> </ul> <div style="border-left: 2px solid #0070C0; padding-left: 10px; margin-top: 10px;">  <p><b>Note</b></p> <ul style="list-style-type: none"> <li>Use only QNAP memory modules to maintain system performance and stability. For NAS devices with more than one memory slot, use QNAP modules with identical specifications.</li> <li>Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.</li> </ul> </div> |   |   |
| Total memory slots                   | 2 x SODIMM DDR3L   |   |   |
| Maximum memory                       | 8 GB (2 x 4 GB)  |   |   |
| Storage                              |  |   |   |
| Drive bays                           | 4  | 8   | 12  |
| Drive compatibility                  | <ul style="list-style-type: none"> <li>3.5-inch SATA hard disk drives</li> <li>2.5-inch SATA hard disk drives</li> <li>2.5-inch SATA solid state drives</li> </ul>   |   |   |
| SSD cache acceleration support       | <ul style="list-style-type: none"> <li>Drive bays 1 to 2</li> <li>Optional: SSD using PCIe expansion slot</li> </ul>   |   |   |
| Hot-swappable                        | Yes <div style="border-left: 2px solid #0070C0; padding-left: 10px; margin-top: 10px;">  <p><b>Note</b><br/>The following are not hot-swappable:</p> <ul style="list-style-type: none"> <li>M.2 SSDs</li> <li>SSD cache drives</li> <li>SSDs using PCIe expansion slots</li> </ul> </div>   |   |   |
| Network                              |  |   |   |
| Gigabit Ethernet ports               | 4 x RJ45   |   |   |
| External I/O Ports & Expansion Slots |  |   |   |
| PCIe slots                           | 1 x PCIe 2.0 x2  |   |   |
| USB ports                            | 4 x USB 3.0  |   |   |
| HDMI outputs                         | 1 x HDMI 1.4b (up to 3840 x 2160 @ 30Hz resolution)  |   |   |
| Interface                            |  |   |   |
| Maintenance port                     | 1 x 3.5 mm console port  |   |   |
| Dimensions                           |  |   |   |
| Form factor                          | 1U rackmount   | 2U rackmount                                  | 2U rackmount                                  |
| Dimensions (H x W x D)               | 44 x 439 x 499 mm<br>1.73 x 17.28 x 19.65 inch   | 89 x 482 x 534 mm<br>3.5 x 18.98 x 21.02 inch | 89 x 482 x 534 mm<br>3.5 x 18.98 x 21.02 inch |
| Net weight                           | 7.63 kg (16.82 lb)   | 11.02 kg (24.29 lb)                           | 16.14 kg (35.58 lb)                           |

| Component             | TS-453BU<br>TS-453BU-RP  | TS-853BU<br>TS-853BU-RP   | TS-1253BU<br>TS-1253BU-RP   |
|-----------------------|--|---|---|
| Rail compatibility    | RAIL-B02   |   |   |
| Other                 |  |   |   |
| Power supply unit     | <ul style="list-style-type: none"> <li>• TS-453BU: 250W, 100-240V AC, 50/60 Hz</li> <li>• TS-453U-RP: 2 x 250W, 100-240V AC, 50/60 Hz</li> </ul> | <ul style="list-style-type: none"> <li>• TS-853BU: 250W, 100-240V AC, 50/60 Hz</li> <li>• TS-853BU-RP: 2 x 250W, 100-240V AC, 50/60 Hz</li> </ul> | <ul style="list-style-type: none"> <li>• TS-1253BU: 350W, 100-240V AC, 50/60 Hz</li> <li>• TS-1253BU-RP: 2 x 250W, 100-240V AC, 50/60 Hz</li> </ul> |
| Fans                  | System: 2 x 40 mm  | System: 2 x 70 mm   | System: 2 x 70 mm   |
| 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**

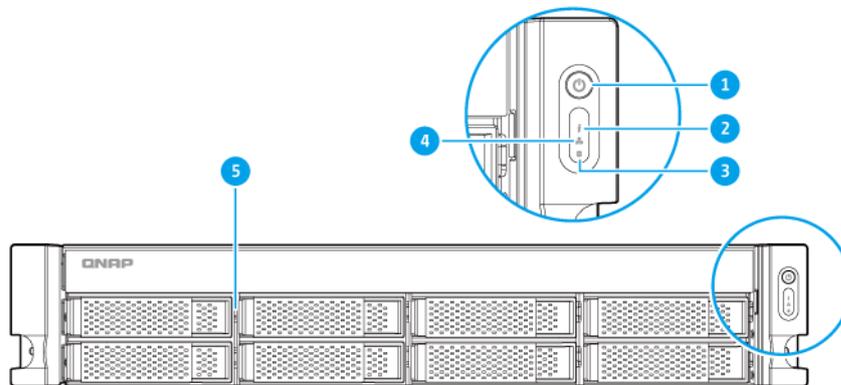
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>

## Package Contents

| Item                           | Quantity  |
|--------------------------------|---|
| TS-x53BU NAS                   | 1   |
| Power cords                    | <ul style="list-style-type: none"> <li>• TS-x53BU models: 1</li> <li>• TS-x53BU-RP models: 2</li> </ul>   |
| Ethernet cables                | 2 x gigabit RJ45  |
| Screws for 3.5-inch drives     | <ul style="list-style-type: none"> <li>• TS-453BU, TS-453BU-RP: 16</li> <li>• TS-853BU, TS-853BU-RP: 32</li> <li>• TS-1253BU, TS-1253BU-RP: 48</li> </ul>                                       |
| Screws for 2.5-inch drives     | <ul style="list-style-type: none"> <li>• TS-453BU, TS-453BU-RP: 12</li> <li>• TS-853BU, TS-853BU-RP: 24</li> <li>• TS-1253BU, TS-1253BU-RP: 36</li> </ul>                                       |
| Handle kit                     | <ul style="list-style-type: none"> <li>• TS-453BU, TS-453BU-RP: <ul style="list-style-type: none"> <li>• 2 x handles</li> <li>• 2 x angle brackets</li> <li>• 8 x screws</li> </ul> </li> </ul> |
| Quick Installation Guide (QIG) | 1   |

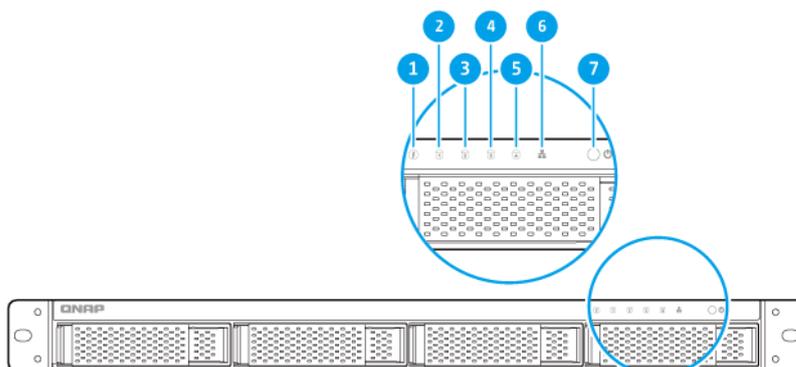
## Components

## Front Panel



### TS-853BU, TS-853BU-RP, TS-1253BU, TS-1253BU-RP

| No. | Component          | No. | Component            |
|-----|--------------------|-----|----------------------|
| 1   | Power button       | 4   | Gigabit Ethernet LED |
| 2   | Status LED         | 5   | Drive status LED     |
| 3   | Expansion unit LED | -   | -                    |

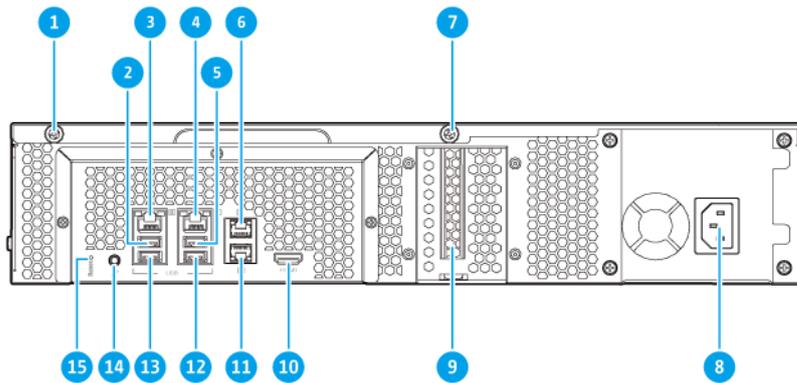


### TS-453BU, TS-453BU-RP

| No. | Component   | No. | Component            |
|-----|-------------|-----|----------------------|
| 1   | Status LED  | 5   | Drive 4 LED          |
| 2   | Drive 1 LED | 6   | Gigabit Ethernet LED |

| No. | Component   | No. | Component    |
|-----|-------------|-----|--------------|
| 3   | Drive 2 LED | 7   | Power button |
| 4   | Drive 3 LED | -   | -            |

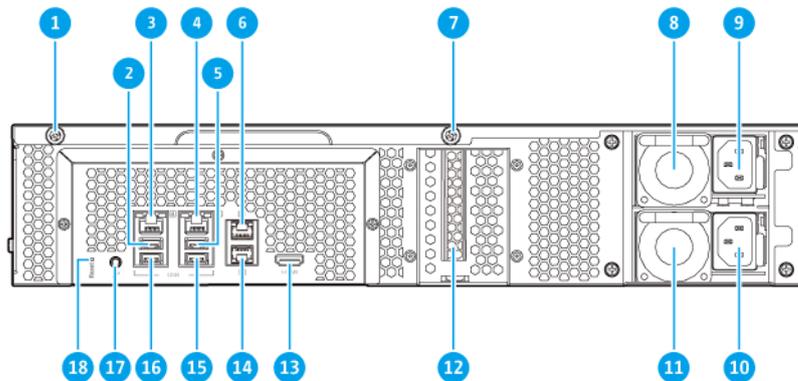
## Rear Panel



### TS-453BU, TS-853BU, TS-1253BU

| No. | Component        | No. | Component      |
|-----|------------------|-----|----------------|
| 1   | Case cover screw | 9   | PCIe cover     |
| 2   | USB 3.0 port     | 10  | HDMI port      |
| 3   | Gigabit port 4   | 11  | Gigabit port 2 |
| 4   | Gigabit port 3   | 12  | USB 3.0 port   |
| 5   | USB 3.0 port     | 13  | USB 3.0 port   |
| 6   | Gigabit port 1   | 14  | COM port       |
| 7   | Case cover screw | 15  | Reset button   |
| 8   | Power port       | -   | -              |

**Note**  
This USB port does not support connecting to an expansion unit.



### TS-453BU-RP, TS-853BU-RP, TS-1253BU-RP

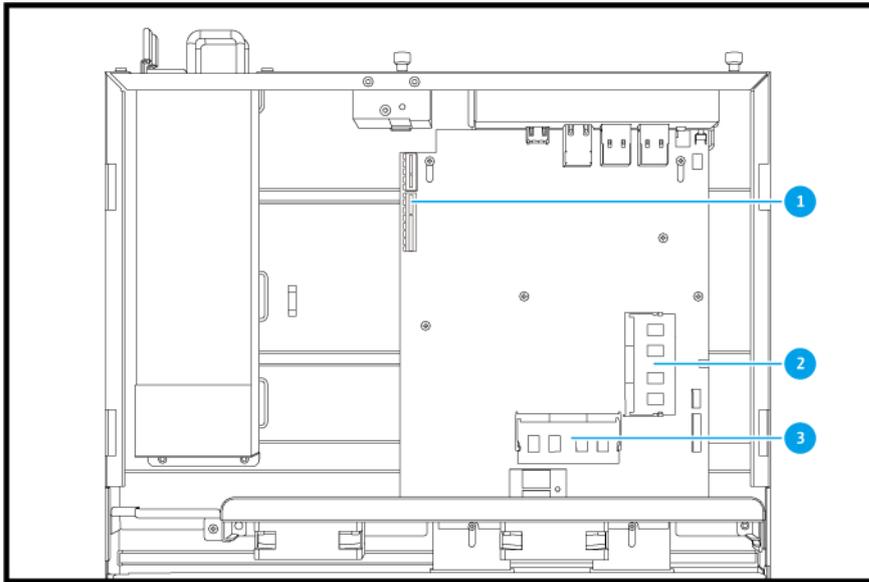
| No. | Component         | No. | Component         |
|-----|-------------------|-----|-------------------|
| 1   | Case cover screw  | 10  | Power port        |
| 2   | USB 3.0 port      | 11  | Power supply unit |
| 3   | Gigabit port 4    | 12  | PCIe cover        |
| 4   | Gigabit port 3    | 13  | HDMI port         |
| 5   | USB 3.0 port      | 14  | Gigabit port 2    |
| 6   | Gigabit port 1    | 15  | USB 3.0 port      |
| 7   | Case cover screw  | 16  | USB 3.0 port      |
| 8   | Power supply unit | 17  | COM port          |
| 9   | Power port        | 18  | Reset button      |



#### Note

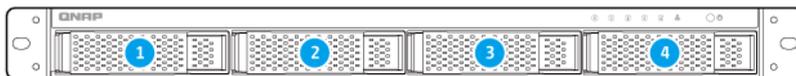
This USB port does not support connecting to an expansion unit.

## System Board

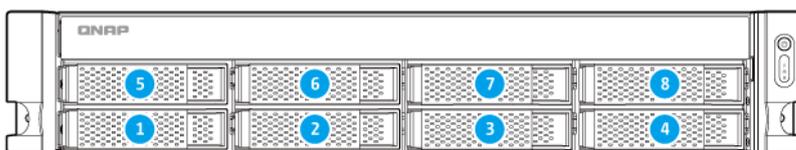


| No. | Component            | No. | Component            |
|-----|----------------------|-----|----------------------|
| 1   | PCIe 2.0 x2 slot     | 3   | SODIMM memory slot 2 |
| 2   | SODIMM memory slot 1 | -   | -                    |

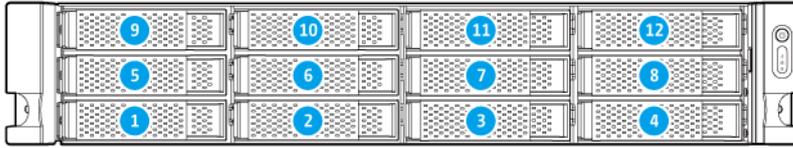
## Drive Numbering



### TS-453BU, TS-453BU-RP



### TS-853BU, TS-853BU-RP



## TS-1253BU, TS-1253BU-RP

### 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> |
| Hardware and peripherals | <ul style="list-style-type: none"> <li>Storage drives<br/>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

- Place your NAS device in an environment that meets the requirements.  
For details, see [Installation Requirements](#).
- Install the NAS on a rack.  
For details, see the following topics:
  - [Rail Kits](#)
  - [Installing Handles](#)
- Install the drives.  
For details, see the following topics:
  - [Installing 3.5-inch Hard Drives](#)
  - [Installing 2.5-inch Hard Drives or Solid State Drives](#)
- Connect the power cord and all applicable cables.
- Power on the NAS.
- 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, memory modules, and expansion cards.

### Drive Installation

The TS-x53BU is compatible with 3.5-inch and 2.5-inch hard drives, and 2.5-inch solid state drives.

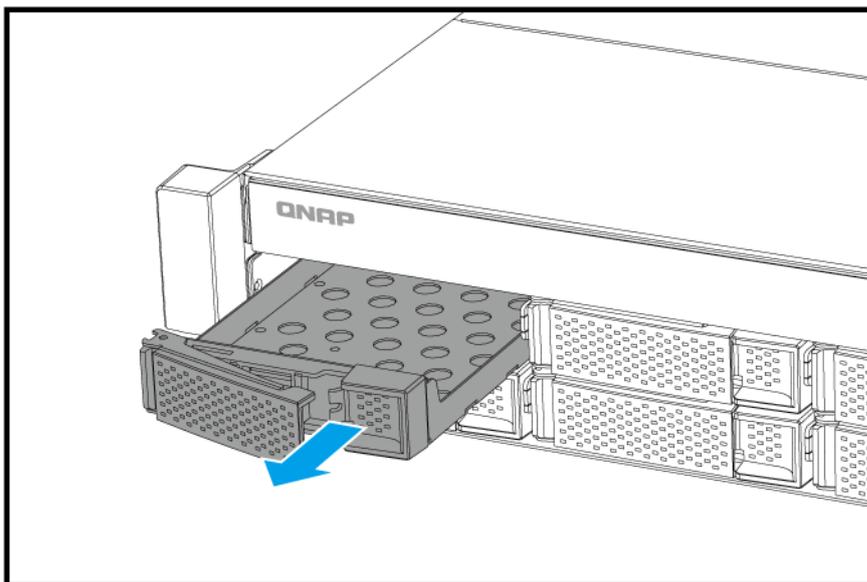
#### Installing 3.5-inch Hard Drives



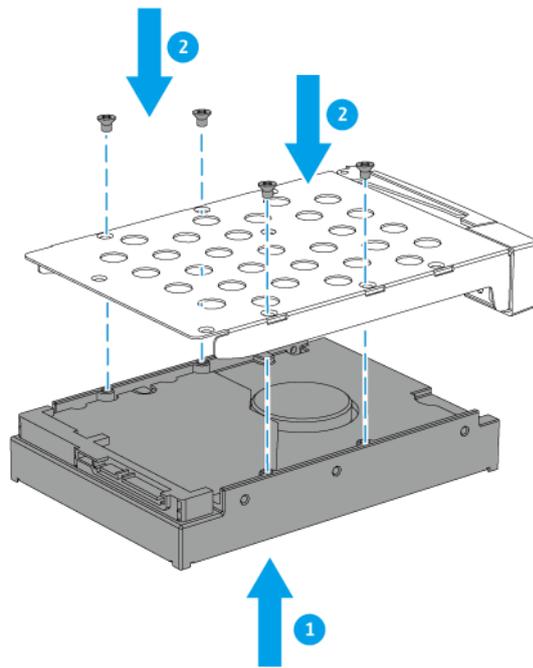
#### Warning

- 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 drive tray.
  - a. Pull the handle to release the tray.
  - b. Pull the tray out.

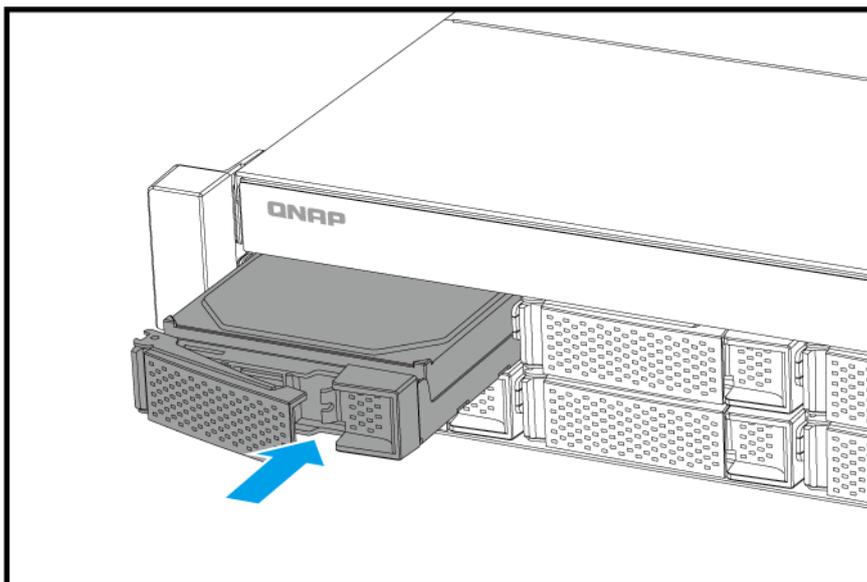


3. Install a drive on the tray.
  - a. Place the tray on the drive so that the holes on the tray are aligned with those on the drive.
  - b. Attach the screws to lock the drive to the tray.



**4. Load the drive tray into the drive bay.**

- a. Insert the tray into the bay.
- b. Push the handle until it is locked into place.



**5. Power on the NAS.**

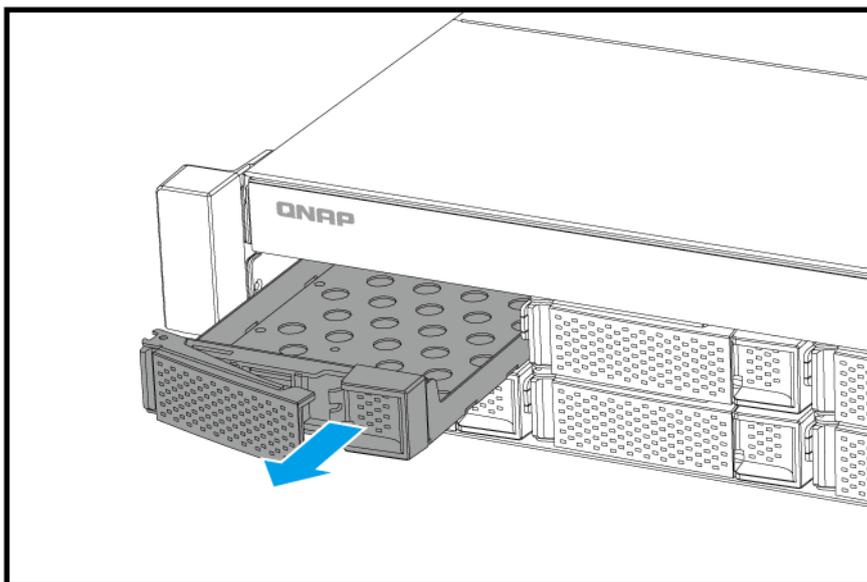
## Installing 2.5-inch Hard Drives or Solid State Drives



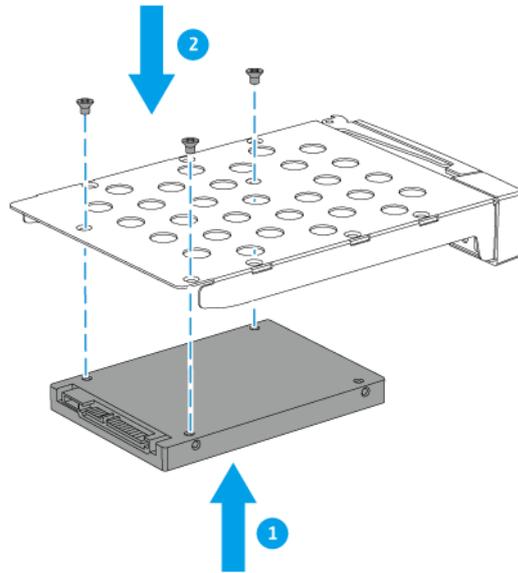
### Warning

- 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 drive tray.
  - a. Pull the handle to release the tray.
  - b. Pull the tray out.

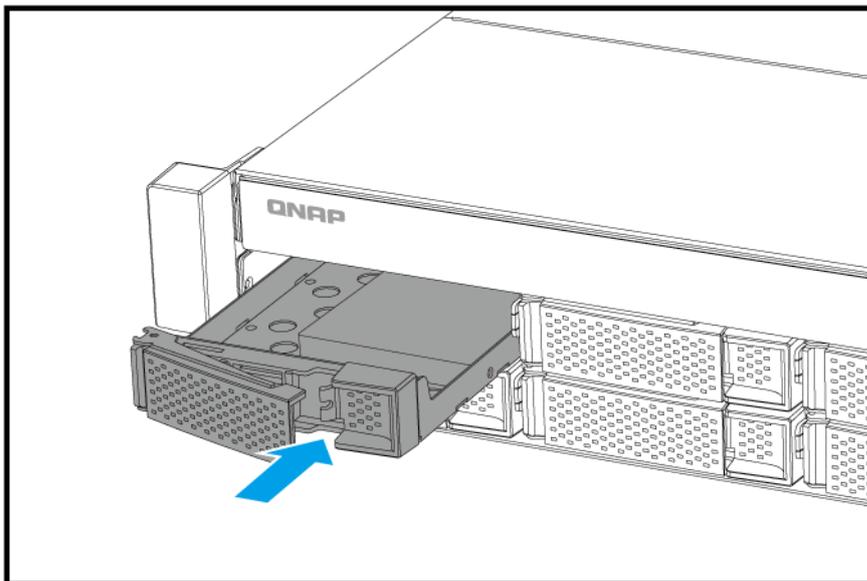


3. Install a drive on the tray.
  - a. Place the tray on the drive so that the holes on the tray are aligned with those on the drive.
  - b. Attach the screws to lock the drive to the tray.



**4. Load the drive tray into the drive bay.**

- a. Insert the tray into the bay.
- b. Push the handle until it is locked into place.



**5. Power on the NAS.**

## Installing Expansion Cards

QNAP-branded expansion cards purchased from the company website are shipped with the brackets necessary to fit all QNAP NAS models.

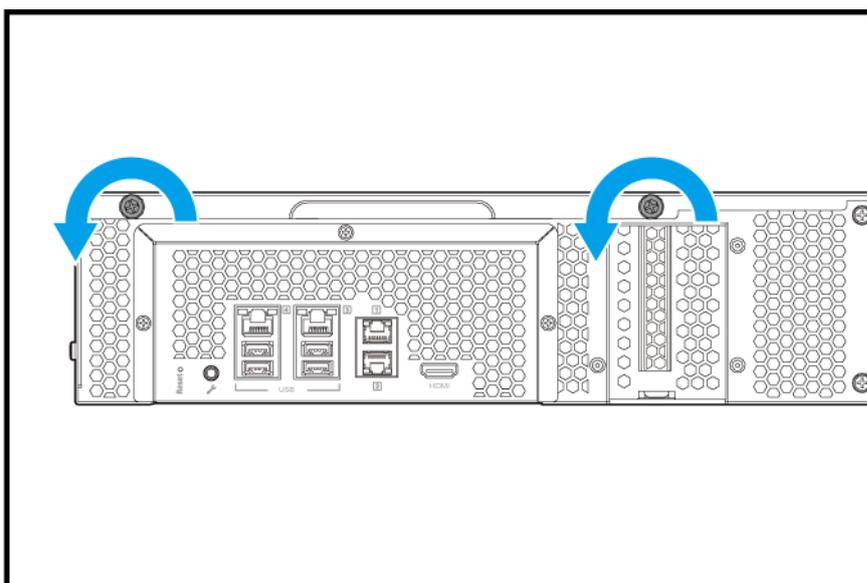
For details on supported expansion cards and brackets, go to <http://www.qnap.com/compatibility>



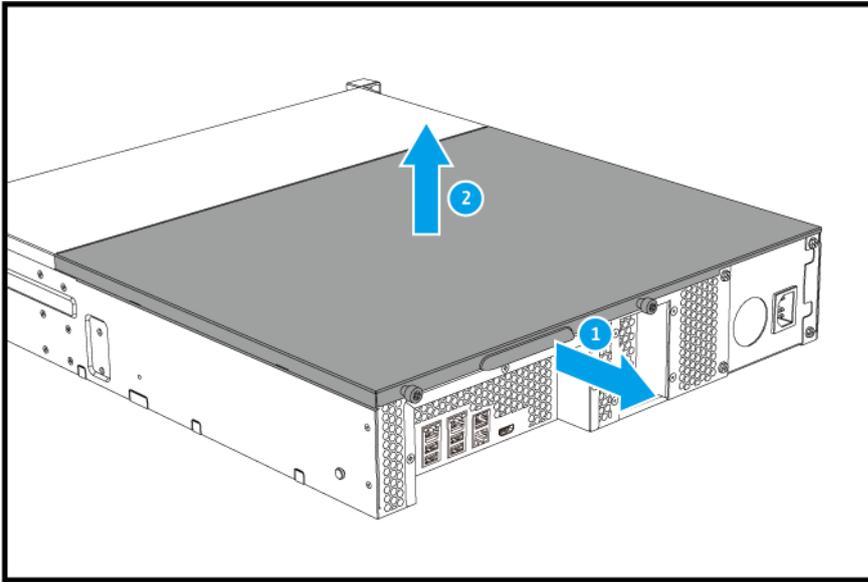
### Warning

- 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. Disconnect the power cord from the electrical outlet.
4. Disconnect all cables and external attachments.
5. Remove the case cover.
  - TS-853BU, TS-853BU-RP, TS-1253BU, TS-1253BU-RP
    1. Loosen the screws that secure the case cover to the chassis.

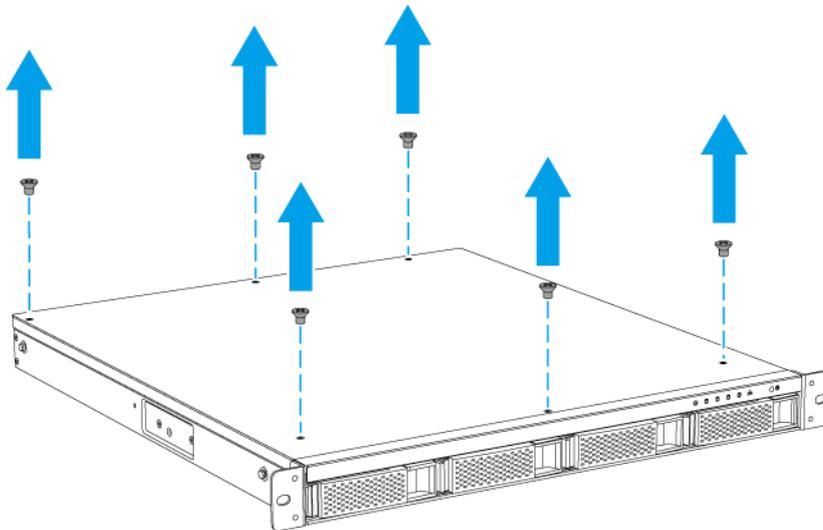


2. Slide the case cover back.
3. Pull the case cover up until it completely detaches from the chassis.

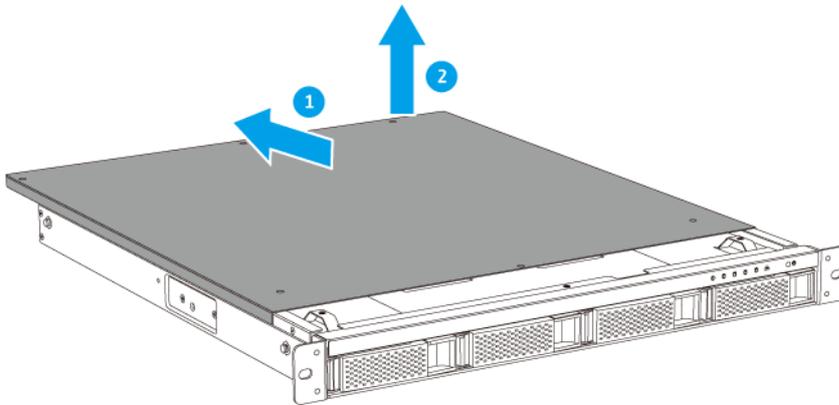


- TS-453BU, TS-453BU-RP

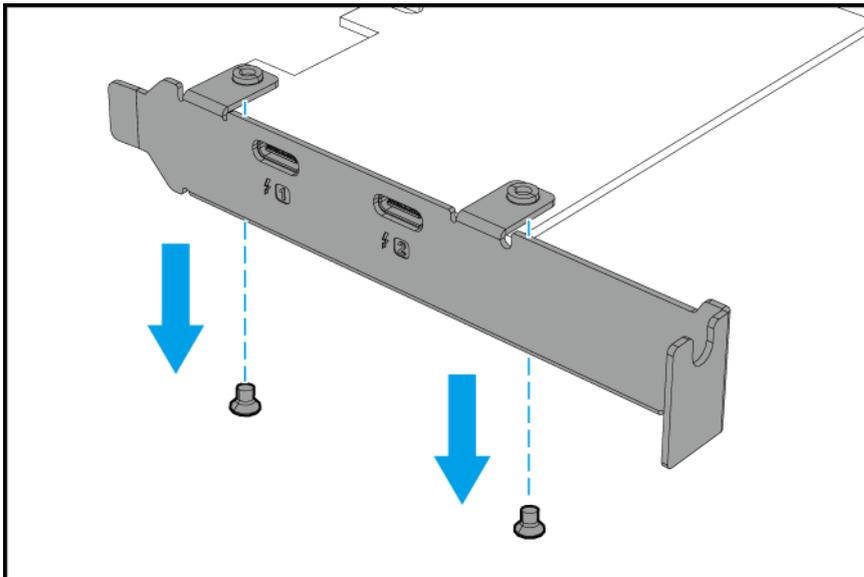
1. Remove the screws that secure the case cover to the chassis.



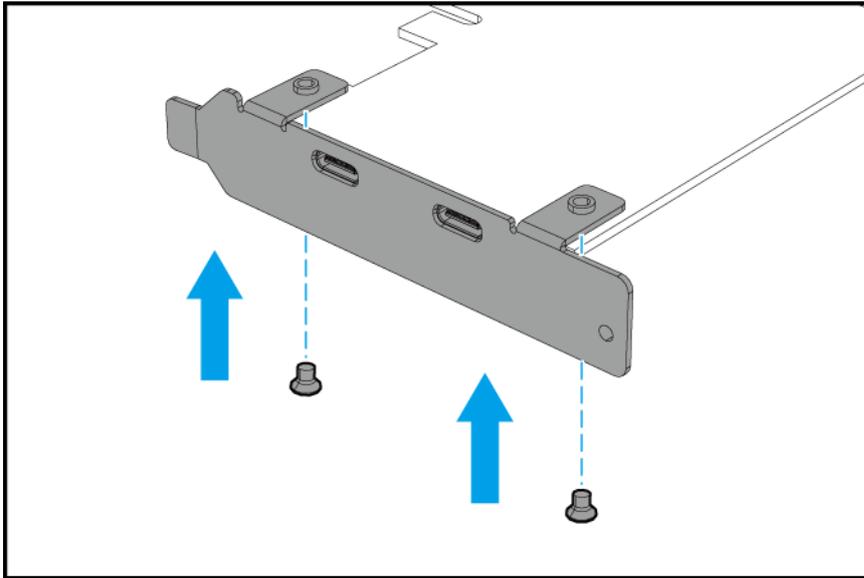
2. Slide the case cover back.
3. Pull the case cover up until it completely detaches from the chassis.



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



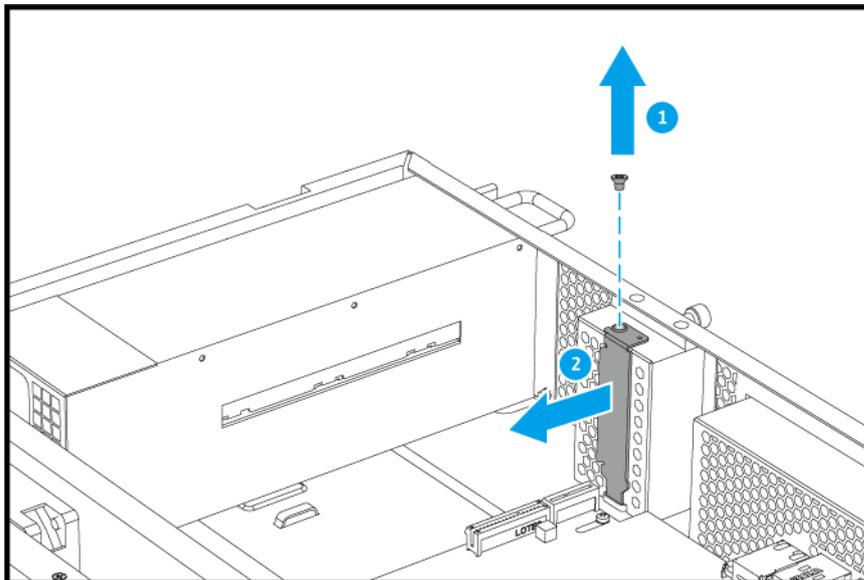
- b. Carefully pull the bracket away from the card.
    - c. Attach the QNAP bracket to the card using the same screws.



d. Verify that the bracket is secured to the card.

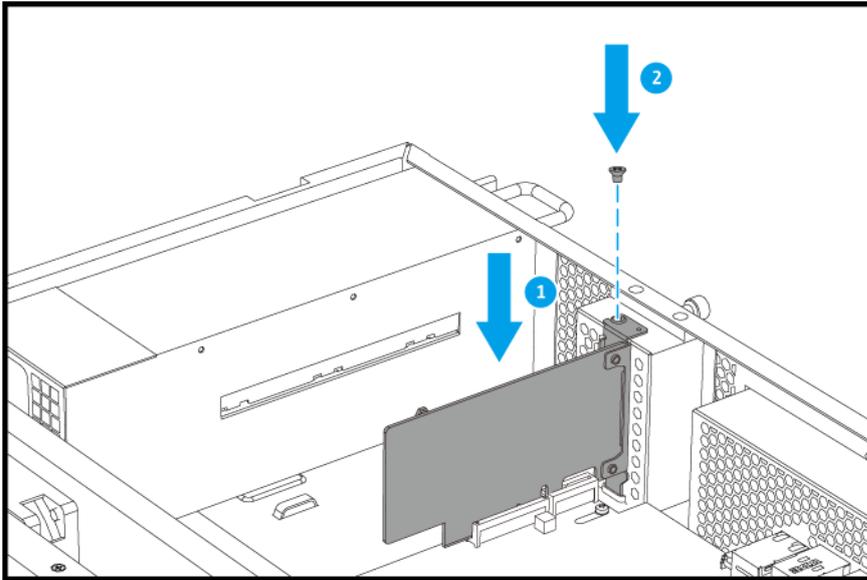
7. Remove the PCIe cover.

- a. Remove the screw that secures the PCIe cover to the chassis.
- b. Pull the cover off.



8. Install the expansion card.

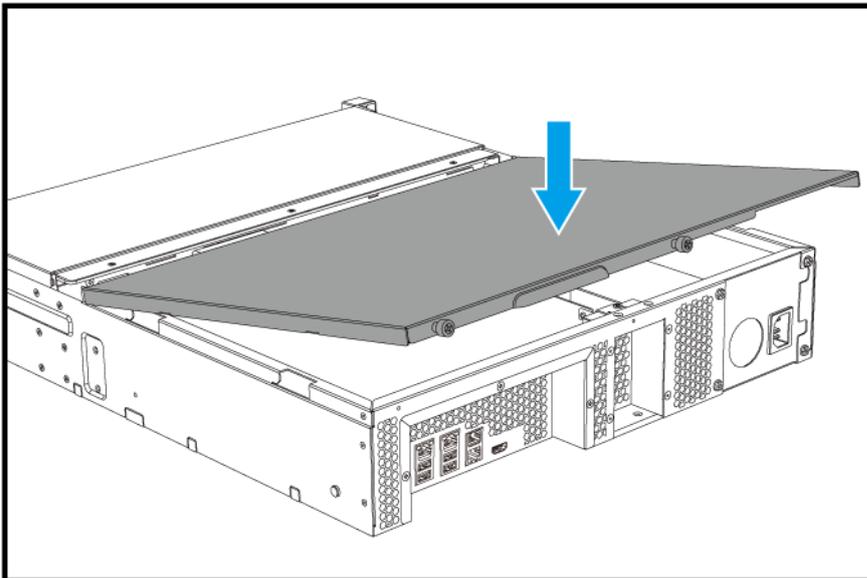
- a. Hold the expansion card by the edges.
- b. Insert the card into the slot.
- c. Attach the screw.



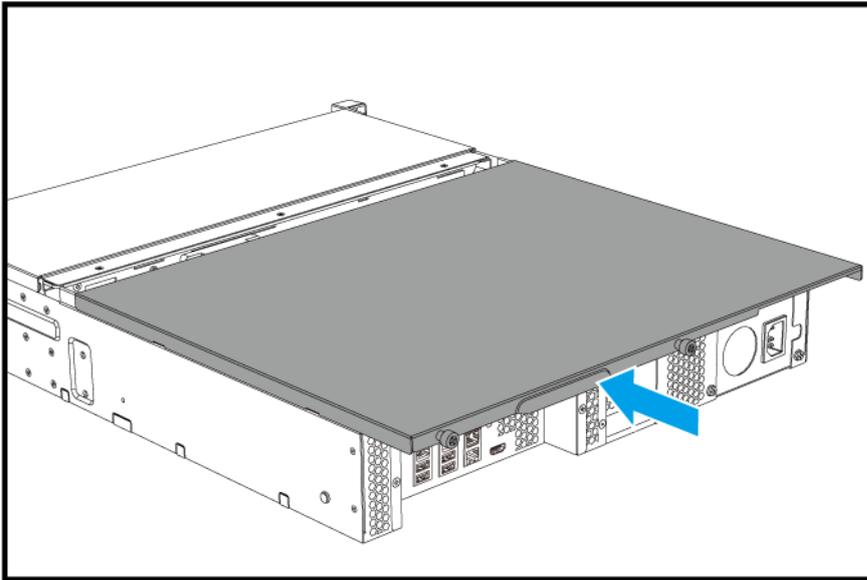
**9. Attach the case cover.**

- TS-853BU, TS-853BU-RP, TS-1253BU, TS-1253BU-RP

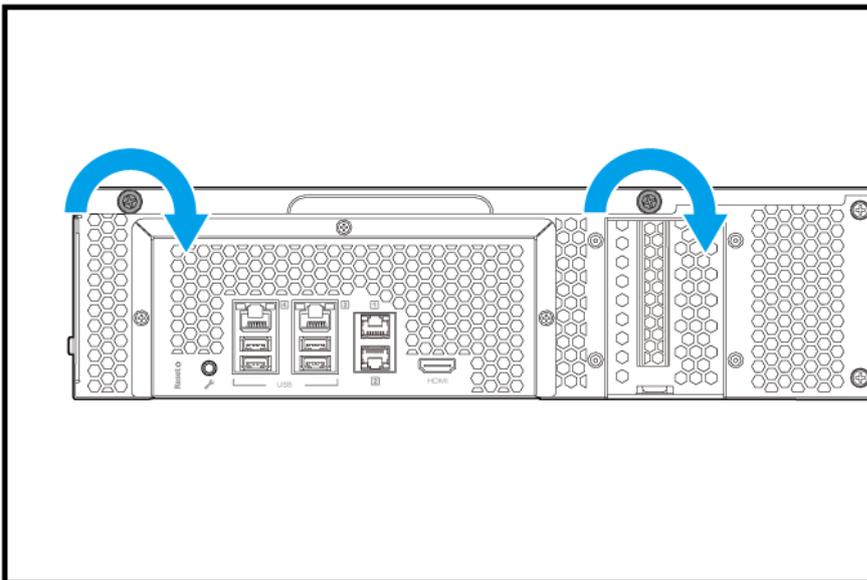
1. Slide the case cover down on the chassis.



2. Slide the case cover forward until it completely connects with the chassis.

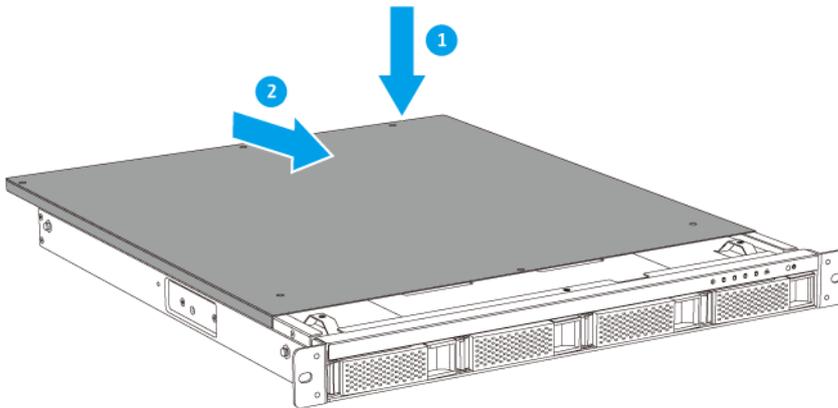


3. Tighten the screws that secure the case cover to the chassis.

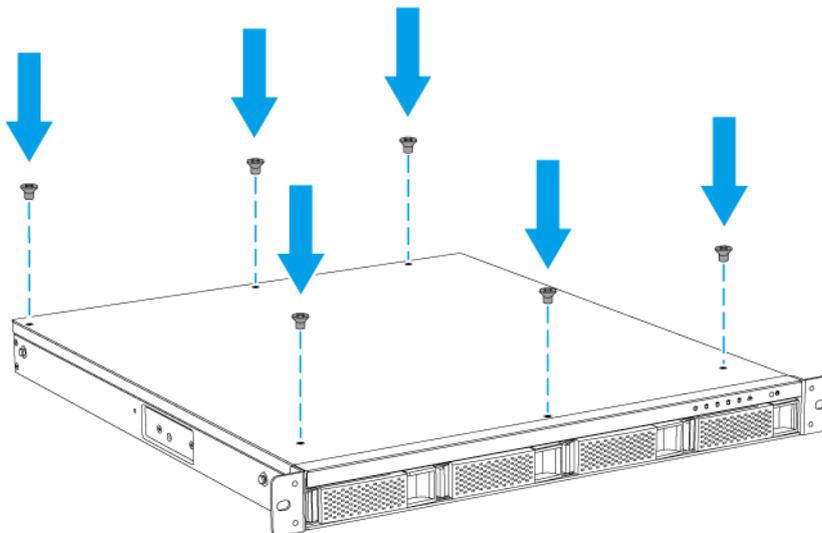


- TS-453BU, TS-453BU-RP

1. Slide the case cover down on the chassis.
2. Slide the case cover forward until it completely connects with the chassis.



3. Attach the screws that secure the case cover to the chassis.



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

## Replacing Memory Modules

The NAS has two memory slots. You can increase the memory capacity of the NAS by upgrading the memory modules.

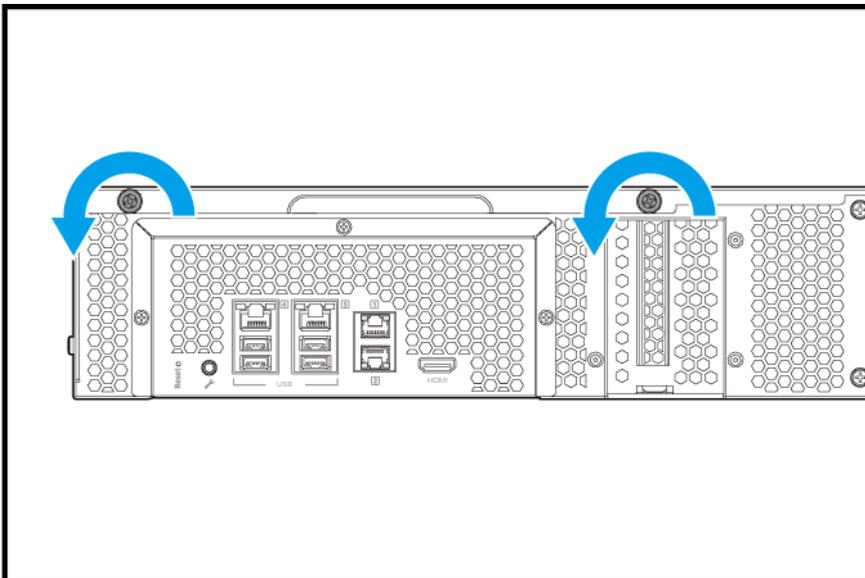
Use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.

**Warning**

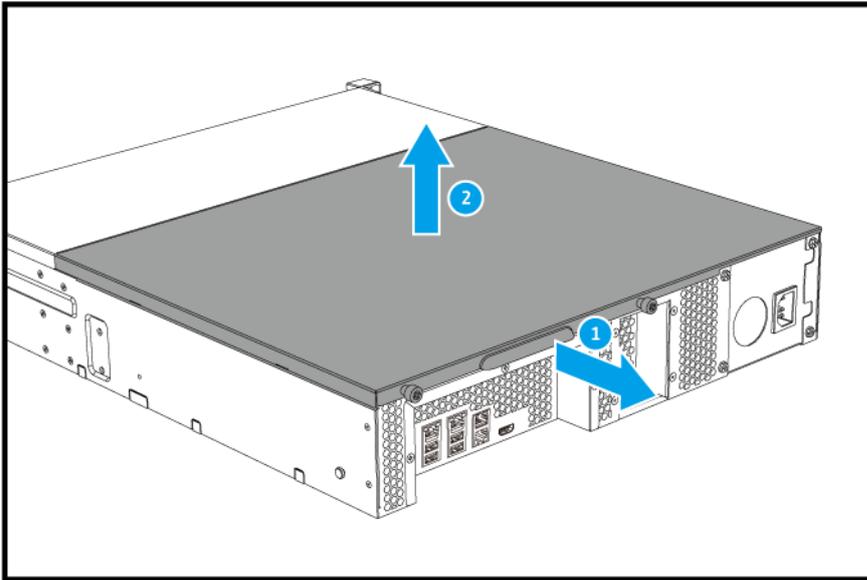
- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the NAS.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - TS-853BU, TS-853BU-RP, TS-1253BU, TS-1253BU-RP

1. Loosen the screws that secure the case cover to the chassis.

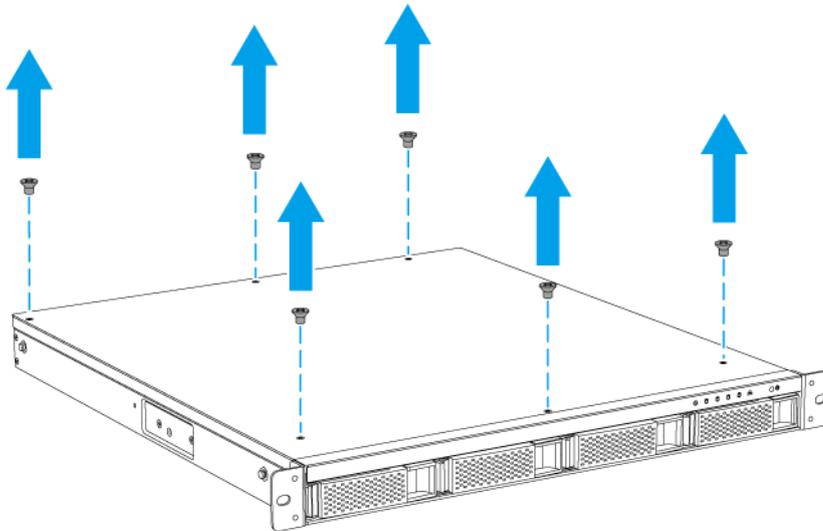


2. Slide the case cover back.
3. Pull the case cover up until it completely detaches from the chassis.



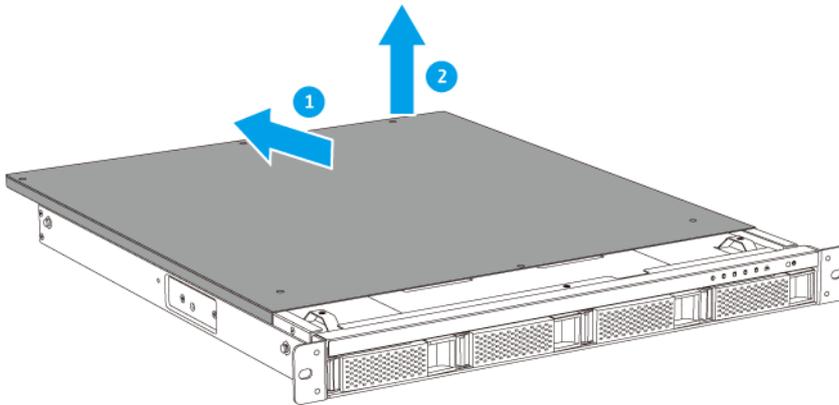
- TS-453BU, TS-453BU-RP

1. Remove the screws that secure the case cover to the chassis.



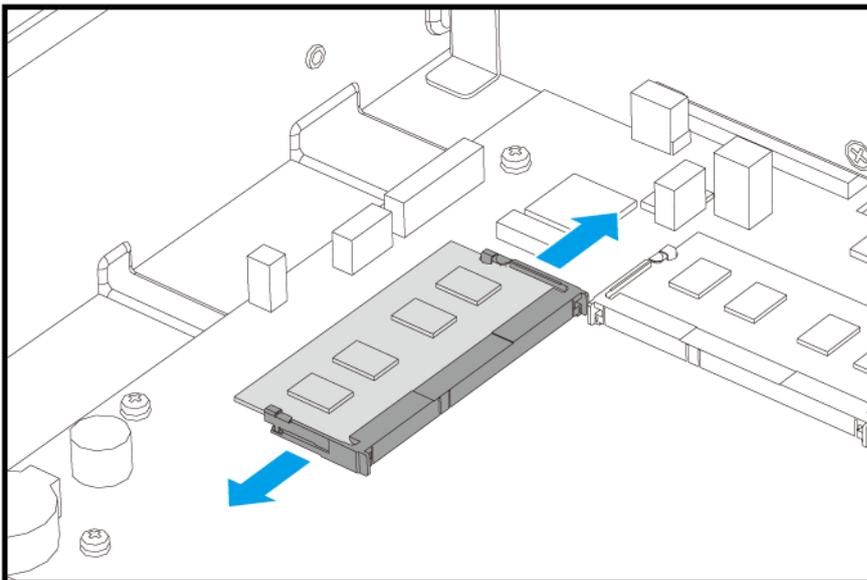
2. Slide the case cover back.

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



5. Remove an existing memory module.

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



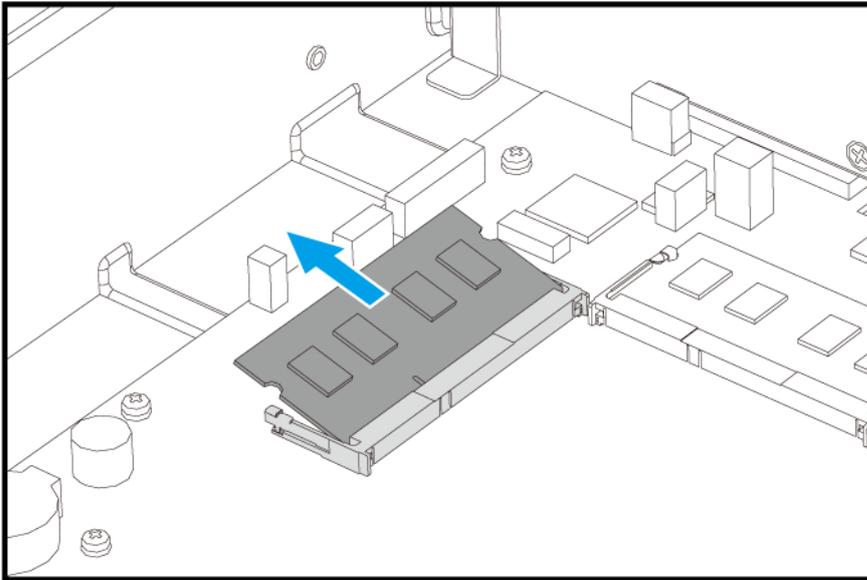
- b. Verify that the module has tilted upward and is completely released from the slot.



**Warning**

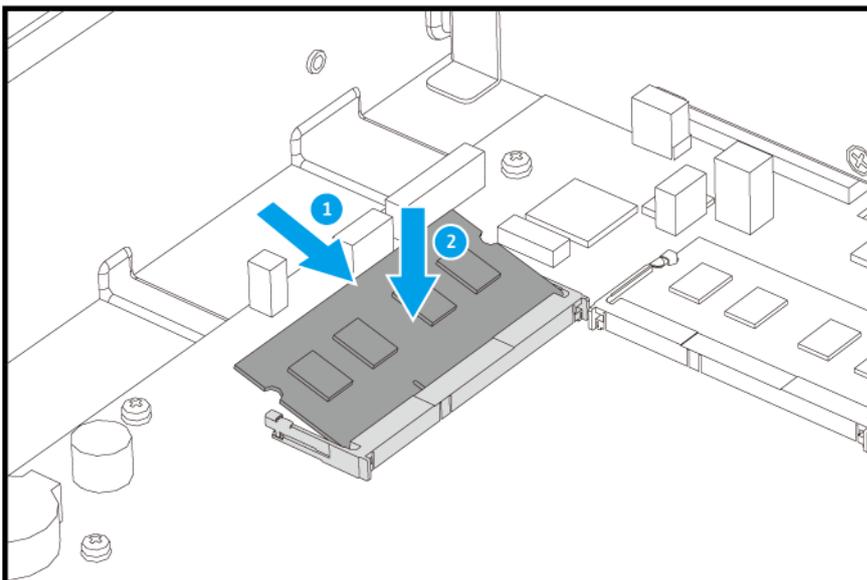
Attempting to remove a module that is not completely released may damage the module and the motherboard.

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



**6. Install a new module.**

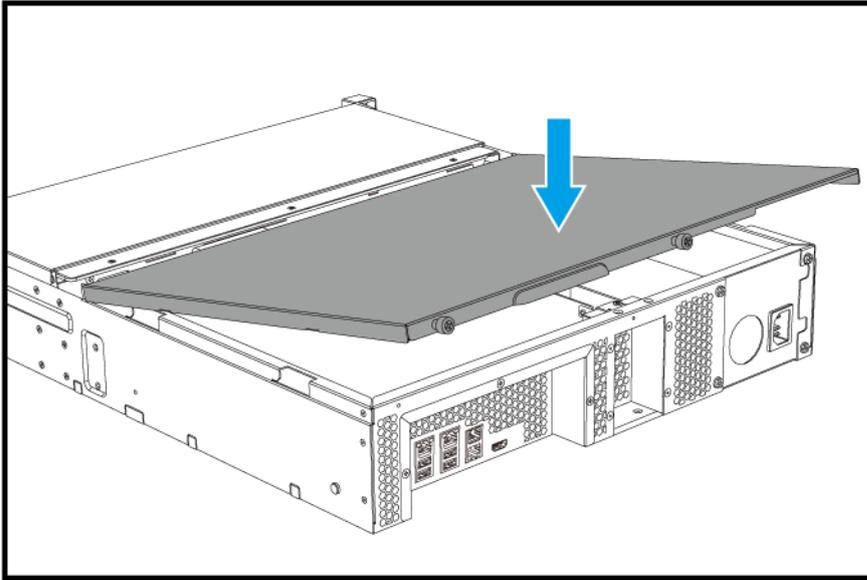
- a. Align the notch with the ridge in the slot.
- b. Insert the module into the slot.
- c. Verify that the metal connectors are completely inserted into the slot.
- d. Carefully press down on the module until the retention clips lock the module into place.



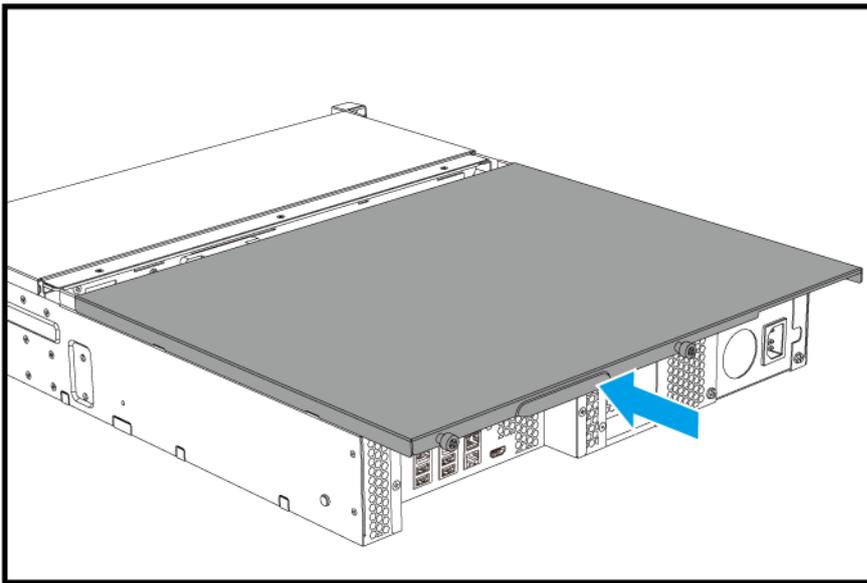
**7. Attach the case cover.**

- TS-853BU, TS-853BU-RP, TS-1253BU, TS-1253BU-RP

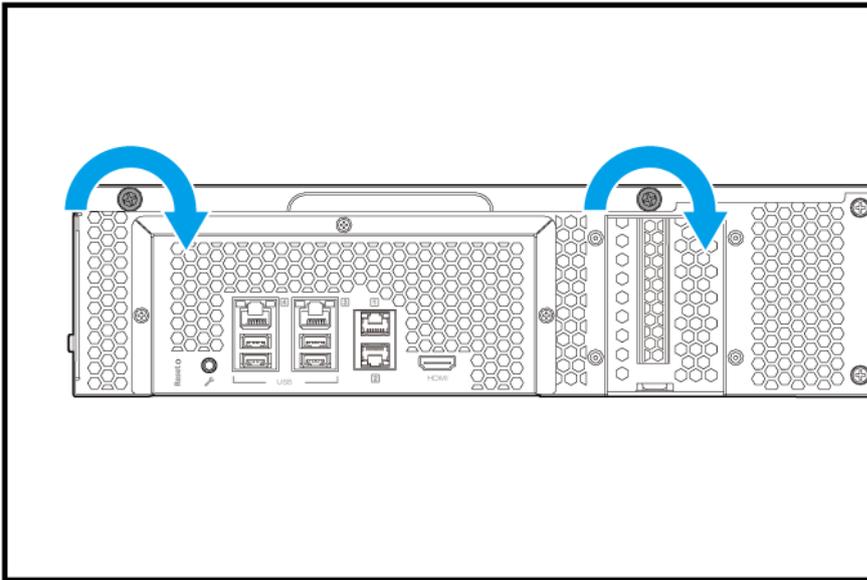
1. Slide the case cover down on the chassis.



2. Slide the case cover forward until it completely connects with the chassis.

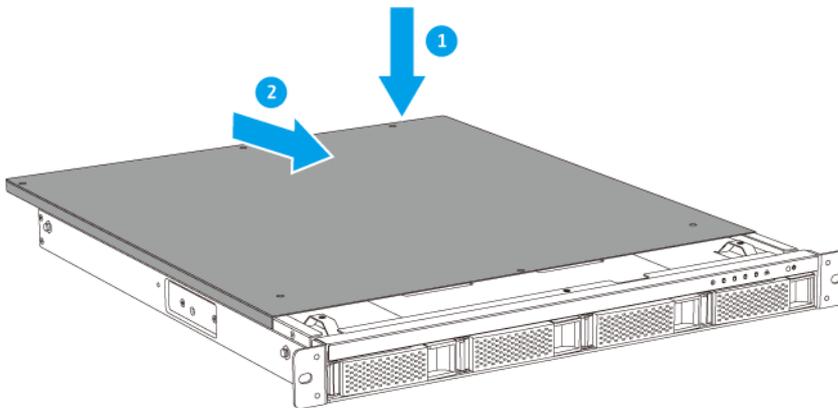


3. Tighten the screws that secure the case cover to the chassis.

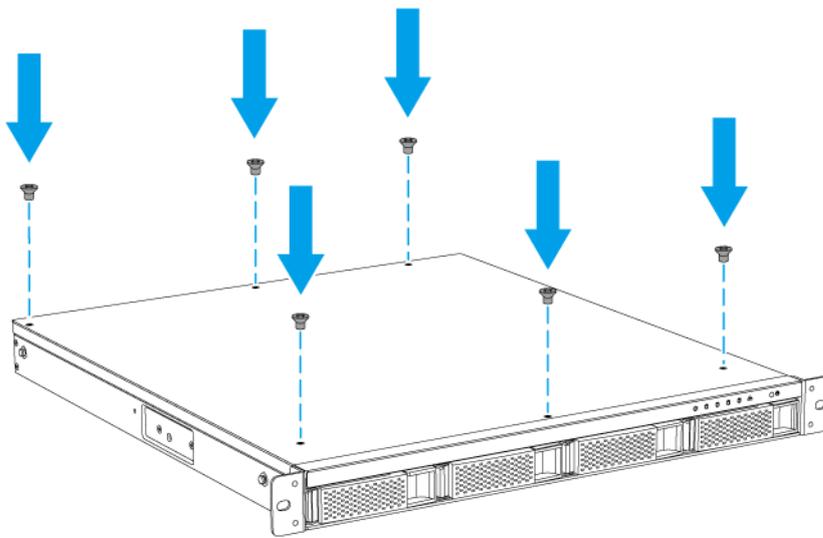


- TS-453BU, TS-453BU-RP

1. Slide the case cover down on the chassis.
2. Slide the case cover forward until it completely connects with the chassis.



3. Attach the screws that secure the case cover to the chassis.



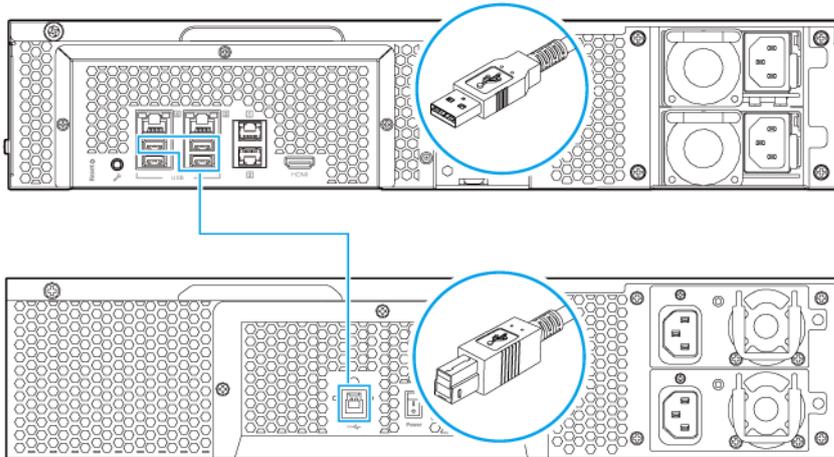
8. Connect all cables and external attachments.
9. Connect the power cord to the electrical outlet.
10. Power on the NAS.
11. Verify that the module is recognized by the NAS.
  - a. Log on to QTS as administrator.
  - b. Go to **Main Menu > Control Panel > System > System Status > System Information**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

## Adding USB Expansion Units

The TS-x53BU supports a maximum of one USB expansion unit and is compatible with the following models:

- UX-800U-RP
- UX-1200U-RP

1. Connect the expansion unit to the NAS.
  - a. Connect the USB cable to the USB 3.0 Type-B port on the expansion unit.
  - b. Connect the USB cable to a USB 3.0 Type-A port on the NAS.



#### Note

The lower-left USB 3.0 port on the NAS does not support connecting to an expansion unit.

2. Power on the expansion unit.
3. Verify that the expansion unit is recognized by the NAS.
  - a. Log on to QTS as administrator.
  - b. Go to **Main Menu > Storage Manager > Overview > System**.
  - c. Verify that the expansion unit is listed.

## Rail Kits

The TS-x53BU is compatible with the following model:

- RAIL-B02

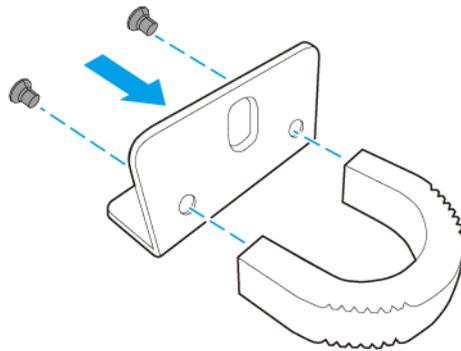
Rail kits are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to <http://shop.qnap.com>.

You can find installation information in the rail kit package.

## Installing Handles

Installing handles enables you to better grip and further secure the NAS on a rack. Handles on the TS-453BU and TS-453BU-RP require manual installation.

1. Power off the NAS.
2. Install a handle to an angle bracket.
  - a. Align the openings of the handle with the two round screw holes on the angle bracket.
  - b. Attach the screws to lock the handle to the angle bracket.



3. Install the angle bracket on the NAS.

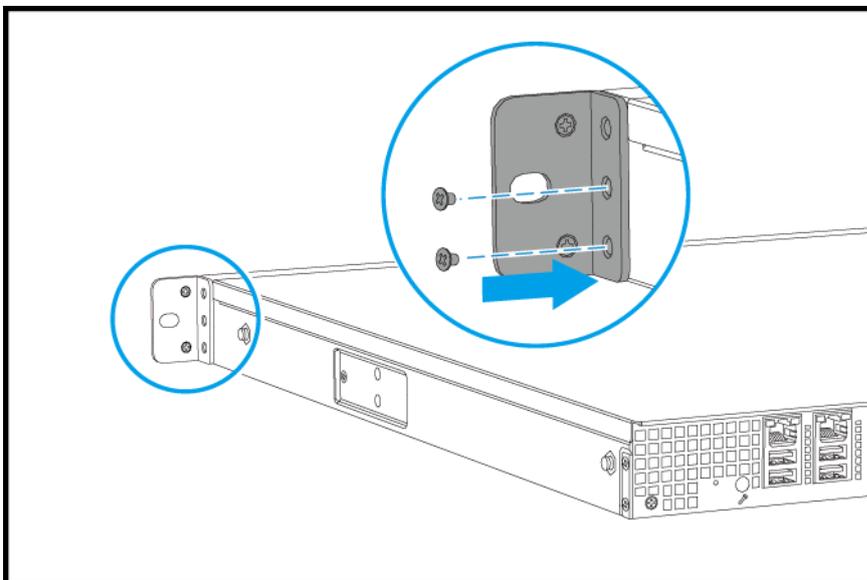
- a. Align the holes on the angle bracket with the holes on the left side of the chassis.



**Note**

Ensure that the handle faces the same direction as the front panel.

- b. Attach the screws to lock the angle bracket to the chassis.

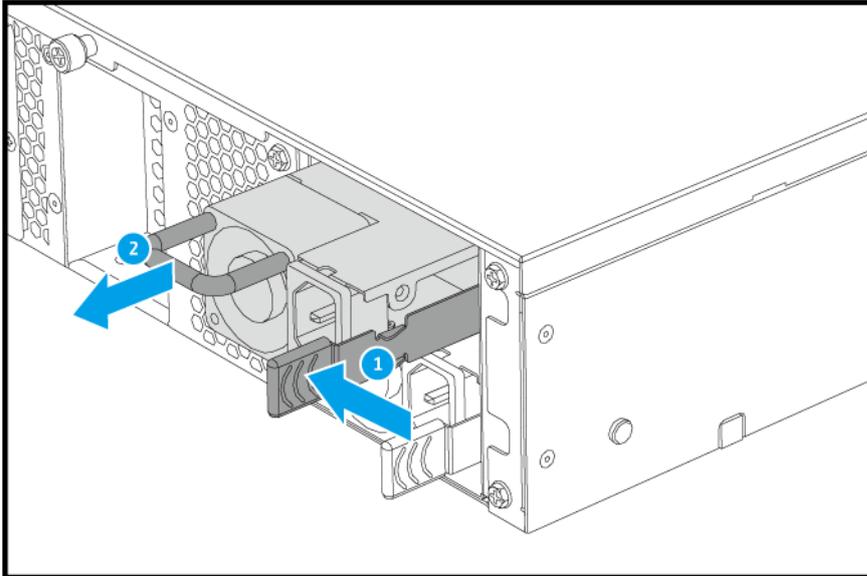


4. Install a second handle to the other side of the chassis.
5. Power on the NAS.

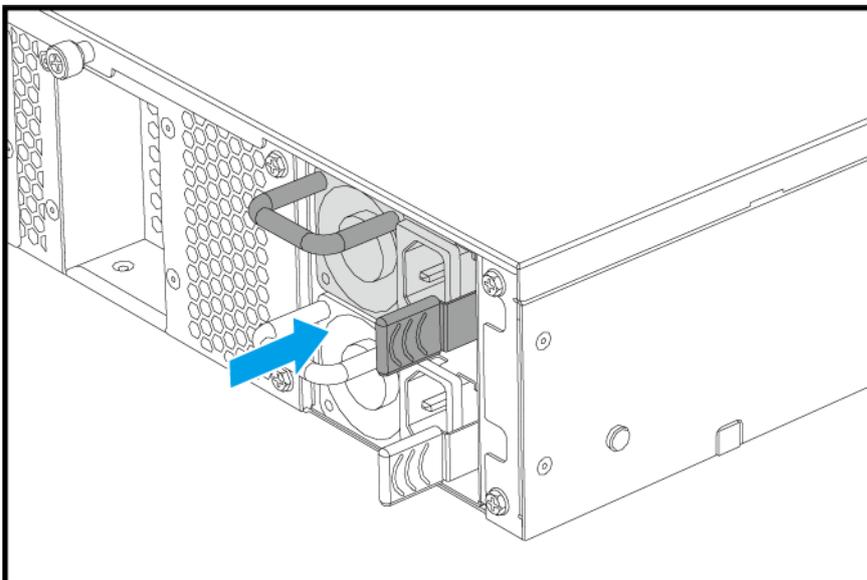
## Hot-swapping Redundant Power Supply Units

NAS devices with redundant power supply units support hot-swapping.

1. Disconnect the power cord from the electrical outlet and the power supply unit (PSU) that you want to replace.
2. Firmly press and hold the latch toward the handle and then pull the PSU out.



3. Insert the new PSU.



4. Connect the power cord to the PSU and the electrical outlet.
5. Power on the NAS.

## QTS Installation

The TS-x53BU 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>                                    |
| 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.



#### Note

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

4. Locate the NAS in the list and then double-click the name or IP address. The **Smart Installation Guide** opens in the default web browser.
5. Click **Start Smart Installation Guide**.
6. Specify the following information.
  - **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
  - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
7. Click **Next**.
8. Specify the time zone, date, and time.

**Tip**

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

9. Click **Next**.
10. Select **Obtain an IP address automatically (DHCP)**.
11. Click **Next**.
12. Select the types of devices that you will use to access shared folders on the NAS.
13. Click **Next**.
14. Select **Configure disks later**.

**Note**

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

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

**Note**

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

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

**Warning**

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

20. Click **Confirm**.

QTS is installed.

## Installing QTS Using the Cloud Key



### Warning

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

1. Power on the NAS.
2. Connect the NAS to the internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
  - On your computer, go to <http://install.qnap.com/>.
  - Scan the QR code on the NAS using a mobile device.

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

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



### Note

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

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.



### Note

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

6. Specify the myQNAPcloud device name for the NAS.



### Note

The myQNAPcloud device name is used when remotely accessing the NAS.

7. Optional: Select **CloudLink**.



### Note

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

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

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

10. Specify the following information.

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

- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

11. Click **Next**.
12. Specify the time zone, date, and time.

**Tip**

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

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

**Note**

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

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

**Note**

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

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

**Warning**

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

24. Click **Confirm**.  
QTS is installed.

## Installing QTS Using an HDMI Connection

**Warning**

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

1. Connect an HDMI monitor to the NAS.

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

**Warning**

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

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

## 4. Basic Operations

This chapter describes basic NAS operations.

### Power Button

| Operation       | User Action                                | Result  |
|-----------------|--|---|
| Power on        | Press the button once.                     | The NAS powers on.  |
| Power off       | Press and hold the button for 1.5 seconds. | The NAS powers off.   |
| Force power off | Press and hold the button for 5 seconds.   | The NAS shuts down.<br><br> <b>Important</b><br>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 15 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>  |

### 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   |
|---------------------|--|---|
| Status              | Flashes green and red alternately 2 times per second | <ul style="list-style-type: none"> <li>• A drive on the NAS is being formatted.</li> <li>• The NAS is being initialized.</li> <li>• The operating system is being updated.</li> <li>• RAID rebuild is in process.</li> <li>• Online RAID Capacity Expansion is in process.</li> <li>• Online RAID Level Migration is in process.</li> </ul>   |
|                     | Green  | The NAS is ready.   |
|                     | Flashes green 2 times per second                     | <ul style="list-style-type: none"> <li>• The NAS is not configured.</li> <li>• A drive on the NAS is not formatted.</li> </ul>  |
|                     | Red  | <ul style="list-style-type: none"> <li>• The drive is invalid.</li> <li>• A disk volume has reached its full capacity.</li> <li>• A 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 a 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 2 times per second                       | The NAS is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).   |
|                     | Flashes Red once                                     | The NAS has received a command from a remote control.   |
|                     | Flashes Amber  | The NAS is in sleep mode (S3).  |
|                     | Off  | All drives are in standby mode.   |
| Gigabit LAN (Front) | Amber  | The NAS is connected to a network.  |
|                     | Flashes Amber  | The NAS is being accessed from the network.   |
|                     | Off  | The NAS is not connected to a network.  |
| Gigabit LAN (Rear)  | Left Green   | The Ethernet port is connected to a 1 gigabit network.  |
|                     | Left Amber   | The Ethernet port is connect to a 100 megabit network.  |
|                     | Left Off   | The NAS is not connected to a network.  |
|                     | Right Green  | The Ethernet port is connected to a network.  |
|                     | Right flashes Green                                  | The NAS is being accessed on this Ethernet port.  |
|                     | Right Off  | The Ethernet port is not connected to a network.  |

| LED           | Status  | Description   |
|---------------|---|---|
| Drive         | Green   | The drive is ready.   |
|               | Flashes Green   | The drive is being accessed.                                  |
|               | Red   | The drive has encountered an error.                           |
|               | Flashes Red 5 times per second  | The drive is being located in the operating system.           |
|               | Off   | No drive is detected.   |
| Expansion LED | Amber   | A USB JBOD, SAS JBOD, or REXP is connected.                   |
|               | Off   | No JBOD is connected.   |
| PSU LED       | Green   | Power is being supplied to the PSU and the NAS is powered on. |
|               | Amber<br>Available on the following models:<br><br><ul style="list-style-type: none"> <li>• TS-853BU</li> <li>• TS-853BU-RP</li> <li>• TS-1253BU</li> <li>• TS-1253BU-RP</li> </ul> | Power supply failure.   |
|               | Off   | No power is supplied to the PSU or the NAS is powered off.    |

## 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.  |

| Duration                | Frequency           | Description   |
|-------------------------|---------------------|---|
| 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

### **CloudLink**

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

### **myQNAPcloud**

Provides various remote access services such as DDNS and CloudLink

### **myQNAPcloud ID**

Email address that was used to register for a myQNAPcloud account

### **Qfinder Pro**

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

### **QTS**

QNAP NAS operating system

## 7. Notices

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

### Limited Warranty

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

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Version 3, 29 June 2007

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