



**QNAP**

# **TS-x73A**

**TS-473A**

**TS-673A**

**TS-873A**

**User Guide**

# Contents

## 1. Preface

About This Guide.....	3
Audience.....	3
Document Conventions.....	3

## 2. Product Overview

About the TS-x73A.....	4
Hardware Specifications.....	4
Package Contents.....	6
Components.....	7
Front Panel.....	7
Rear Panel.....	8
Right Panel.....	10
Left Panel.....	10
Drive Numbering.....	11
Safety Information.....	12
Installation Requirements.....	13
Setting Up the NAS.....	13

## 3. Installation and Configuration

Hardware Installation.....	15
Drive Installation.....	15
Installing Expansion Cards.....	27
Replacing Memory Modules.....	37
Expansion Unit Installation.....	41
QTS Installation.....	45
Installing QTS Using Qfinder Pro.....	46
Installing QTS Using the Cloud Key.....	47

## 4. Basic Operations

Power Button.....	49
Reset Button.....	49
USB One Touch Copy Button.....	50
LEDs.....	50
Audio Alert.....	52

## 5. Troubleshooting

Forcing Qfinder Pro or myQNAPcloud to Locate the NAS.....	54
Hot-swapping Failed Drives.....	54
Recovering Unintentionally Removed Healthy Drives.....	55
Support and Other Resources.....	55

## 6. Glossary

Cloud Key.....	56
myQNAPcloud Link.....	56
myQNAPcloud.....	56
QNAP ID.....	56
Qfinder Pro.....	56
QTS.....	56
QuTS hero.....	56

## 7. Notices

Limited Warranty.....	57
Disclaimer.....	57
GNU Public License.....	57
CE Notice.....	65
FCC Notice.....	65
VCCI Notice.....	66
BSMI Notice.....	66
SJ/T 11364-2006.....	66

# 1. Preface





## About This Guide

This guide provides information on the QNAP TS-x73A NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

## Audience

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

## Document Conventions

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

## 2. Product Overview

This chapter provides basic information about the QNAP TS-x73A NAS.

### About the TS-x73A

The TS-x73A is a high-performance and energy-efficient NAS solution powered by an AMD Ryzen™ Embedded V1500B quad-core processor, AES-NI hardware encryption engine, and up to 64 GB memory. The TS-x73A can also adapt to your needs due to its hot-swappable drives, M.2 NVMe SSD slots, and dual PCIe expansion slots. You can also switch the operating system between QTS and QuTS hero.

### Hardware Specifications



#### Warning

- If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third party invalidates the warranty.
- QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.
- For details, see the [QNAP Warranty Terms and Conditions](#).









#### Tip

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

Ordering P/N	Drive bays	Memory	Power supply
TS-473A-8G	4	8 GB	Single
TS-673A-8G	6	8 GB	Single
TS-873A-8G	8	8 GB	Single

Component	TS-473A	TS-673A	TS-873A
Processor			
CPU	AMD® Ryzen™ Embedded V1500B		
Frequency	4-core/8-thread 2.2 GHz		
Architecture	x86 64-bit		
Encryption engine	AES-NI		
Memory			
Pre-installed memory	8 GB RAM: 1 x 8 GB DDR4 non-ECC SODIMM		

Component	TS-473A	TS-673A	TS-873A
Memory slots	2 x SODIMM DDR4   <b>Important</b> <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>  <b>Note</b> This device supports ECC memory modules.		
Maximum memory	64 GB (2 x 32 GB)		
Flash memory	5 GB (dual-boot OS protection)		
Storage			
Drive bays	4 x 3.5-inch SATA 6 Gbps bays	6 x 3.5-inch SATA 6 Gbps bays	8 x 3.5-inch SATA 6 Gbps bays
	 <b>Tip</b> The drive bays are backward compatible with SATA 3 Gbps drives.		
Drive compatibility	3.5-inch bays: <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>		
M.2 SSD slots	2 x PCIe Gen 3 x1 NVMe		
M.2 SSD form factor	2280		
SSD cache acceleration support	3.5-inch drive bays:1 to 4	3.5-inch drive bays:1 to 6	3.5-inch drive bays:1 to 8
Hot-swapping	The device supports hot-swapping drives except for the following: M.2 SSDs		
Network			
2.5 Gigabit Ethernet ports	2 x 2.5 GbE RJ45   <b>Note</b> The 2.5 Gigabit Ethernet port provides 3 network connection speeds: 2.5G, 1G, and 100M.		
Wake-on-LAN	Yes (2.5 GbE RJ45)		
External I/O Ports & Expansion Slots			
PCIe slots	2 x PCIe 3.0 x4		

Component	TS-473A	TS-673A	TS-873A
USB ports	Front: 1 x USB 3.2 Gen 2 (10 Gbps) Type-A   <b>Note</b> This USB port supports One Touch Copy.  Rear: <ul style="list-style-type: none"> <li>• 2 x USB 3.2 Gen 2 (10 Gbps) Type-A</li> <li>• 1 x USB 3.2 Gen 1 (5 Gbps) Type-C</li> </ul>		
Interface			
Buttons	<ul style="list-style-type: none"> <li>• Power</li> <li>• USB One Touch Copy</li> <li>• Reset</li> </ul>		
Dimensions			
Form factor	Tower		
Dimensions (H x W x D)	188.2 x 199.3 x 280.8 mm (7.41 x 7.85 x 11.05 in)	188.2 x 264.3 x 280.8 mm (7.41 x 10.4 x 11.05 in)	188.2 x 329.3 x 280.8 mm (7.41 x 12.96 x 11.05 in)
Net weight	5.03 kg (11.09 lbs)	5.78 kg (12.74 lbs)	6.76 kg (14.90 lbs)
Others			
Power supply unit	250W, 100-240V AC, 50/60Hz		
System battery	CR2032 lithium battery (3V, 225 mAh)		
Sound level	21.4 dB(A)	20.3 dB(A)	23.0 dB(A)
	 <b>Note</b> The sound level was tested at a bystander position, which is within one meter of the NAS. The test NAS operated at low speed with the maximum number of drives installed.		
Fans	<ul style="list-style-type: none"> <li>• System: 1 x 120 mm, 12V DC fan</li> <li>• CPU: 1 x 60 mm fan</li> </ul>	<ul style="list-style-type: none"> <li>• System: 2 x 92 mm, 12V DC fans</li> <li>• CPU: 1 x 60 mm fan</li> </ul>	<ul style="list-style-type: none"> <li>• System: 2 x 120 mm, 12V DC fans</li> <li>• CPU: 1 x 60 mm fan</li> </ul>
Operating temperature	0°C to 40°C (32°F 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>		
Security slot	Kensington security slot		

**Tip**

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

## Package Contents

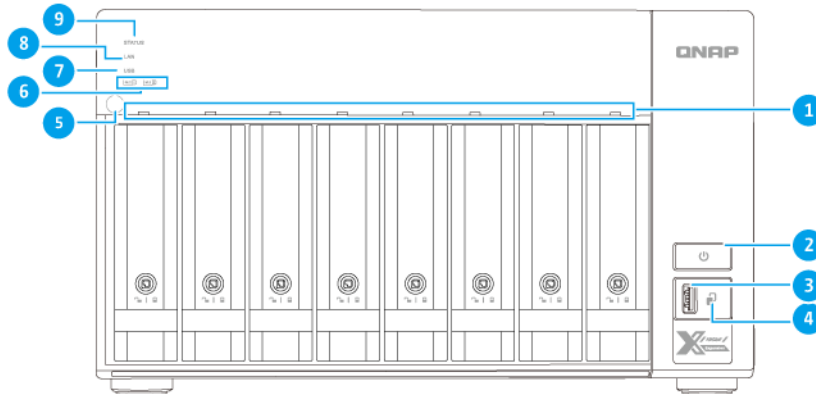
Item	Quantity
TS-x73A NAS	1
Power cord	1

Item	Quantity
Ethernet cable	1 Cat5e
Screws for 3.5-inch drives	<ul style="list-style-type: none"> <li>• TS-473A: 12</li> <li>• TS-673A-4G: 18</li> <li>• TS-873A: 24</li> </ul>
Screws for 2.5-inch drives	<ul style="list-style-type: none"> <li>• TS-473A: 12</li> <li>• TS-673A: 18</li> <li>• TS-873A: 24</li> </ul>
Drive tray keys	2
Heatsinks for M.2 SSDs	2
Quick Installation Guide (QIG)	1

## Components

### Front Panel

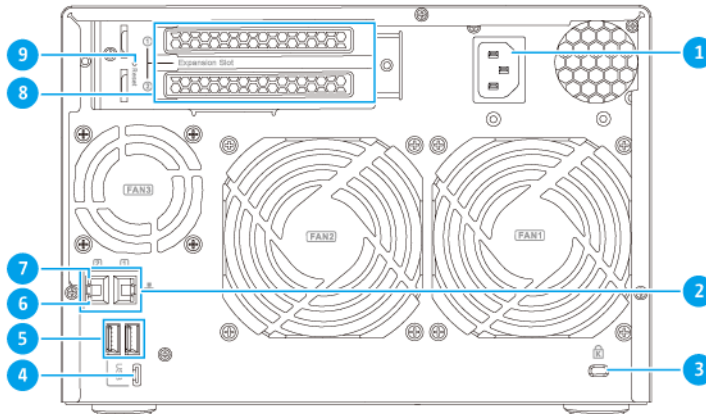
#### TS-x73A




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

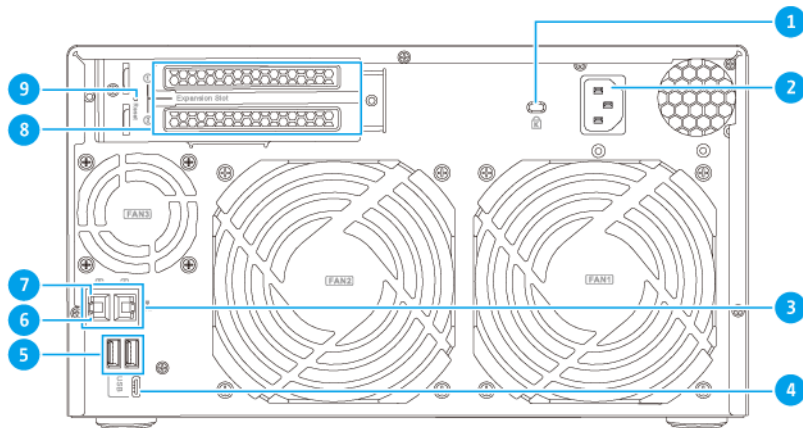


## Rear Panel




### TS-473A/TS-673A

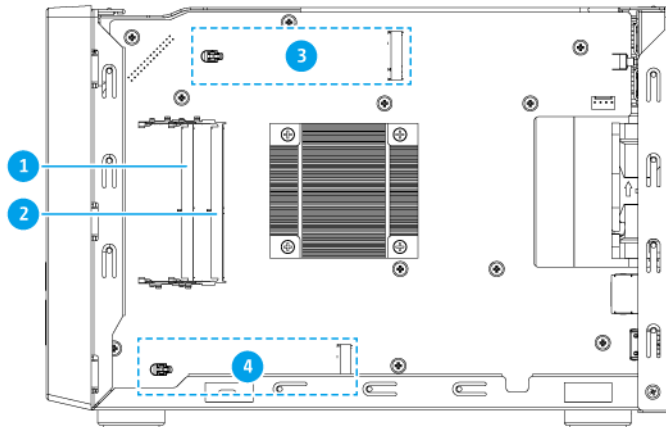
No.	Component		Component
1	Power input	6	2.5 Gigabit Ethernet activity LED
2	2.5 Gigabit Ethernet ports (RJ45)	7	2.5 Gigabit Ethernet speed LED
	 <b>Note</b> These Gigabit Ethernet ports support Wake-on-LAN configurations.		
3	Kensington security slot	8	PCIe full-height covers
4	USB 3.2 Gen 1 Type-C port	9	Reset button
5	USB 3.2 Gen 2 Type-A ports	-	-



**TS-873A**

No.	Component		Component
1	Kensington security slot	6	2.5 Gigabit Ethernet activity LED
2	Power input	7	2.5 Gigabit Ethernet speed LED
3	2.5 Gigabit Ethernet ports (RJ45)	8	PCIe full-height covers
	 <b>Note</b> These Gigabit Ethernet ports support Wake-on-LAN configurations.		
4	USB 3.2 Gen 1 Type-C port	9	Reset button
5	USB 3.2 Gen 2 Type-A ports	-	-

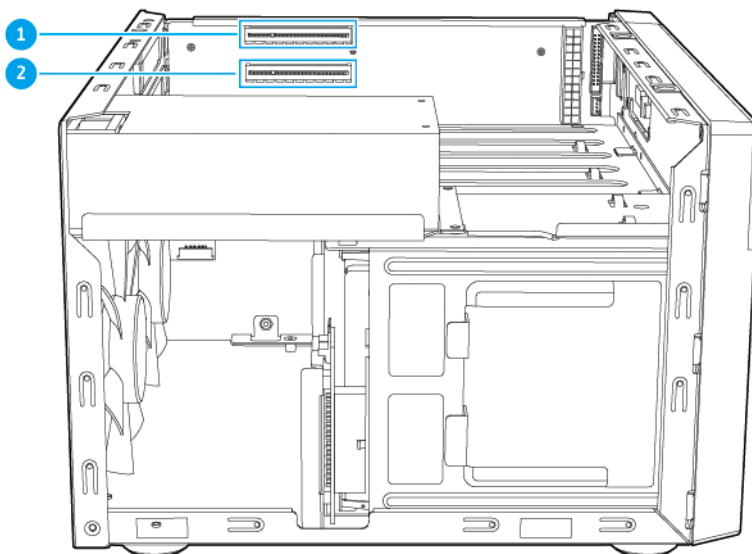
## Right Panel



**Note**  
The image does not include the chassis.

No.	Component	No.	Component
1	Memory slot 2	3	M.2 SSD slot 1
2	Memory slot 1	4	M.2 SSD slot 2

## Left Panel

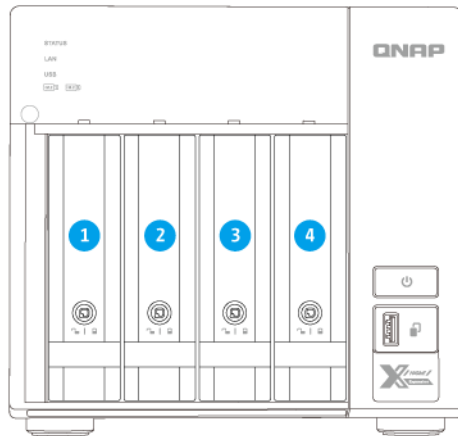




**Note**  
The image does not include the chassis.

No.	Component	No.	Component
1	PCIe slot 1 (PCIe 3.0 x4)	2	PCIe slot 2 (PCIe 3.0 x4)

## Drive Numbering



**TS-473A**



**TS-673A**



## TS-873A

### Safety Information

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

#### General Instructions

- The device should be stored in a secure location with restricted access, controlled through the use of a tool, lock and key, or any means of security.
- Only qualified, skilled, and authorized persons with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the device.
- To avoid potential injury or damage to components, ensure that the drives and other internal system components have cooled before touching them.
- Observe electrostatic discharge (ESD) procedures to avoid potential injury or damage to components.

#### Power

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



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

#### System Battery

- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.

- Dispose of used batteries properly according to local regulations or the instructions of the battery manufacturer.

### Moving Parts

- 



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

- 



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

### Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> <li>• Room temperature: 0°C to 40°C (32°F 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 without exposure to direct sunlight, liquids, or chemicals</li> </ul>
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. Install the drives.  
For details, see the following topics:
  - [Installing 3.5-inch Hard Drives on 3.5-inch Trays](#)
  - [Installing 2.5-inch Hard Drives or Solid-state Drives on 3.5-inch Trays](#)
  - [Installing M.2 Solid-state Drives](#)
3. Optional: Install expansion cards.
4. Connect the power cord and all applicable cables.
5. Power on the NAS.

6. Install QTS.  
For details, see [QTS Installation](#).
7. Log on to the operating system.

## 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-x73A is compatible with 3.5-inch and 2.5-inch hard drives, 2.5-inch solid-state drives, and M.2 solid-state drives.

#### Installing 3.5-inch Hard Drives on 3.5-inch Trays



#### Warning

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



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

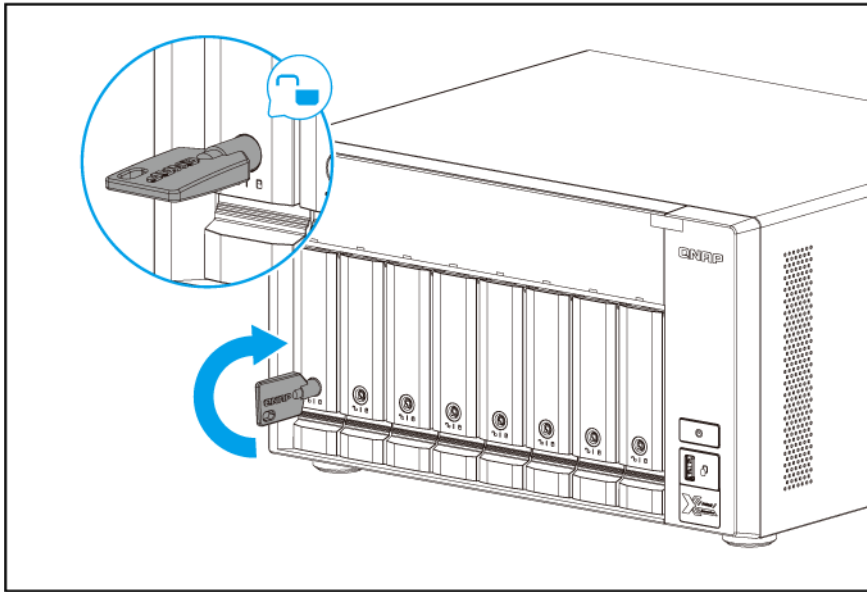
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**Other moving components:** Keep your hands and other body parts away from other moving components.

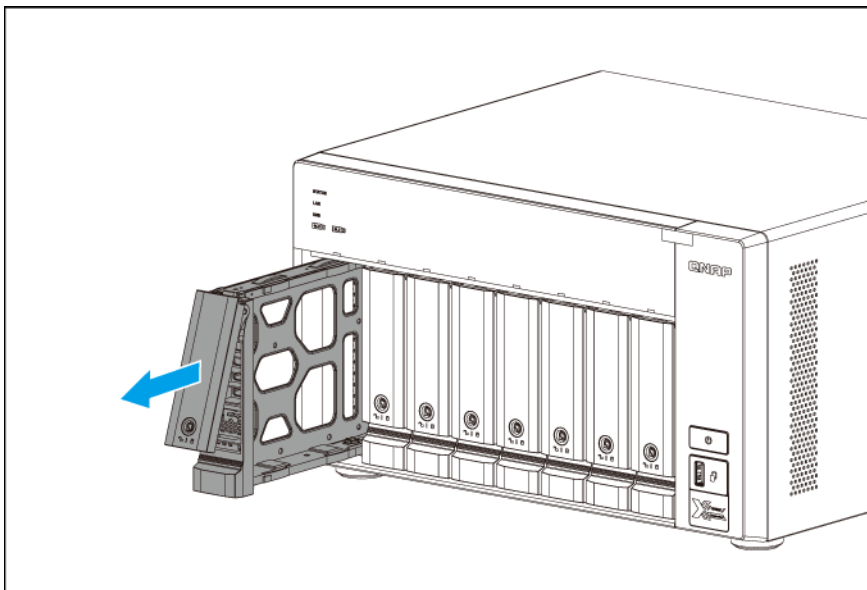
1. Power off the NAS.
2. Remove the drive tray.
  - a. Optional: Unlock the tray.





b. Pull the handle to release the tray.

c. Pull the tray out.



**Note**

The preinstalled drive trays come unlocked.

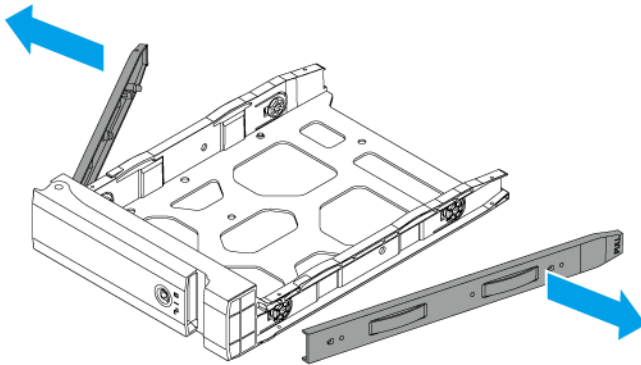


**Important**

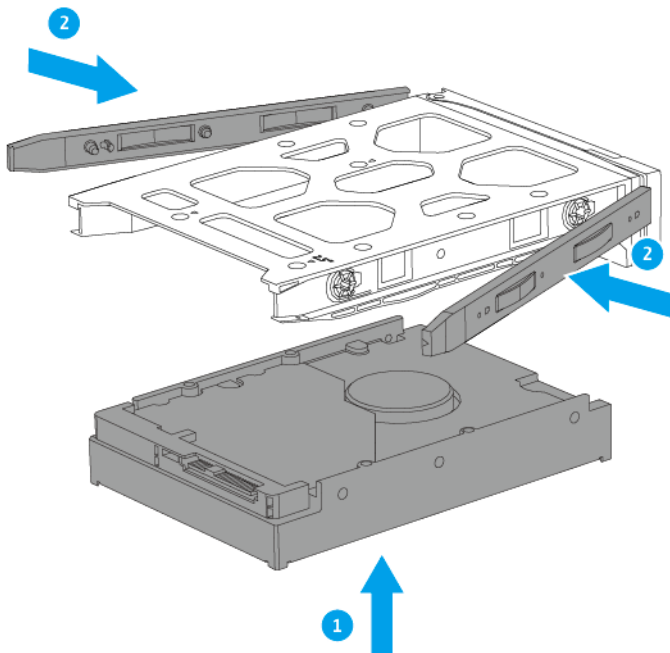
Ensure the drive tray keys are stored in a safe place.

3. Install a drive on the tray.

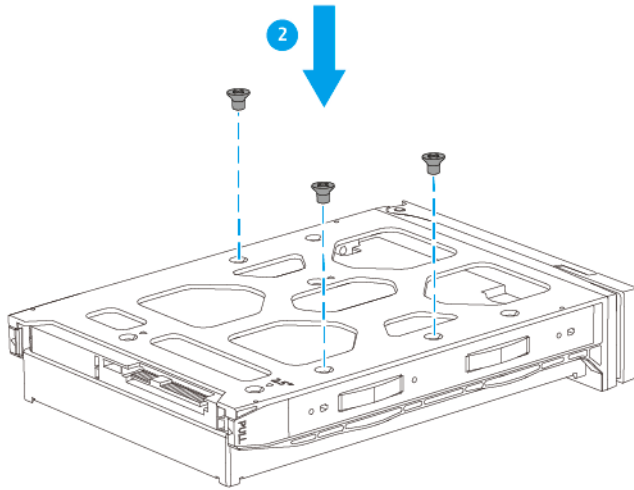
a. Remove the fastening panels from the sides of the drive tray.



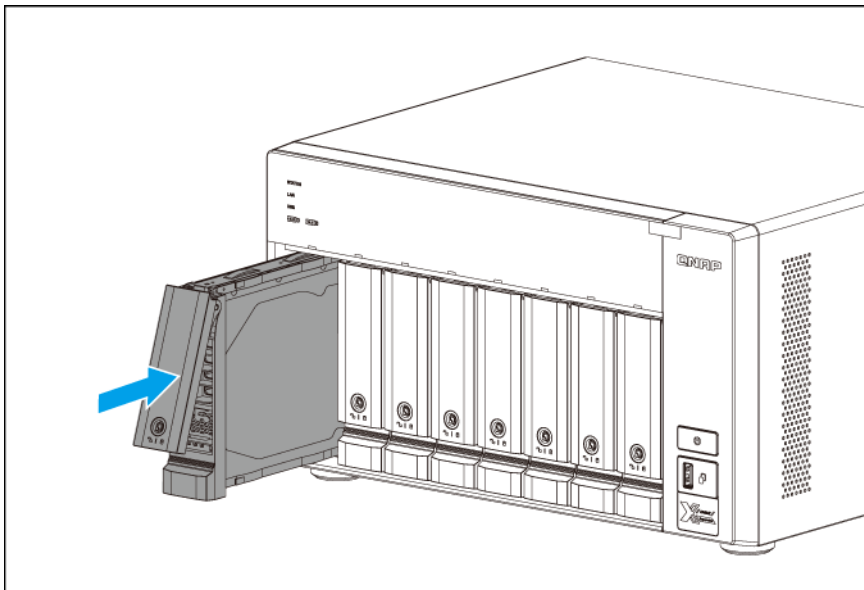
- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the fastening panels to lock the drive to the tray.



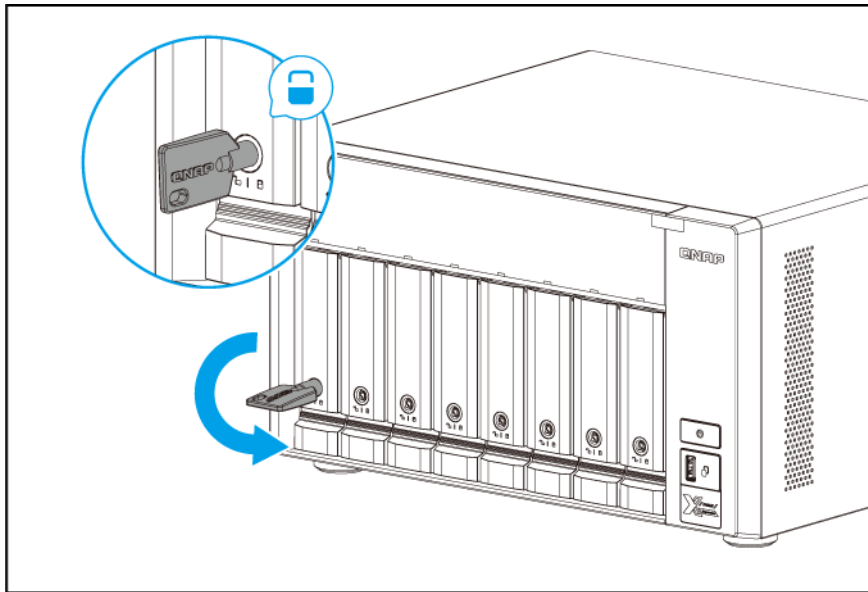
- d.** Optional: Attach the screws to further secure the drive.



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



- b. Push the handle.
    - c. Lock the tray.



5. Power on the NAS.

### Installing 2.5-inch Hard Drives or Solid-state Drives on 3.5-inch Trays



#### Warning

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

- 



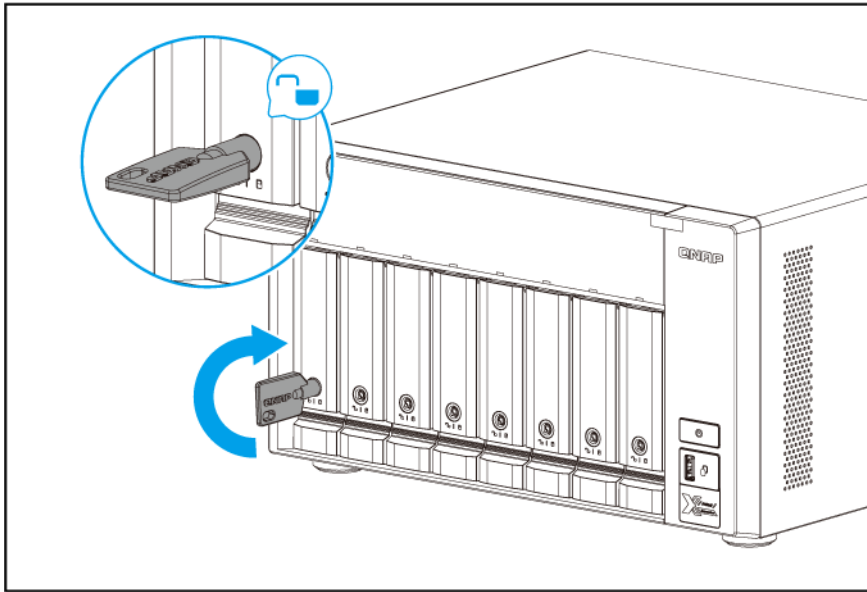
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

- 



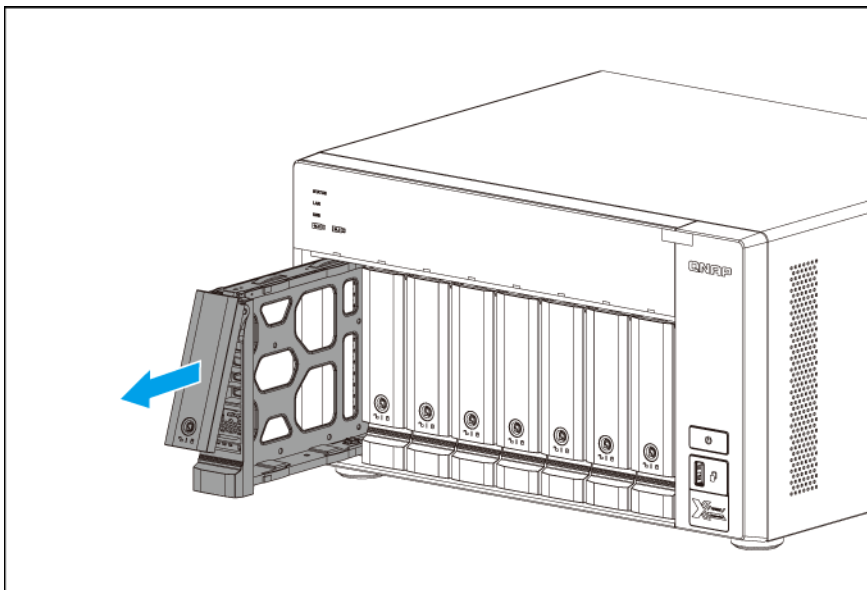
**Other moving components:** Keep your hands and other body parts away from other moving components.

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



b. Pull the handle to release the tray.

c. Pull the tray out.



**Note**

The preinstalled drive trays come unlocked.

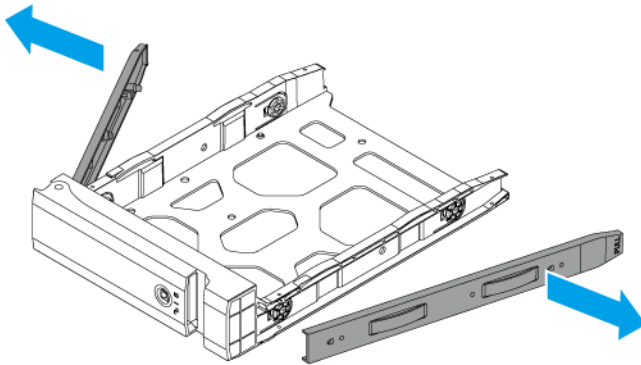


**Important**

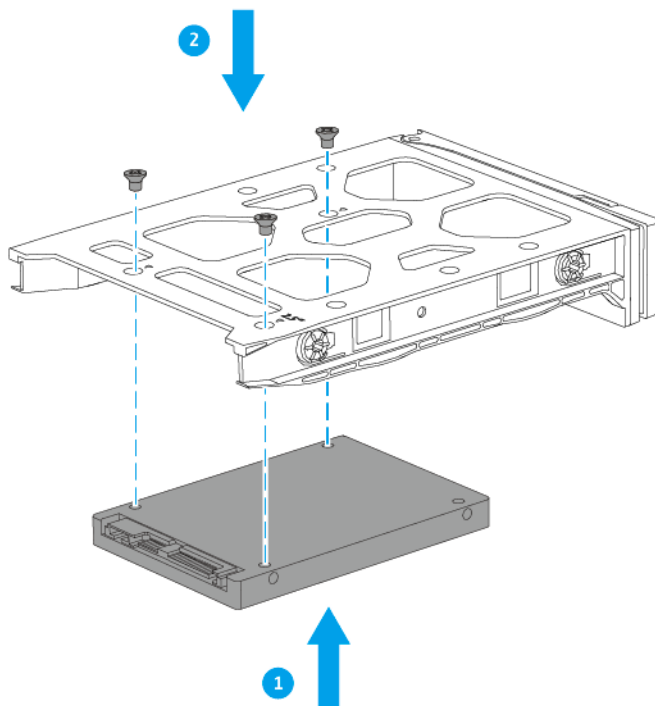
Ensure the drive tray keys are stored in a safe place.

3. Install a drive on the tray.

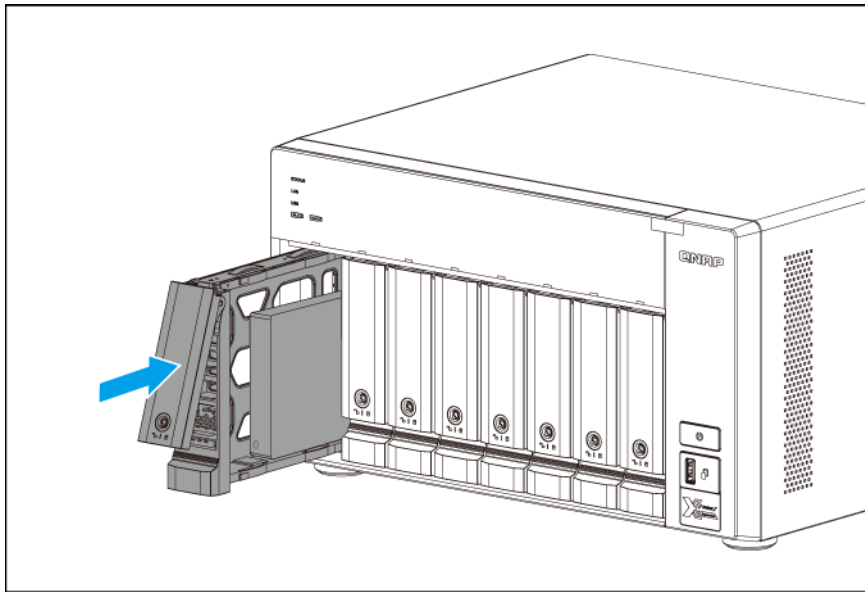
a. Remove the right fastening panel from the drive tray.



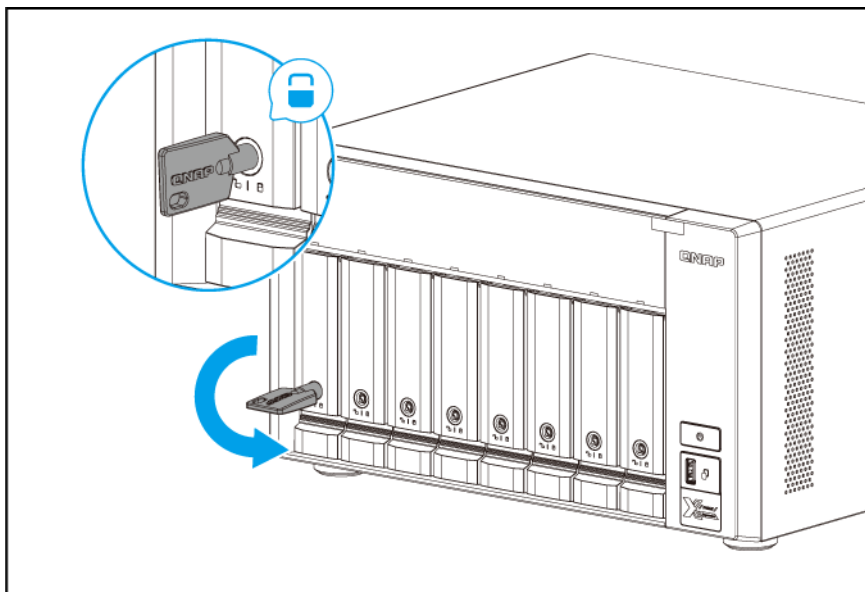
- b.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- c.** Attach the screws.



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



- b. Push the handle.
- c. Lock the tray.



- 5. Power on the NAS.

### Installing M.2 Solid-state Drives

The device has two M.2 SSD slots on the right panel.

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

For a list of compatible M.2 SSDs, go to <http://www.qnap.com/compatibility>.



### Warning

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

- 



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

- 



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

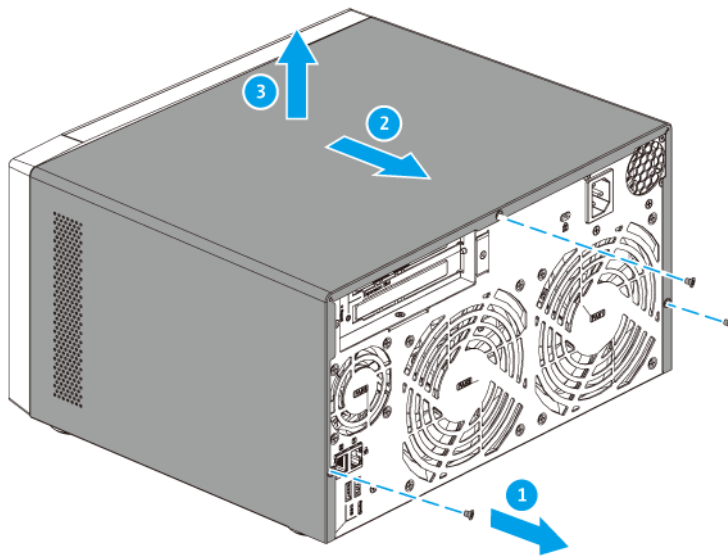


### Note

- QNAP recommends installing heatsinks on the M.2 SSD controllers to enhance cooling efficiency and to ensure consistent performance.
- Before installing non-QNAP heatsinks, ensure that they are of the appropriate size and shape.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - a. Loosen the screws.
  - b. Slide the cover back.
  - c. Lift the cover off the device.



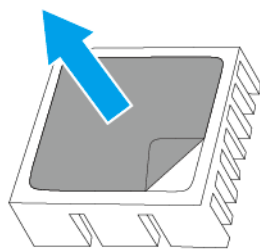


5. Install a heatsink on the M.2 SSD.
  - a. Locate the controller on the M.2 SSD.

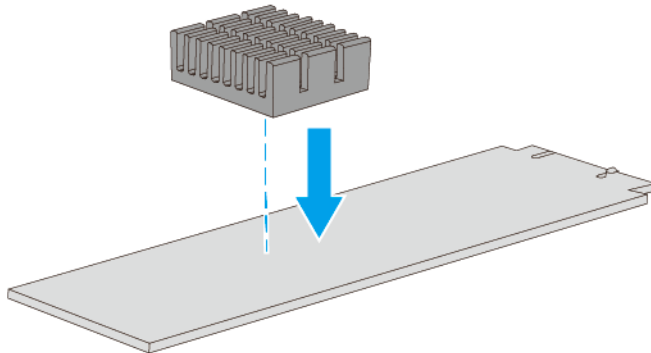
**Note**

The controller location varies depending on the model and manufacturer of the M.2 SSD. For details, refer to the documentation or contact the manufacturer.

- b. Remove the protective film from the heatsink.

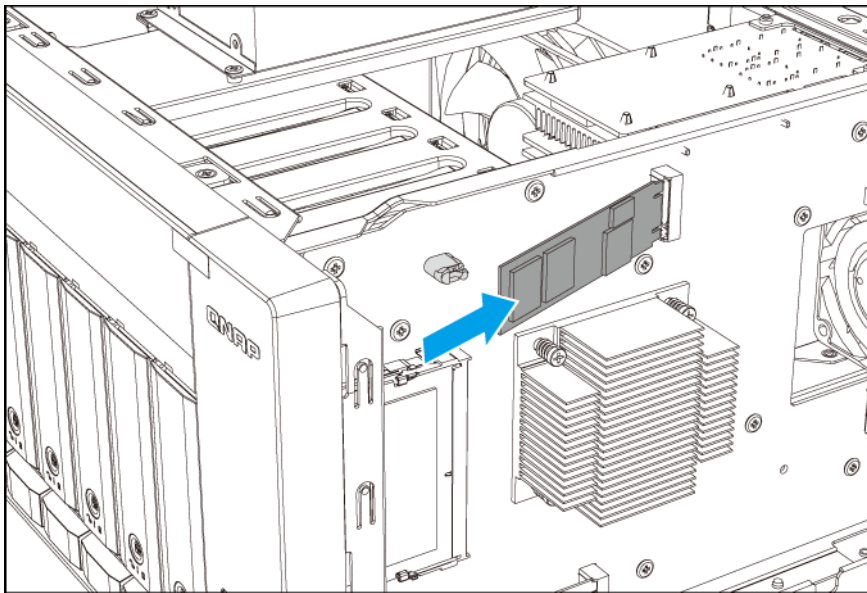


- c. Install the heatsink on the controller.

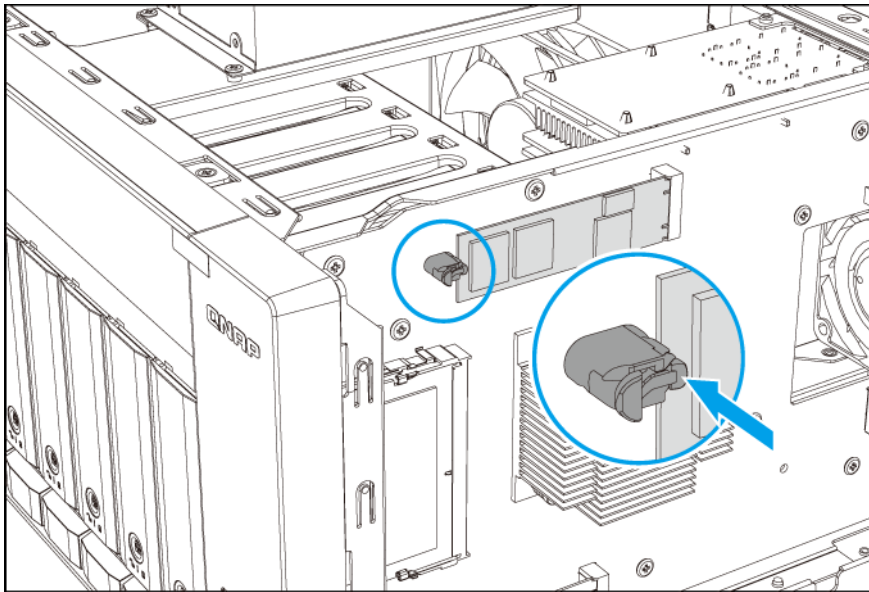


**6. Install the M.2 SSD.**

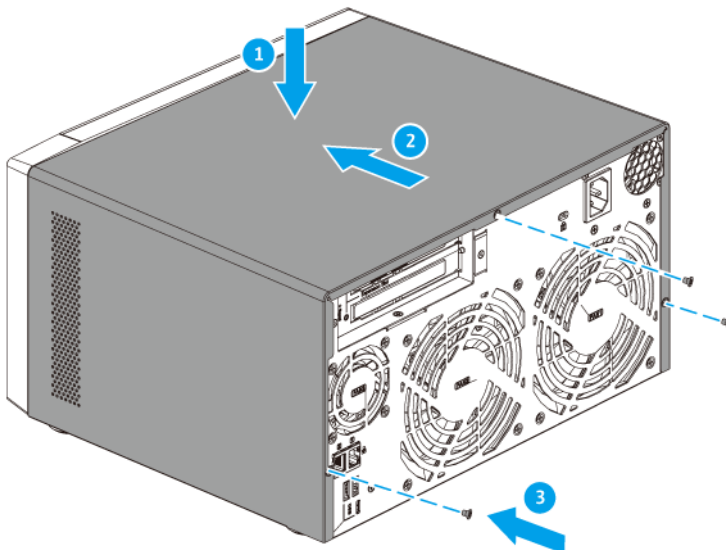
- a. Verify the M.2 SSD connector is aligned with the slot.**



- b. Carefully press down the M.2 SSD until the pushpin locks the drive into place.**



7. Attach the case cover.
  - a. Place the cover on the device.
  - b. Slide the cover forward.
  - c. Tighten the screws.



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

## Installing Expansion Cards

### Installing Expansion Cards on TS-473A

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.

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



#### Warning

- 



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

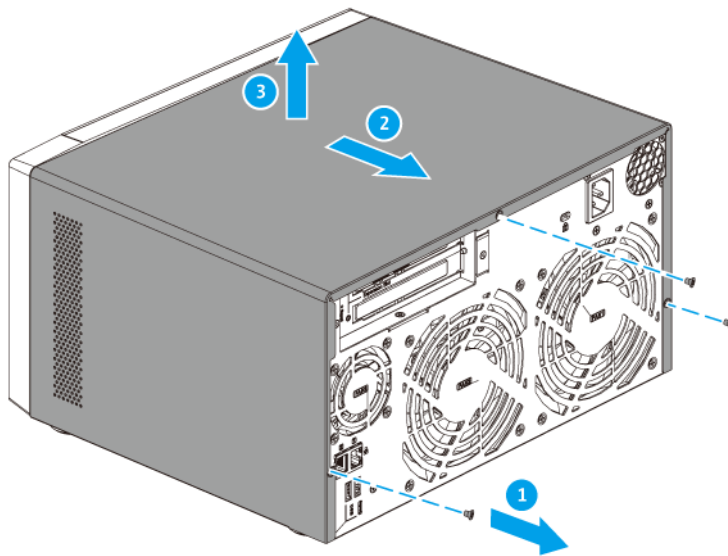
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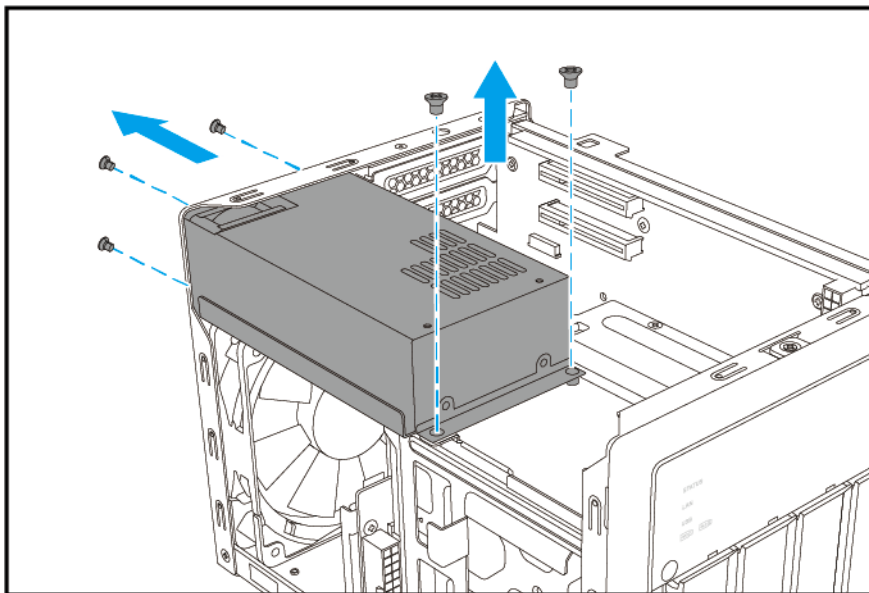
**Other moving components:** Keep your hands and other body parts away from other moving components.

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

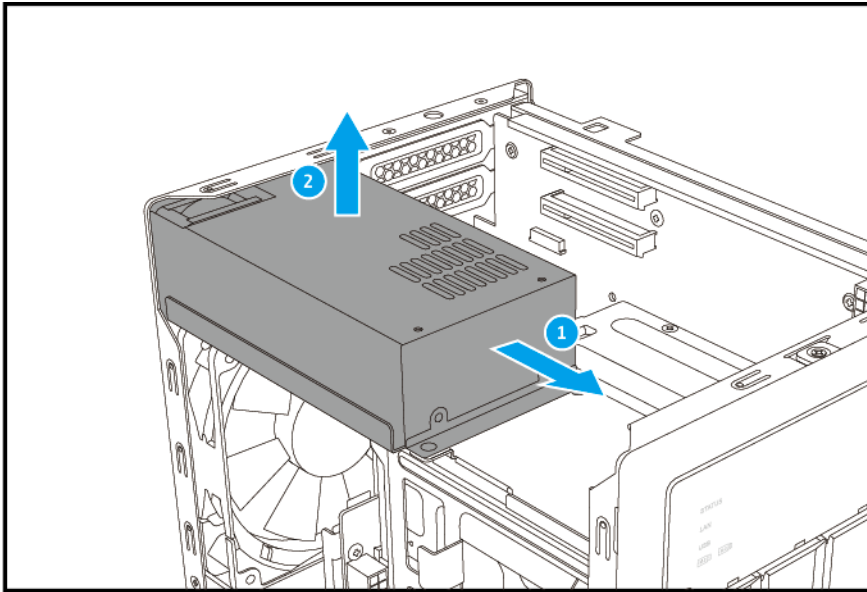
1. Power off the device.
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4. Remove the case cover.
  - a. Loosen the screws.
  - b. Slide the cover back.
  - c. Lift the cover off the device.



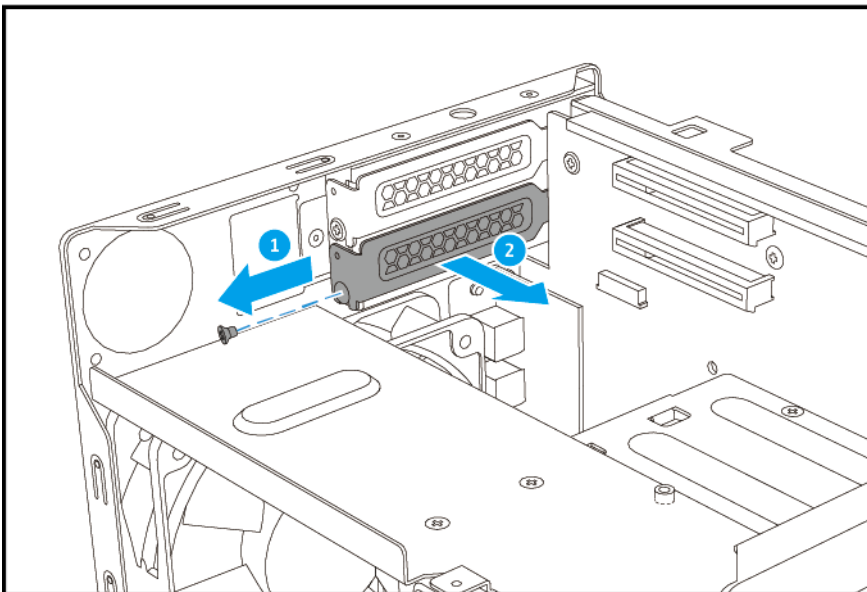
5. Remove the power supply unit.
  - a. Disconnect the power supply cables.
  - b. Remove the screws that secure the unit to the chassis.



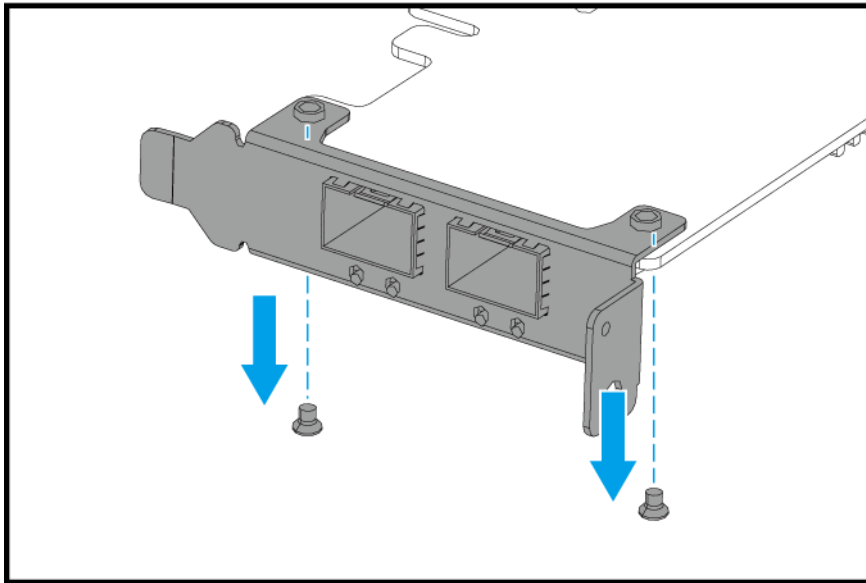
- c. Remove the unit from the chassis.



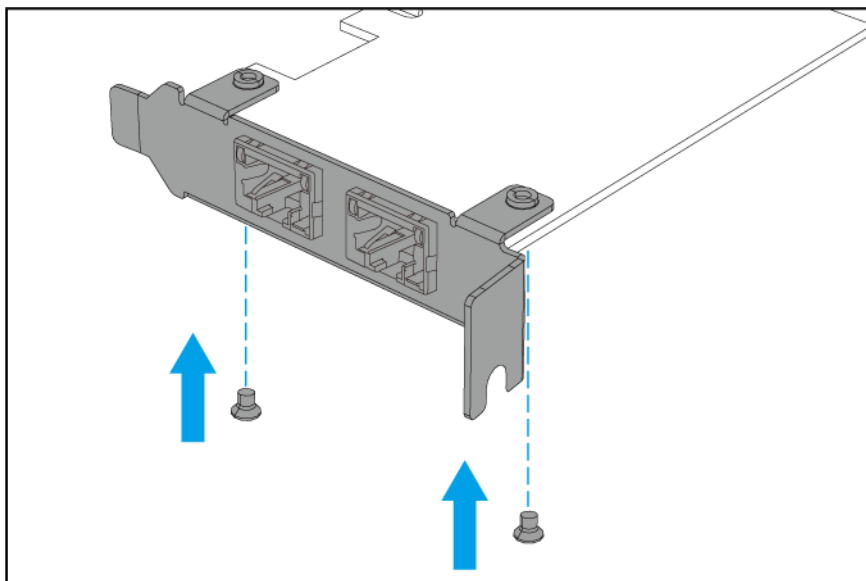
6. Remove the PCIe cover.
  - a. Remove the screw that secures the cover to the bracket.
  - b. Pull the cover away from the slot.



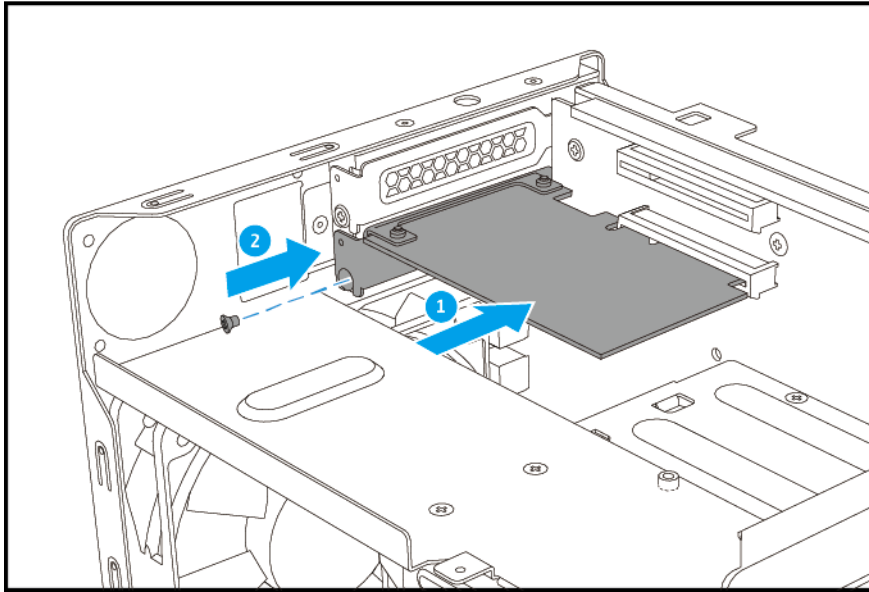
7. Attach the QNAP bracket to the expansion card.
  - a. Remove all screws of the existing bracket.



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

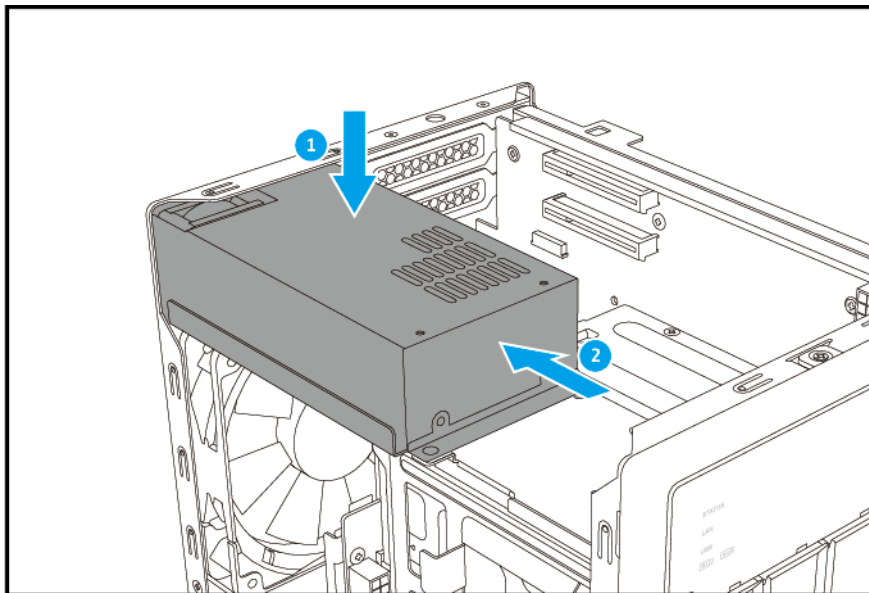


- d. Verify that the bracket does not move.
8. Install the expansion card.
- a. Hold the card by the edges.
  - b. Insert the card into the slot.
  - c. Attach the screw.



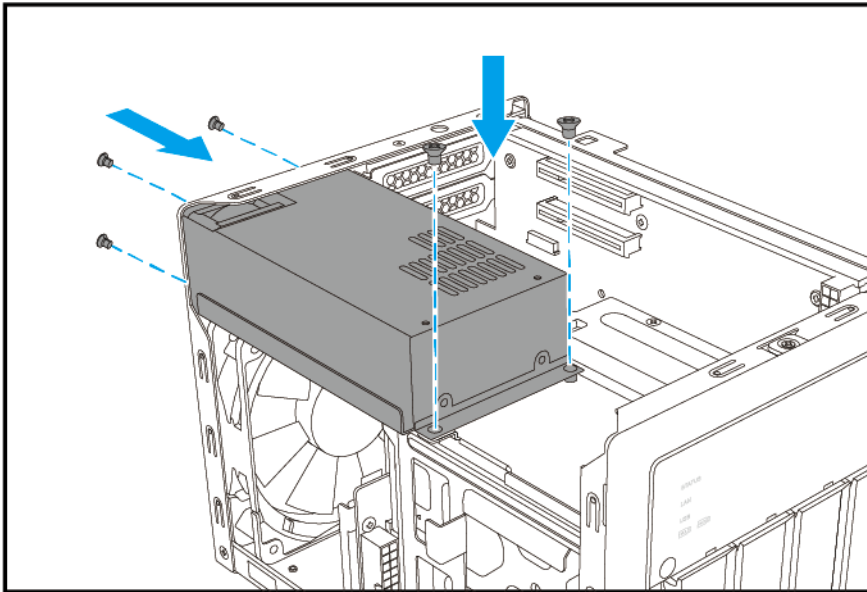
**9. Install the power supply unit.**

- a. Install the unit on the chassis.**



- b. Attach the screws that secure the unit to the chassis.**

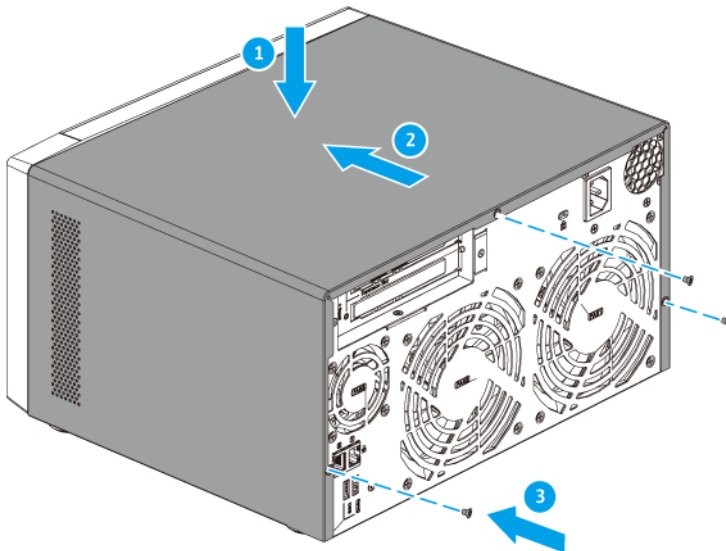




c. Connect the power supply cables.

**10. Attach the case cover.**

- a. Slide the cover down until it is completely connected to the chassis.
- b. Slide the cover forward.
- c. Tighten the screws.



- 11.** Connect all cables and external attachments.
- 12.** Connect the power cord to the electrical outlet.
- 13.** Power on the device.

## Installing Expansion Cards on TS-673A or TS-873A

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.

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



### Warning

- 



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

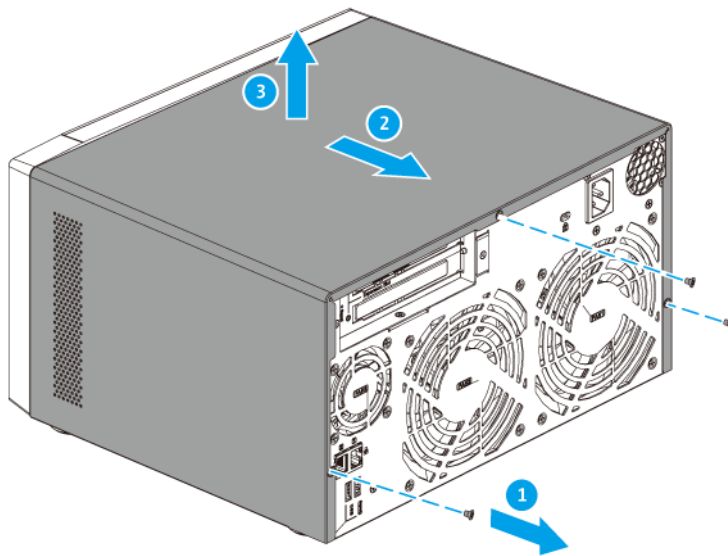
- 



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

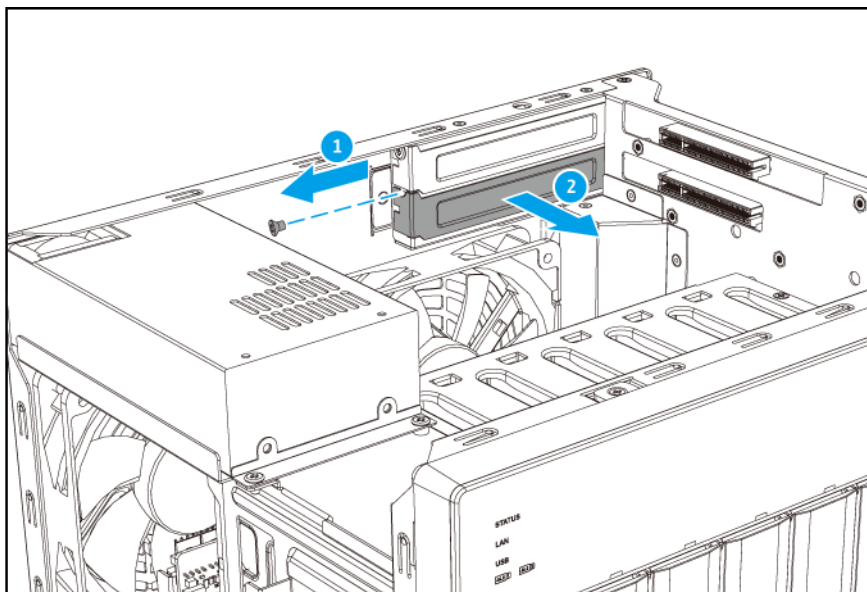
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - a. Loosen the screws.
  - b. Slide the cover back.
  - c. Lift the cover off the device.



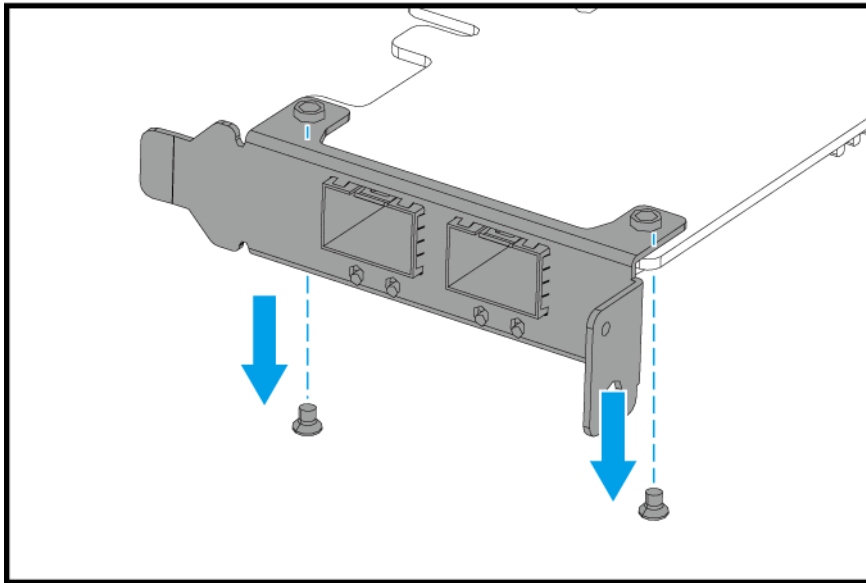
**5. Remove the PCIe cover.**

- a. Remove the screw that secures the cover to the bracket.
- b. Pull the cover away from the slot.

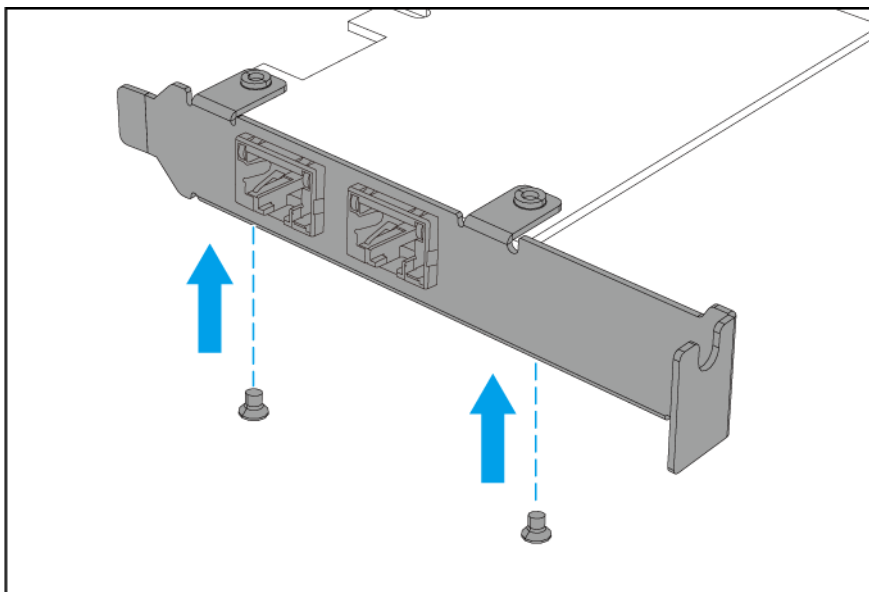


**6. Attach the QNAP bracket to the expansion card.**

- a. Remove all screws of the existing bracket.



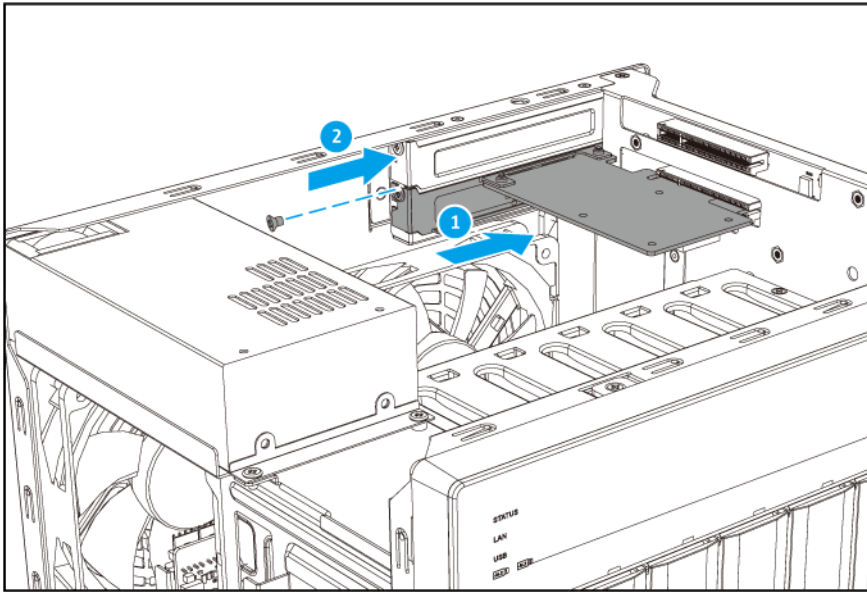
- b. Carefully pull the bracket away from the card.
- c. Attach the QNAP bracket to the card using the same screws.



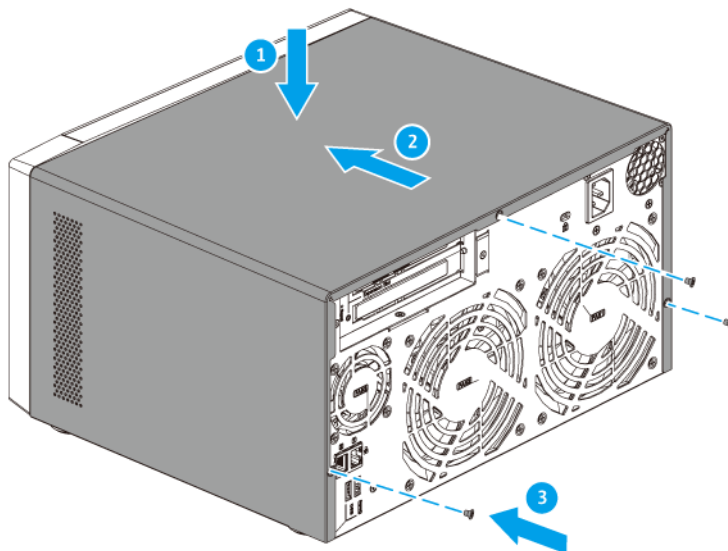
- d. Verify that the bracket does not move.

## 7. Install the expansion card.

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



8. Attach the case cover.
  - a. Slide the cover down until it is completely connected to the chassis.
  - b. Slide the cover forward.
  - c. Tighten the screws.



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

## Replacing Memory Modules

The TS-x73A has two memory slots. You can increase the memory capacity of the NAS by upgrading memory modules.

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

For details on slot numbering, see [Right Panel](#).



### Warning

- 



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

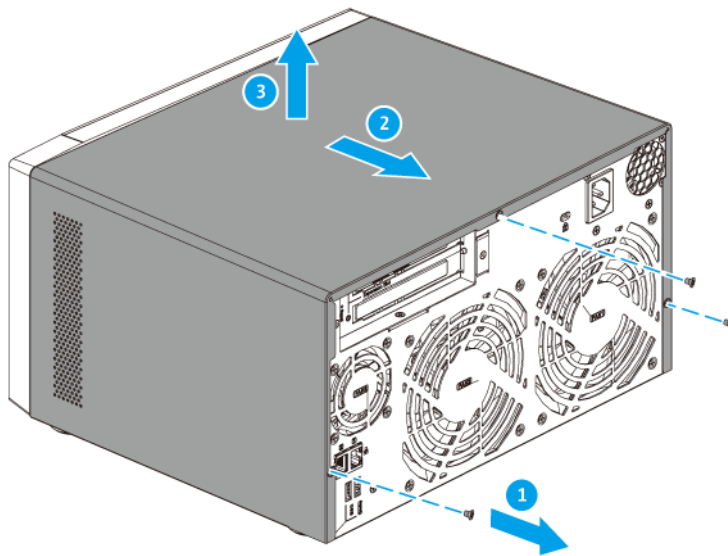
- 



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

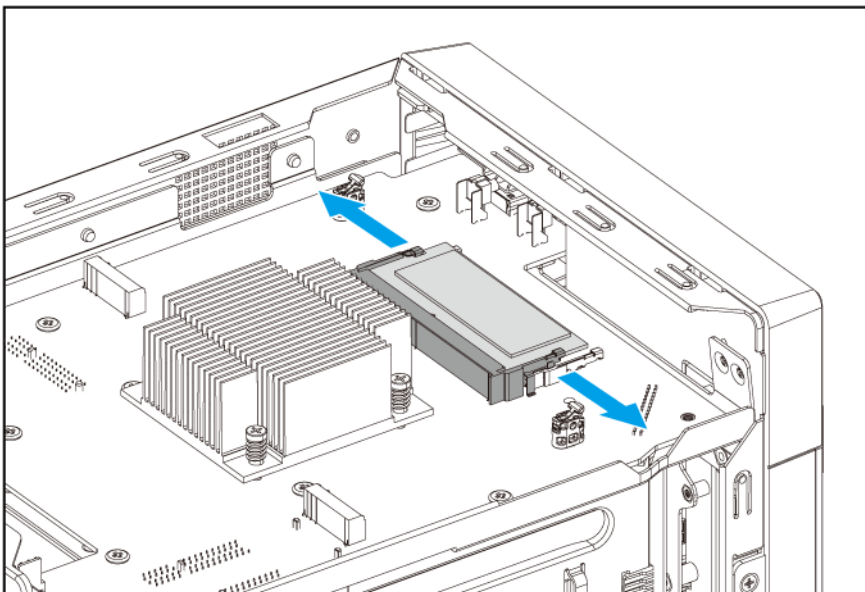
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the device.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Remove the case cover.
  - a. Loosen the screws.
  - b. Slide the cover back.
  - c. Lift the cover off the device.



5. Remove an existing module.

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

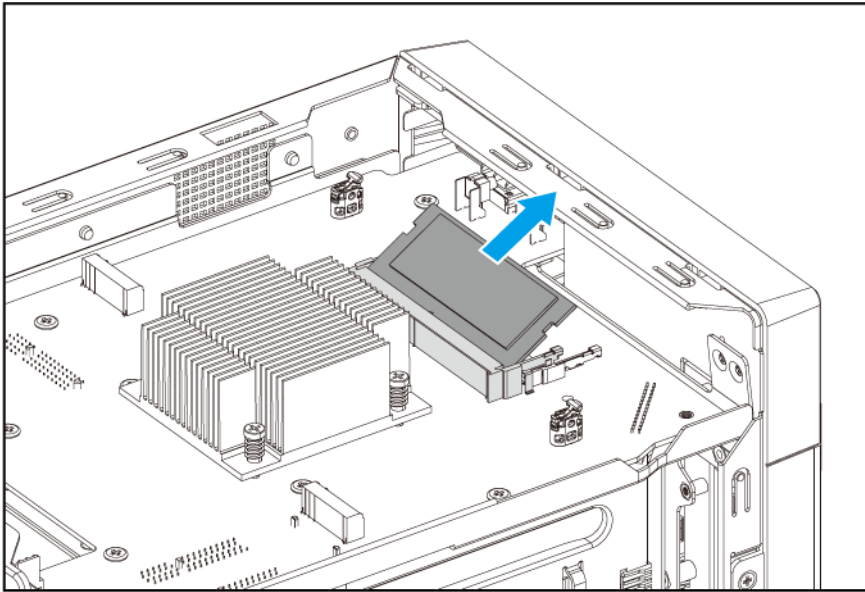


- b. Verify that the module has tilted upward and is completely released from the slot.



**Warning**

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



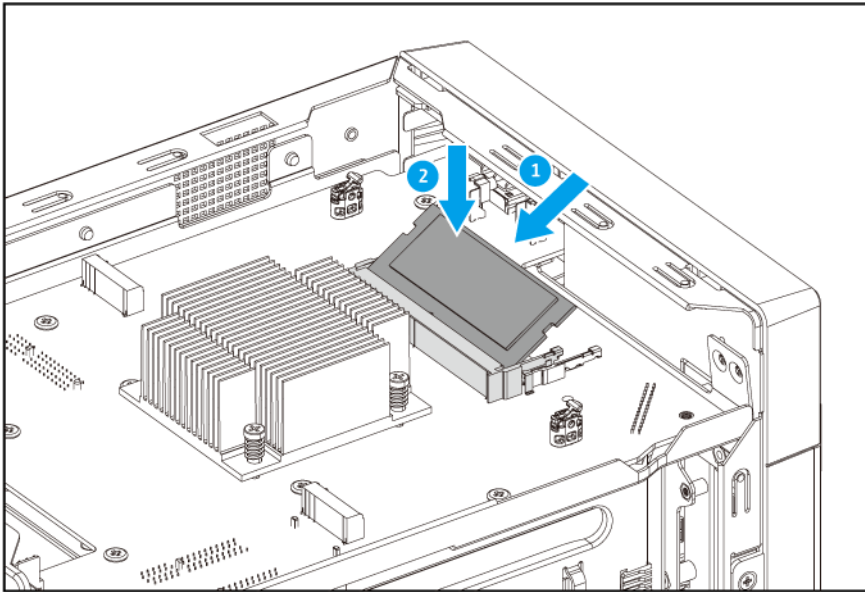
- c. Hold the module by the edges.
- d. Carefully slide the module out of the slot.

**Warning**

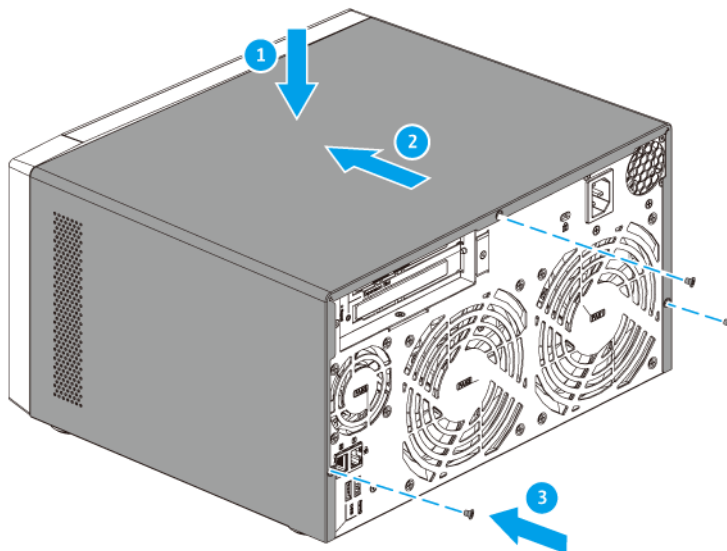
- Do not touch the internal components, particularly the metal connectors.
- Do not bend the module.

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.
  - a. Slide the cover down until it is completely connected to the chassis.
  - b. Slide the cover forward.
  - c. Tighten the screws.



8. Connect all cables and external attachments.
9. Power on the device.
10. Verify that the module is recognized by the device.
  - a. Log on to QTS as administrator.

b. Go to **Control Panel > System > System Status > Hardware Information** .

c. Check the value for **Total memory**.

## Expansion Unit Installation

The TS-x73A supports SAS expansion units, SATA JBOD expansion units, and USB expansion units. For details, please see table below.

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

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

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

Expansion Unit Model	Description	Required Accessories
TL-D400S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 connector cable</li> <li>• QXP-400eS-A1164 host bus adapter</li> </ul>
TL-D800S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 2 x SFF-8088 connector cables</li> <li>• QXP-800eS-A1164 host bus adapter</li> </ul>
TL-D1600S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 4 x SFF-8088 to SFF-8644 connector cables</li> <li>• QXP-1600eS host bus adapter</li> </ul>
TL-R400S	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 connector cable</li> <li>• QXP-400eS-A1164 host bus adapter</li> <li>• RAIL-B02</li> </ul>
TL-R1200S-RP	<ul style="list-style-type: none"> <li>• Uses a SATA 6 Gbps (SFF-8088) interface</li> <li>• Supports SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 3 x SFF-8088 to SFF-8644 connector cables</li> <li>• QXP-1600eS host bus adapter</li> <li>• RAIL-B02</li> </ul>
TL-R1620Sep-RP	<ul style="list-style-type: none"> <li>• Uses a SAS 12 Gbps (SFF-8644) interface</li> <li>• Supports SAS/SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• One of the following storage expansion cards: <ul style="list-style-type: none"> <li>• SAS-12G2E</li> <li>• QXP-820S-B3408</li> <li>• QXP-1620S-B3616W</li> </ul> </li> <li>• mini-SAS SFF-8644 cable</li> <li>• RAIL-A03-57</li> </ul>

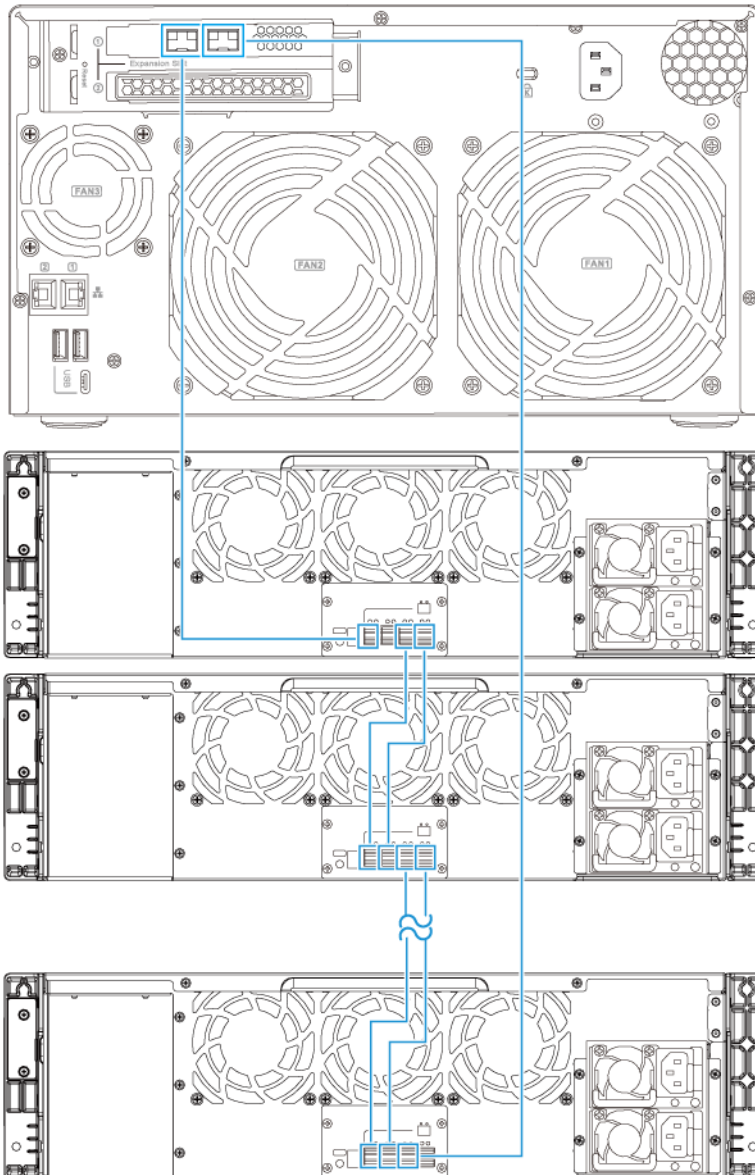
Expansion Unit Model	Description	Required Accessories
TL-R1220Sep-RP	<ul style="list-style-type: none"> <li>• Uses a SAS 12 Gbps (SFF-8644) interface</li> <li>• Supports SAS/SATA HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• One of the following storage expansion cards: <ul style="list-style-type: none"> <li>• SAS-12G2E</li> <li>• QXP-820S-B3408</li> <li>• QXP-1620S-B3616W</li> </ul> </li> <li>• mini-SAS SFF-8644 cable</li> <li>• RAIL-A03-57</li> </ul>
TR-002	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 2 Type-C interface</li> <li>• Supports SATA drives</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> </ul>
TR-004	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA drives</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> </ul>
TR-004U	<ul style="list-style-type: none"> <li>• Uses a USB 3.2 Gen 1 Type-C interface</li> <li>• Supports SATA drives</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 1 Type-A to Type-C cable</li> <li>• USB 3.2 Gen 2 Type-C to Type-C cable</li> <li>• RAIL-B02</li> </ul>

## Connecting SAS Expansion Units

To connect the device to SAS expansion units, a storage expansion card must be installed in the device.

For required accessories details, see [Expansion Unit Installation](#).

1. Install a storage expansion card on the PCIe slot.  
For details, see [Installing Expansion Cards](#).
2. Connect the expansion units to the device using the following topology.



3. Power on the expansion units.
4. Verify that the expansion units are recognized by the device.
  - a. Log on to QTS as administrator.
  - b. Go to **Main Menu > Storage & Snapshots > Overview > System** .
  - c. Verify that the expansion units are listed.

### Connecting SATA JBOD Expansion Units

To connect the TS-x73A to SATA JBOD expansion units, a host bus adapter must be installed on the NAS.

For required accessories details, see [Expansion Unit Installation](#).

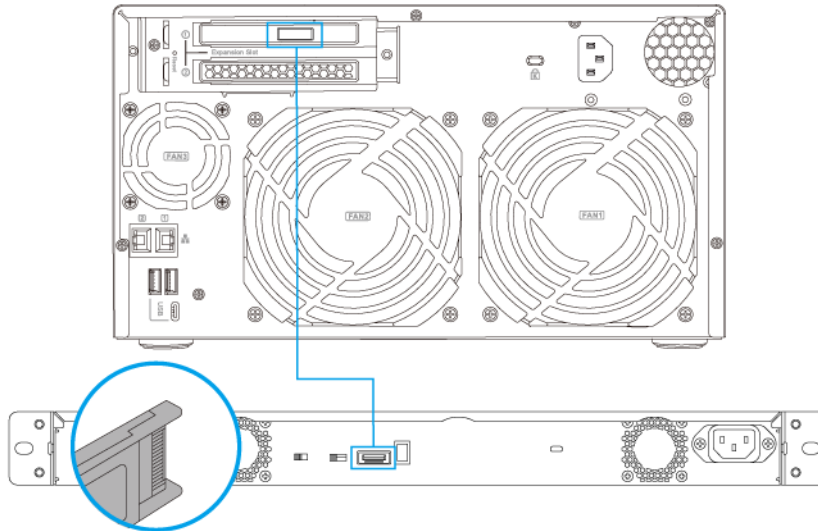
1. Power off the NAS.
2. Install a host bus adapter on the PCIe slot.  
For details, see [Installing Expansion Cards](#).



### Important

The QNAP QXP host bus adapter is required for connecting the SATA JBOD enclosure to a host device. Third-party host bus adapters are not compatible with QNAP JBOD enclosures.

3. Connect the expansion unit to the NAS using the following topology.



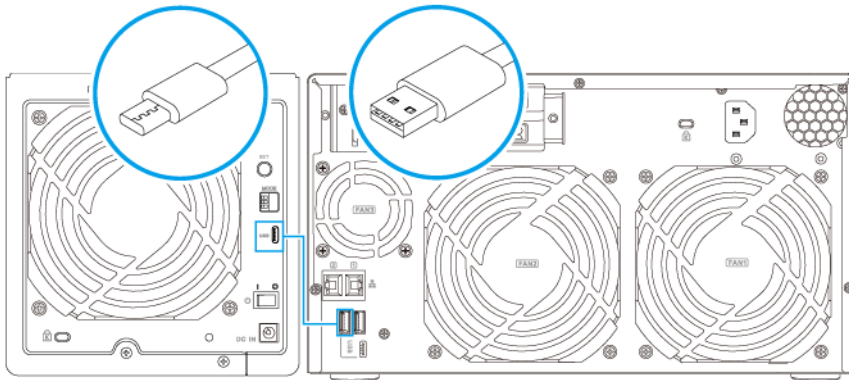
4. Power on the SATA JBOD expansion unit.
5. Power on the NAS.
6. Verify that the expansion units are recognized by the NAS.
  - a. Log on to QTS or QuTS hero as administrator.
  - b. Go to **Main Menu > Storage & Snapshots > Overview > System**.
  - c. Verify that the expansion units are listed.

## Connecting USB Expansion Units

To connect the TS-x73A to USB expansion units, USB Type-A to USB Type-C cables or USB Type-C to USB Type-C cables are required.

For required accessories details, see [Expansion Unit Installation](#).

1. Verify that the NAS is powered off.
2. Connect the expansion unit to the NAS.
  - a. Connect the USB cable to a USB 3.2 Gen 2 Type-A or USB Type-C port on the NAS.



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

## QTS Installation

The TS-x73A 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>

Method	Description	Requirements
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 myQNAPcloud Link 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>• Cloud Key</li> </ul>

You can also install the QNAP QuTS hero operating system. If your NAS is connected to the internet, the option to install QuTS hero will appear in the Smart Installation Guide wizard using any of the methods in the table. You can also manually download the QuTS hero firmware from [download.qnap.com](http://download.qnap.com).



#### Warning

QuTS hero and QTS use different file systems. Switching operating systems will reset the NAS and delete all data.

## 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**.  
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 **Summary** screen appears.
14. Review the settings.
15. Click **Apply**.  
A confirmation message appears.

**Warning**

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

16. 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.



- Specify the myQNAPcloud device name for the NAS.



#### Note

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

- Click **Next**.

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

- Click **Start Smart Installation Guide**.

- 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 **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.


## 4. Basic Operations

This chapter describes basic NAS operations.

### Power Button

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

### Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> <li>System administrator password: The default password is the first MAC address in uppercase letters without special characters. For example, if the first MAC address is 00-08-9B-F6-15-75, then the admin password will be 00089BF61575.</li> </ul> <p> <b>Tip</b> You can find the first MAC address using Qfinder Pro. A label attached to the device also lists the address as MAC1.</p> <ul style="list-style-type: none"> <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.	<p>The default factory settings are restored.</p> <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 a USB device to the NAS or from the NAS to a USB device.

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

## LEDs

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

For details on the location of the LEDs, see [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 device 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> <li>• The firmware is being updated.</li> </ul> <p> <b>Important</b> When updating the firmware, do not remove the power cord or USB cable, and do not force-exit the application.</p>
	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 device 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>• A hardware self-test error occurred.</li> </ul>
	Flashes red every 0.5 seconds	The device is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6).
	Green	The device is ready.
	Flashes green every 0.5 seconds	<ul style="list-style-type: none"> <li>• The device is not configured.</li> <li>• A drive is not formatted.</li> </ul>
LAN	Off	<ul style="list-style-type: none"> <li>• All drives are in standby mode.</li> <li>• The device is powered off.</li> </ul>
	Orange	The network connection is operating.
	Flashes orange	The device is being accessed from the network.
	Off	The device is not connected to a network.

LED	Status	Description
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occurred.
	Flashes green	Data is being accessed.
	Green	The drive is ready.
	Off	No drive was detected.
2.5 Gigabit Ethernet speed	Green	The network connection is operating at 2.5 Gbps.
	Orange	The network connection is operating at 1 Gbps or 100 Mbps.
	Off	<ul style="list-style-type: none"> <li>The network connection is operating at 100 Mbps.</li> <li>There is no network connection.</li> </ul>
2.5 Gigabit Ethernet activity	Orange	A network connection has been established.
	Flashes orange	The device is being accessed from the network.
	Off	There is no network connection.
USB	Blue	A USB device connected to the USB One Touch Copy port is detected.
	Off	No USB expansion unit has been detected.
USB One Touch Copy	Flashes blue every 0.5 seconds	<ul style="list-style-type: none"> <li>A USB device connected to the USB One Touch Copy port is detected.</li> <li>A USB device connected to the front USB port is being removed from the device.</li> <li>A USB device connected to the front USB port is being accessed.</li> </ul>
	Blue	A USB device is detected in the front USB port.
	Off	No USB device is detected.

## Audio Alert

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> <li>The NAS is starting up.</li> <li>When the reset button is pressed for 3 seconds, the NAS resets configurations.</li> <li>When the reset button is pressed for 10 seconds, the NAS resets configurations and reboots.</li> <li>The operating system was updated.</li> <li>The device is starting USB One-Touch Copy.</li> </ul>
	3	<ul style="list-style-type: none"> <li>Cannot detect installed disk.</li> </ul>

Duration	Frequency	Description
Long beep (1.5 seconds)	3 (every 5 minutes)	<ul style="list-style-type: none"> <li>• A power error occurred.</li> <li>• The system fan is not functioning.</li> <li>• The fan module has been removed.</li> <li>• The NAS data cannot be copied to the external storage device connected to the front USB port.</li> </ul>
	2	<ul style="list-style-type: none"> <li>• The storage pool is about to reach full capacity.</li> <li>• The storage pool has reached full capacity.</li> <li>• A storage pool status error occurred.</li> <li>• The disk volume is about to reach its full capacity.</li> <li>• The disk volume has reached its full capacity.</li> <li>• The USB device is being removed (USB one-touch copy button).</li> <li>• A volume status error occurred.</li> <li>• A drive is plugged in or out.</li> <li>• The iSCSI is about to reach full capacity.</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 the QTS installation.

### Hot-swapping Failed Drives

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

RAID Type	Number of Disks	Situation
RAID 1	2	One member drive fails
RAID 5	≥ 3	One member drive fails
RAID 6	≥ 4	One or two member drives fail
RAID 10	≥ 4 (Must be an even number)	One or two member drives in two different pairs fail.
RAID 50	≥ 6	One disk per subgroup fails.
RAID 60	≥ 8	Two disks per subgroup fail.

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > Disks/VJBOD** .
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Remove the failed drive from the device.
6. Wait for 20 seconds or until the device beeps twice.
7. Remove the failed drive from the drive tray.
8. Insert the new drive into the drive tray.
9. Install the new drive.  
The NAS beeps twice.
10. Go to **Main Menu > Storage & Snapshots > Storage 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, RAID 6, RAID 10, RAID 50, or RAID 60 volume from degraded mode.

Disk Volume	RAID Recovery Support	Number of Disks	Maximum Number of Removed Drives
Single	No	1	N/A
JBOD	Yes	≥ 2	N/A
RAID 0	Yes	≥ 2	N/A
RAID 1	Yes	2	1
RAID 5	Yes	≥ 3	1
RAID 6	Yes	≥ 4	2
RAID 10	No	≥ 4 (Must be an even number)	One or two member drives in two different pairs fail.
RAID 50	Yes	≥ 6	One disk per subgroup fails.
RAID 60	Yes	≥ 8	Two disks per subgroup fail.

## Support and Other Resources

QNAP provides the following resources:

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



## 6. Glossary

### Cloud Key

Unique 8-digit code assigned to each NAS device

### myQNAPcloud Link

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

### myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

### QNAP ID

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

### Qfinder Pro

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

### QTS

QNAP NAS operating system

### QuTS hero

QNAP NAS operating system featuring ZFS file system

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## END OF TERMS AND CONDITIONS

### CE Notice



This QNAP NAS complies with CE Compliance Class B.

### FCC Notice

#### FCC Class B Notice



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

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



#### Note

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

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



#### Important

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

## VCCI Notice



VCCI-B

## BSMI Notice



## SJ/T 11364-2006



本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

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

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
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