



**QNAP**

# **TS-216G**

## **User Guide**



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# Contents

## 1. Important Information

Safety information.....	3
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## 2. Product Overview

About the TS-216G.....	5
Hardware specifications.....	5
Package contents.....	7
Components.....	7
Front panel.....	8
Rear panel.....	8
Drive numbering.....	9
Installation requirements.....	9
Setting up the NAS.....	10

## 3. Installation and Configuration

Hardware installation.....	11
Drive installation.....	11
Connecting USB expansion units.....	18
QTS installation.....	20
Initializing QTS using Qfinder Pro.....	20
Initializing QTS using the cloud installation website.....	23

## 4. Basic Operations

Power button.....	28
Reset button.....	28
USB One Touch Copy button.....	29
LEDs.....	29
Audio alert.....	32

## 5. NAS Migration

NAS migration requirements.....	34
Status and setting changes after NAS migration.....	34
Migrating a NAS.....	35
Migrating NAS data using HBS 3.....	36
Preparing the destination NAS.....	36
Creating a one-way sync job.....	37
Importing local users or group settings to the destination NAS.....	38

## 6. Troubleshooting

Forcing Qfinder Pro or myQNAPcloud to locate the NAS.....	40
Hot-swapping failed drives.....	40
Recovering unintentionally removed healthy drives.....	40
Support and other resources.....	41

## 7. Glossary

Cloud Key.....	42
myQNAPcloud.....	42
myQNAPcloud Link.....	42
Qfinder Pro.....	42
QNAP ID.....	42

QTS.....42

**8. Notices**

Limited warranty.....43  
Disclaimer.....43  
Copyright and trademarks.....43  
GNU General Public License.....44  
CE notice.....51  
UKCA notice.....51  
FCC notice.....51  
VCCI notice.....52  
BSMI notice.....52  
SJ/T 11364-2006.....53

# 1. Important Information

## Original Packaging

Please keep the original packaging and packaging materials. If you want to return the product or send it for repairs, please use the original packaging to avoid damage.

QNAP reserves the right not to provide a refund or warranty service for products that are damaged due to improper packaging.

## Hardware Defects

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](#).

## Safety information

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

### General Instructions

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

### Power

- To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.
- To avoid serious injuries, a trained service technician must disconnect all PSU cords from the device before installing or replacing system components.

### System Battery

- This product contains a button battery.
- If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours.
- Keep batteries out of reach of children.
- If you think batteries may have been swallowed or placed inside any part of the body, seek immediate medical attention.

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

### Moving Parts

- 



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

- 



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

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

## 2. Product Overview

This chapter provides basic information about your QNAP device.

### About the TS-216G



The TS-216G is a user-friendly NAS designed for home and office environments. Equipped with ample storage space and file backup and sharing, the NAS is powered by an ARM 4-core Cortex-A55 2.0 GHz processor and 4 GB RAM. The TS-216G enables smooth multimedia playback, ensures data security, and has various local, remote, and cloud backup options. This two-drive bay model also supports SATA 6 Gbps and is backward compatible with SATA 3 Gbps. The NAS includes one 2.5 Gigabit Ethernet port, one Gigabit Ethernet port, and three USB ports.



### Hardware specifications





#### Tip

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

Component	TS-216G
Processor	
CPU	ARM 4-core Cortex-A55 2.0 GHz
Architecture	ARM 64-bit
Encryption engine	AES-256
Memory	
Pre-installed memory	4 GB RAM Non-expandable memory
Maximum memory	4 GB RAM Non-expandable memory
Flash memory	4 GB eMMC
Storage	
Drive bays	2 x 3.5-inch SATA 6 Gbps   <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 solid-state drives</li> </ul>  <b>Tip</b> For the list of compatible drive models, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a> .
Hot-swapping	This device supports hot-swapping for all drives.
Network	

Component	TS-216G
Gigabit network interface	1 x GbE RJ45   <b>Note</b> The Gigabit Ethernet port supports the following network connectivity speeds: 1 GbE, 100 Mb, and 10 Mb.
2.5 Gigabit network interface	1 x 2.5 GbE RJ45   <b>Note</b> The 2.5 Gigabit Ethernet port supports the following network connectivity speeds: 2.5 GbE, 1 GbE, 100 Mb, and 10 Mb.
Wake-on-LAN	<ul style="list-style-type: none"> <li>• GbE RJ45</li> <li>• 2.5 GbE RJ45</li> </ul>
External I/O Ports & Expansion Slots	
USB ports	Rear: <ul style="list-style-type: none"> <li>• 2 x USB 2.0 Type-A</li> </ul> Front: <ul style="list-style-type: none"> <li>• 1 x USB 3.2 Gen 1 Type-A</li> </ul>
Interface	
Buttons	<ul style="list-style-type: none"> <li>• Power</li> <li>• Reset</li> <li>• USB One Touch Copy</li> </ul>
Dimensions	
Form factor	Tower
Dimensions (H x W x D)	165 x 102 x 220.6 mm (6.5 x 4.02 x 8.69 in)
Net weight	1.45 kg (3.2 lbs)
Others	
Power supply unit	48W adapter, 100-240V

Component	TS-216G
System battery	CR2032 lithium battery (3V, 225 mAh)   <b>Warning</b> <ul style="list-style-type: none"> <li>This battery is a button battery. If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours. Keep batteries out of reach of children.</li> <li>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.</li> </ul>  <b>Important</b> Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.
Fans	System: 1 x 70 mm, 12V DC fan
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

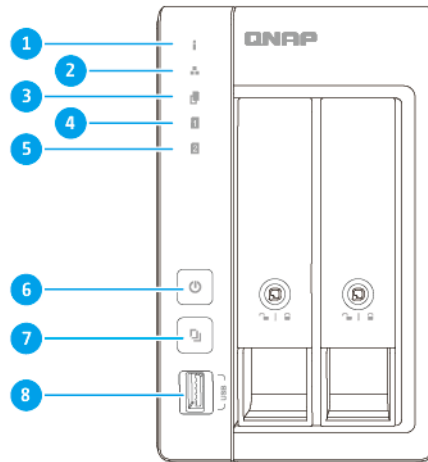
## Package contents

Item	Quantity
TS-216G	1
AC power adapter	1
Power cord	1
Ethernet cable	1 x Cat5e
Drive tray keys	2
Screws for 3.5-inch drives	8
Screws for 2.5-inch drives	6
Quick Installation Guide (QIG)	1

## Components

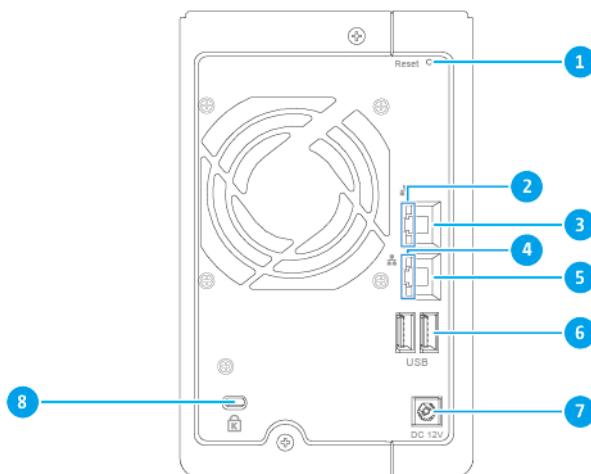


## Front panel



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

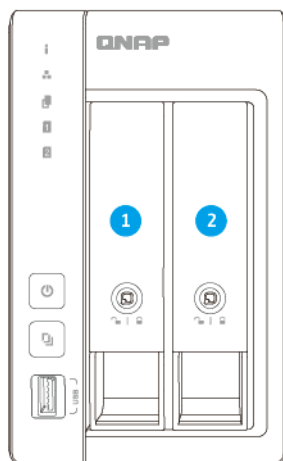
## Rear panel




No.	Component	No.	Component
1	Reset button	5	Gigabit Ethernet port (RJ45)

No.	Component		Component
2	2.5 Gigabit Ethernet LEDs	6	USB 2.0 Type-A ports
3	2.5 Gigabit Ethernet port (RJ45)	7	Power input
4	Gigabit Ethernet LEDs	8	Kensington security slot

## Drive numbering



## 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> <li>Free from objects that may obstruct device ventilation or apply pressure to the device or power cord</li> </ul>
Hardware and peripherals	<ul style="list-style-type: none"> <li>Storage drives</li> </ul> <p><b>Tip</b>   For the list of compatible drive models and expansion cards, go to <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a>.</p> <ul style="list-style-type: none"> <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



### Important

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

1. Place your NAS device in an environment that meets the requirements.  
For details, see [Installation requirements](#).
2. Install drives.  
For details, see the following:
  - [Installing 2.5-inch drives](#)
  - [Installing 3.5-inch drives](#)
3. Optional: Connect an expansion unit.  
For details, see [Connecting USB expansion units](#).
4. Connect the power cord and all applicable cables.
5. Power on the NAS.
6. Install QTS.  
For details, see [QTS installation](#).
7. Log on to QTS.

## 3. Installation and Configuration

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

### Hardware installation

This section provides information on installing drives and connecting USB expansion units.

### Drive installation

The TS-216G is compatible with 3.5-inch SATA hard drives and 2.5-inch SATA solid-state drives.

### Installing 2.5-inch drives



#### Warning

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

•



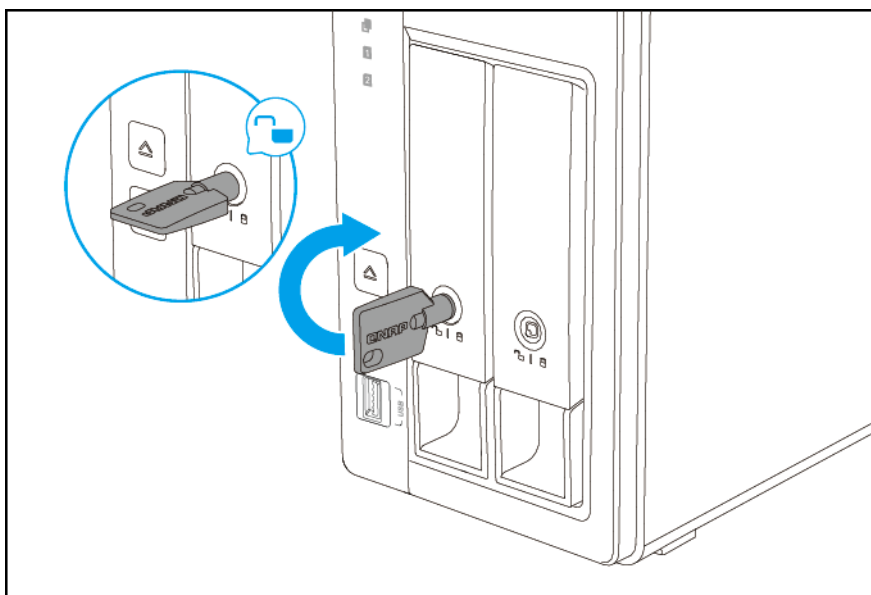
**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.

•



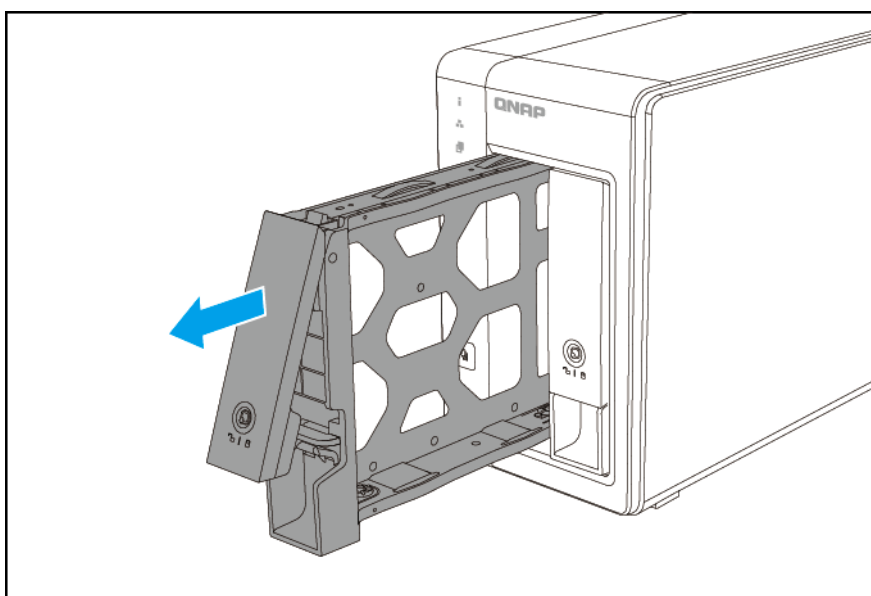
**Other moving components:** Keep your hands and other body parts away from other moving components.

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

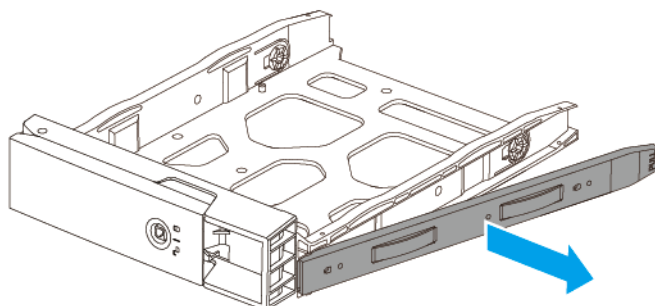
**Note**

The preinstalled drive trays come unlocked.

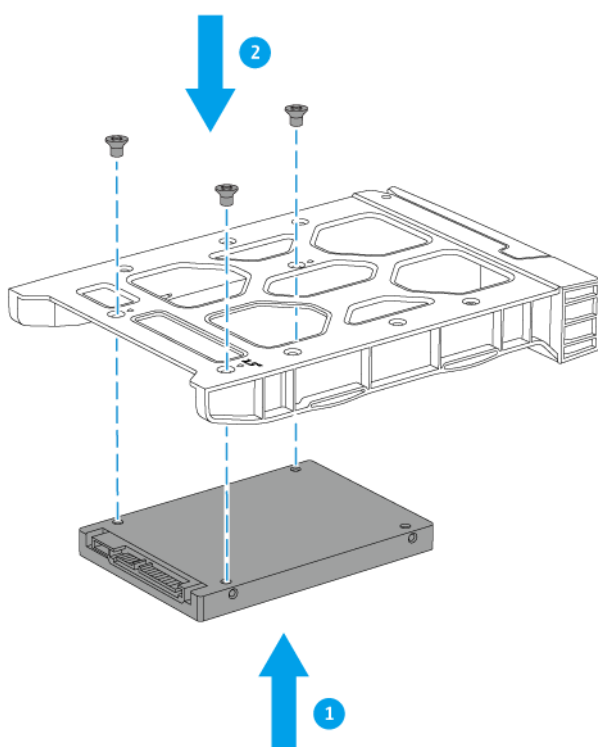
- b. Pull the handle to release the tray.
- c. Pull the tray out.

**3. Install a drive on the tray.**

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

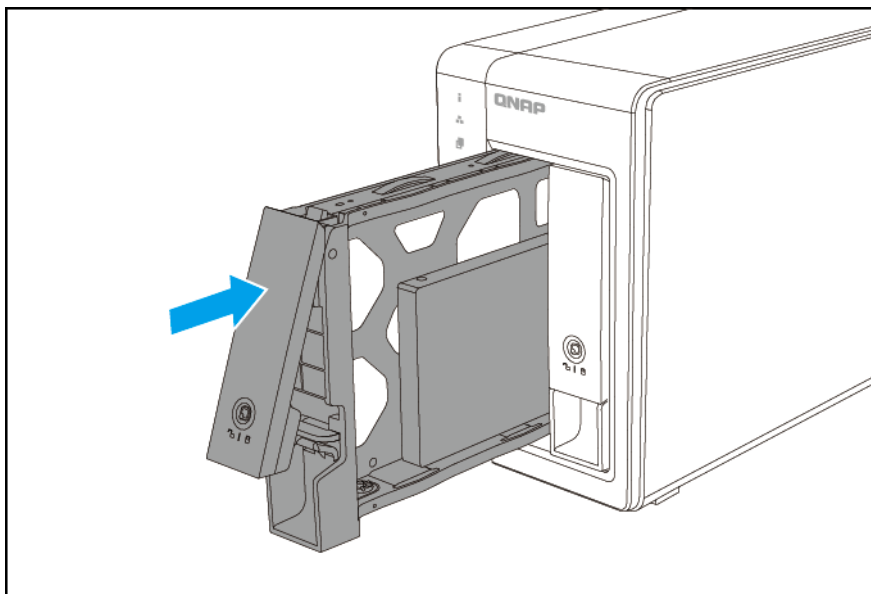


- b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- c.** Attach the screws.

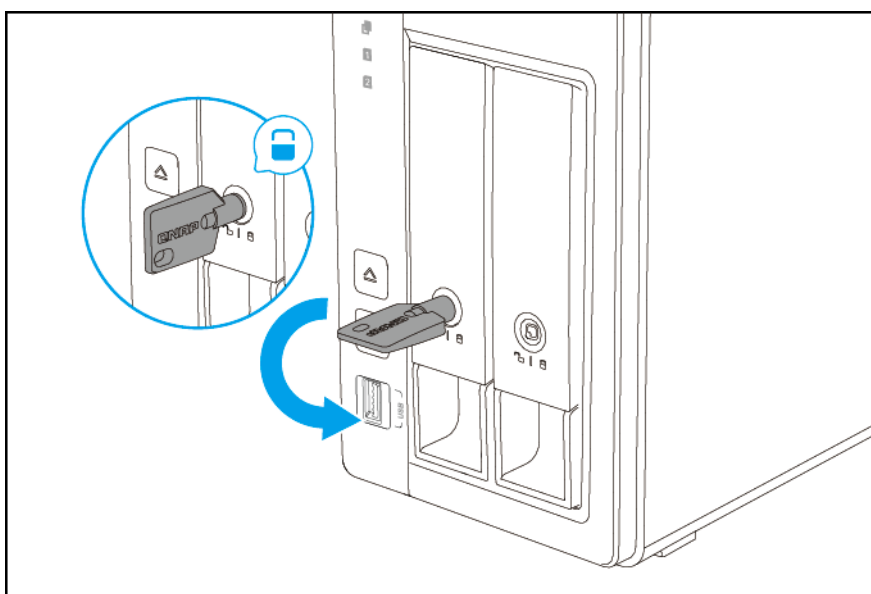


- 4.** Load the tray into the bay.
  - a.** Insert the tray into the bay.

b. Push the handle.



c. Lock the tray.



5. Power on the NAS.

### Installing 3.5-inch drives



#### Warning

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

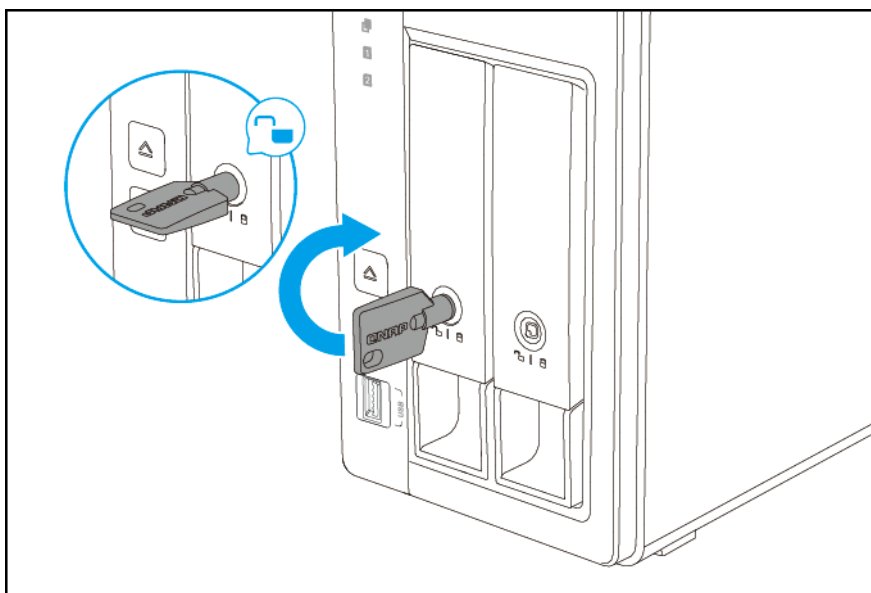


**Moving fan blades:** Keep your hands and other body parts away from moving fan blades.



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

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

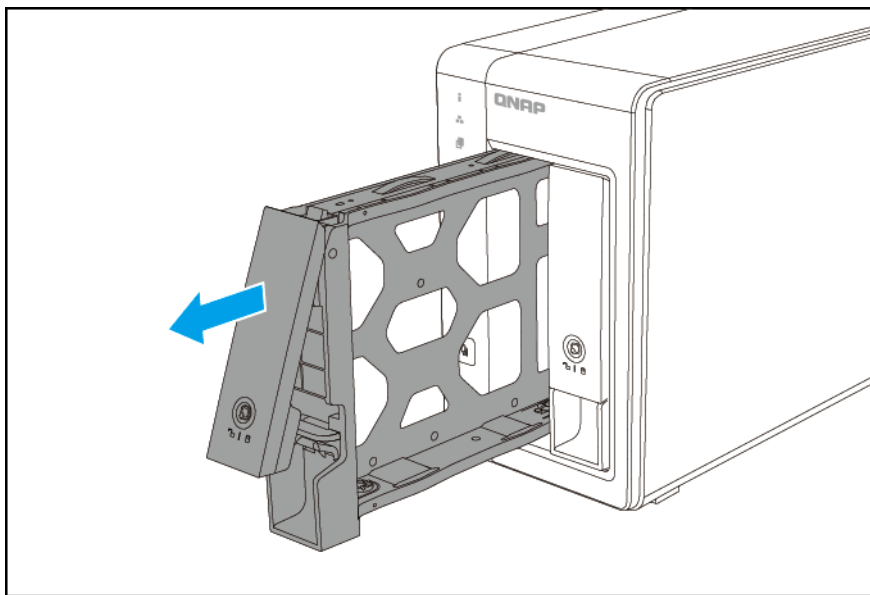


**Note**

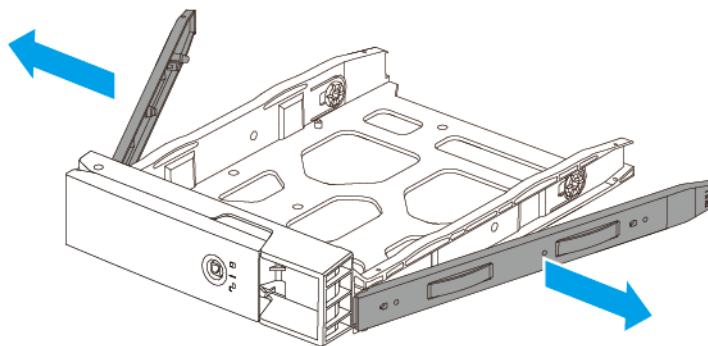
The preinstalled drive trays come unlocked.

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

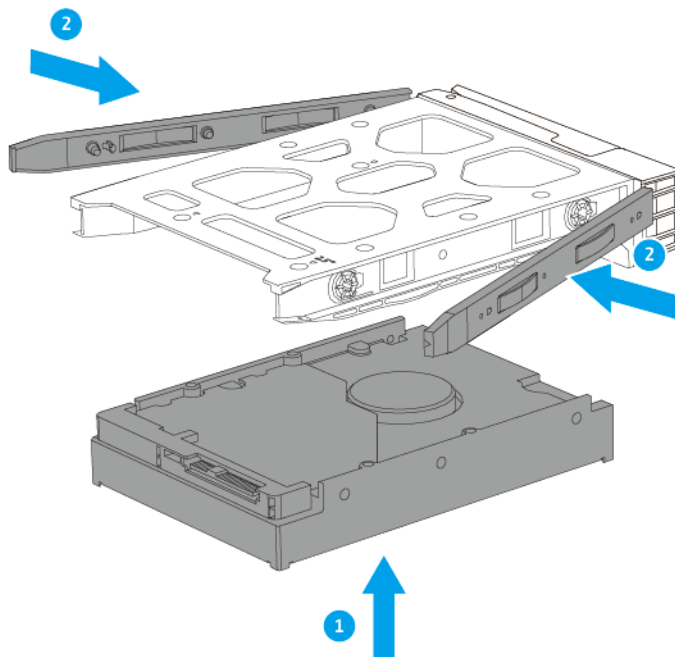




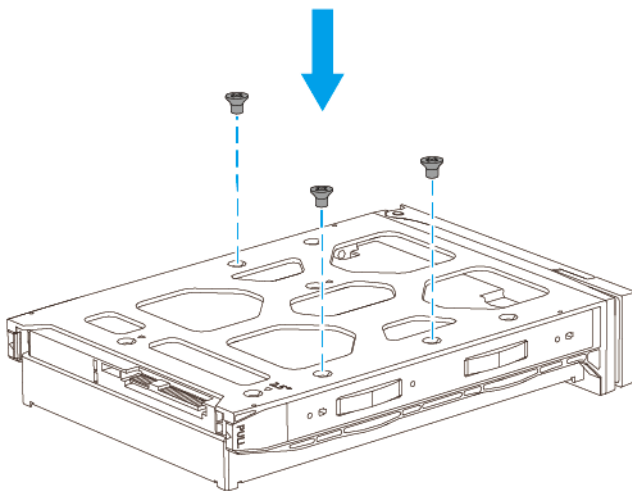
3. Install a drive on the tray.
  - a. Remove the fastening panels from the sides of the drive tray.



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

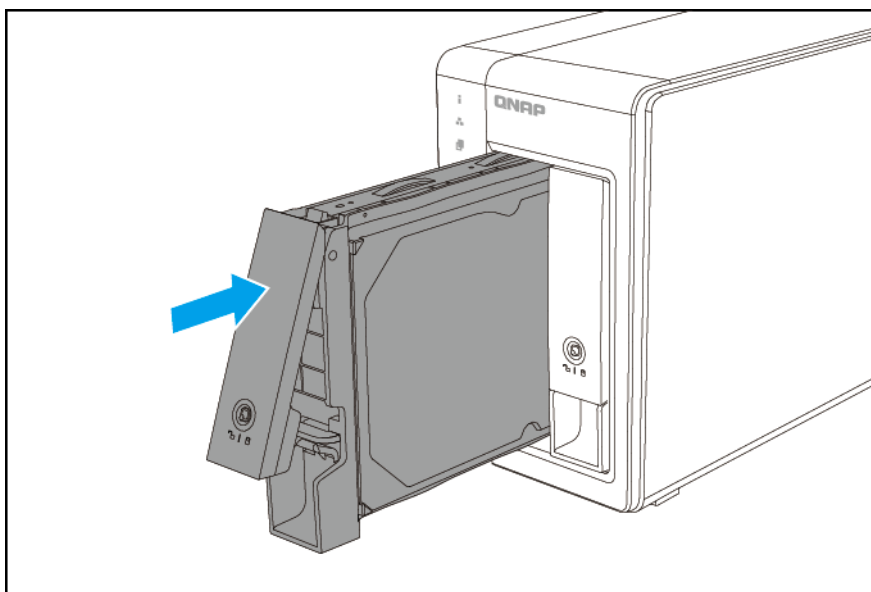


**d.** Attach the screws to further secure the drive.

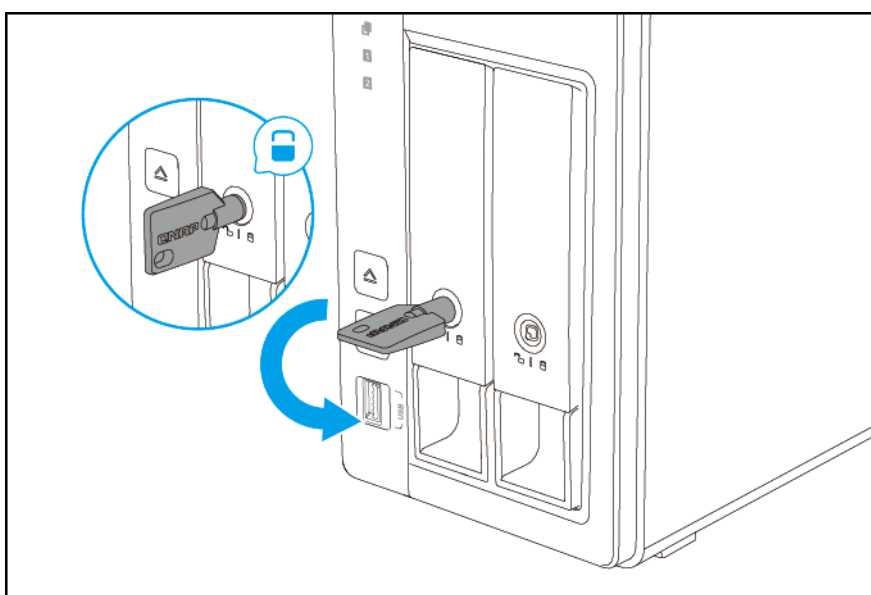


**4.** Load the tray into the bay.

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



c. Lock the tray.



5. Power on the NAS.

## Connecting USB expansion units



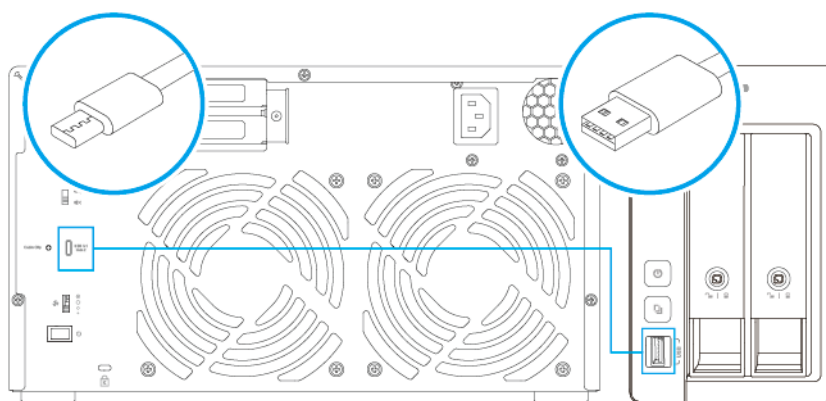
### Note

- To connect a USB expansion unit to the TS-216G, a USB Type-A to USB Type-C cable is required.
- You can purchase storage expansion accessories from QNAP or an authorized reseller.
- For details, go to <https://shop.qnap.com/>.

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

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

1. Connect the expansion unit to the NAS.
  - a. Connect the USB cable to the USB Type-C port on the expansion unit.
  - b. Connect the USB cable to the USB 3.2 Gen 1 Type-A port on the NAS.





2. Power on the expansion unit.
3. Verify that the expansion unit is recognized by the NAS.
  - a. Log on to QTS as an administrator.

b. Go to **Main Menu > Storage & Snapshots > Overview > System** .

c. Verify that the expansion unit is listed.

## QTS installation

Method	Description	Requirements
Qfinder Pro installation (Recommended)	<p>If the NAS is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> <li>• Locate the NAS using Qfinder Pro.</li> <li>• Complete the steps in the Smart Installation Guide wizard.</li> </ul> <p> <b>Note</b> For details see, <a href="#">Initializing 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>• Specify the Cloud Key.</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> <b>Note</b> For details see, <a href="#">Initializing QTS using the cloud installation website</a></p>	<ul style="list-style-type: none"> <li>• Computer or mobile device</li> <li>• myQNAPcloud account</li> <li>• Cloud Key</li> </ul>

## Initializing QTS using Qfinder Pro

You can initialize QTS using Qfinder Pro, which is a utility designed to help you locate and manage QNAP devices on your network.



### Warning

Initializing 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 network.



### Tip

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

4. Click **Next**.

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

5. Click **Check warranty**.

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



**Important**

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

6. Close the warranty page.

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

7. Click **Start Smart Installation**.

8. Read the QNAP Software Terms of Use carefully.

9. Agree to the terms and conditions.

10. Click **Next**.

11. If the screen shows a different operating system, click **QTS**.



**Note**

This step is only required if the NAS supports installing more than one operating system and the default operating system for installation is not QTS.

The NAS restarts and the smart installation screen shows QTS as the operating system to install.

12. Click **Start Smart Installation**.

13. Specify a firmware version using any of the following methods.

Methods	User Actions
<b>Current version</b>	Select <b>Current version</b> .
<b>Latest available version</b>	<p><b>a.</b> Select <b>Latest available version</b>.</p> <p><b>b.</b> Click <b>Check for Update</b> The system checks for the latest firmware update available for your device. If a newer version is available, the system downloads the firmware update and restarts the NAS.</p>
<b>Uploaded version</b>	<p><b>a.</b> Select <b>Uploaded version</b>.</p> <p><b>b.</b> Click <b>Browse</b>. The file upload window appears.</p> <p><b>c.</b> Select a firmware file.</p>

14. Click **Next**.

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

15. Specify the following information.

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

- **Username:** Specify an administrator username that contains 1 to 32 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.  
The username cannot contain the following special characters: grave accent (`), asterisk (\*), equal sign (=), plus sign (+), square brackets ([ ]), curly brackets ({}), slash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), backslash (/), question mark (?), percent sign (%), dollar sign (\$), and the space character.



### Important

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

- **Password:** Specify an administrator password with 1 to 64 characters. The password can contain any ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

### 16. Click **Next**.

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

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



### Tip

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

Methods	User Actions
Synchronize with computer or mobile device time	Select <b>Same as the computer/device time</b> The NAS synchronizes with the date and time of the computer or mobile device used to complete the initialization.
Enter manually	<b>a. Select <b>Input Manually</b>.</b>  <b>b. Specify the date and time.</b> The NAS uses the specified date and time.
Synchronize with a time server automatically	Click <b>Synchronize with an Internet time server automatically</b> . The NAS synchronizes with the NTP server.

### 18. Click **Next**.

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

### 19. Configure the network settings using any of the following methods.

Methods	User Actions
<b>Obtain an IP address automatically (DHCP)</b>	Select <b>Obtain an IP address automatically (DHCP)</b> The system automatically detects and configures the IP address settings.

Methods	User Actions
<b>Use static IP address</b>	<p><b>a.</b> Select <b>Use static IP address</b>. The IP address configuration page appears.</p> <p><b>b.</b> Specify the following IP address configurations:</p> <ul style="list-style-type: none"> <li>• Interface</li> <li>• IP Address</li> <li>• Subnet Mask</li> <li>• Default Gateway</li> <li>• Primary DNS server</li> <li>• Secondary DNS server</li> </ul>

- 20.** Click **Next**.  
The **Thunderbolt Connection** page appears.

**Note**

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

- 21.** Click **Next**.  
The **Summary** screen appears.
- 22.** Review the settings.
- 23.** Click **Apply**.  
A confirmation message appears.

**Warning**

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

- 24.** Click **Initialize**.

**Important**

The initialization may take several minutes to complete. Do not power off the device during the process.

QTS is initialized.

## Initializing QTS using the cloud installation website

You can initialize QTS on the cloud installation website, which is designed to help you set up QNAP devices.

**Warning**

Initializing 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 website using one of the following methods:
  - On your computer, go to the website dedicated to your region:



- Global: <https://install.qnap.com>
- China: <https://install.qnap.com.cn>
- Or 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**.



#### Tip

If your NAS is connected to the Internet, you can also go to <https://install.qnap.com/set> to enter the Cloud Key printed on the NAS. This allows you to initialize the NAS even if your NAS and your computer are not on the same network.

The installation wizard opens in the default web browser

5. Create an account or sign in to myQNAPcloud.



#### Note

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

6. Specify the myQNAPcloud device name for the NAS.



#### Note

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

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



#### Important

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

9. Close the warranty page.  
The **Smart Installation Guide** opens in the default web browser.
10. Click **Start Smart Installation**.
11. Read the QNAP Software Terms of Use carefully.
12. Agree to the terms and conditions.
13. Click **Next**.
14. If the screen shows a different operating system, click **QTS**.



#### Note

- This step is only required if the NAS supports installing more than one operating system and the default operating system for installation is not QTS.

- If the screen shows QuTS hero, you may need to click **Skip** first.

The NAS restarts and the smart installation screen shows QTS as the operating system to install.

15. Click **Start Smart Installation**.

16. Specify a firmware version using any of the following methods.

Methods	User Actions
<b>Current version</b>	Select <b>Current version</b> .
<b>Latest available version</b>	<p><b>a.</b> Select <b>Latest available version</b>.</p> <p><b>b.</b> Click <b>Check for Update</b> The system checks for the latest firmware update available for your device. If a newer version is available, the system downloads the firmware update and restarts the NAS.</p>
<b>Uploaded version</b>	<p><b>a.</b> Select <b>Uploaded version</b>.</p> <p><b>b.</b> Click <b>Browse</b>. The file upload window appears.</p> <p><b>c.</b> Select a firmware file.</p>

17. Click **Next**.

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

18. Specify the following information.

- **NAS Name:** Specify a name with 1 to 14 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Username:** Specify an administrator username that contains 1 to 32 characters. The name can contain letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), multi-byte Chinese, Japanese, Korean, and Russian characters.  
The username cannot contain the following special characters: grave accent (`), asterisk (\*), equal sign (=), plus sign (+), square brackets ([ ]), curly brackets ({}), slash (\), vertical bar (|), semicolon (;), colon (:), apostrophe ('), quotation mark ("), comma (,), less than sign (<), greater than sign (>), backslash (/), question mark (?), percent sign (%), dollar sign (\$), and the space character.



#### Important

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

- **Password:** Specify an administrator password with 1 to 64 characters. The password can contain any ASCII characters.
- **Confirm Password:** Enter the new administrator password again.

19. Click **Next**.

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

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



#### Tip

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

Methods	User Actions
Synchronize with computer or mobile device time	Select <b>Same as the computer/device time</b> The NAS synchronizes with the date and time of the computer or mobile device used to complete the initialization.
Enter manually	<ol style="list-style-type: none"> <li>a. Select <b>Input Manually</b>.</li> <li>b. Specify the date and time. The NAS uses the specified date and time.</li> </ol>
Synchronize with a time server automatically	Click <b>Synchronize with an Internet time server automatically</b> . The NAS synchronizes with the NTP server.

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

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

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

**Note**

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

24. Click **Next**.  
The **Summary** screen appears.
25. Review the settings.
26. Click **Apply**.  
A confirmation message appears.

**Warning**

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

27. Click **Initialize**.



**Important**


The initialization may take several minutes to complete. Do not power off the device during the process.

QTS is initialized.

## 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 5 seconds.	The device powers off.
Force power off	Press and hold the button for 10 seconds.	The device powers off.   <b>Important</b> Use this method only when the device is unresponsive.

### Reset button



#### Important

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

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	<p>The following settings are reset to default:</p> <ul style="list-style-type: none"> <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 would be 00089BF61575.</li> </ul> <p> <b>Tip</b> You can find the first MAC address with Qfinder Pro or attached to a label on the device listed as MAC1.</p> <ul style="list-style-type: none"> <li>• TCP/IP configuration: <ul style="list-style-type: none"> <li>• Obtain IP address settings automatically via DHCP</li> <li>• Disable jumbo frames</li> <li>• If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".</li> </ul> </li> <li>• System port: 8080 (system service port)</li> <li>• Security level: Low (Allow all connections)</li> <li>• LCD panel password: (blank)</li> <li>• VLAN: Disabled</li> </ul>
Advanced system reset	Press and hold the button for 10 seconds.	<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 QNAP device or from the QNAP device to a USB device.

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

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

## LEDs

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

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

## System Status LED

Status	Description
Flashes green and red alternately every 0.5 seconds	<ul style="list-style-type: none"> <li>• A 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> </ul>
Red	<ul style="list-style-type: none"> <li>• A drive is invalid.</li> <li>• A volume has reached its full capacity.</li> <li>• A volume is about to reach its full capacity.</li> <li>• A 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 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>
Off	<ul style="list-style-type: none"> <li>• All drives are in standby mode.</li> <li>• The device is powered off.</li> </ul>

## Drive LED

Status	Description
Flashes red	Data is being accessed, and during the process a drive read/write error occurred.
Red	A drive read/write error occurred.
Flashes green	Data is being accessed.
Green	The drive is ready.
Off	No drive was detected.

## Drive Status LED

Status	Description
Green	The drive is ready.

Status	Description
Red	A drive read/write error occurred.
Flashes red 5 times per second	The drive is being located in the operating system.
Off	No drive was detected.

### Drive Activity LED

Status	Description
Green	The drive is ready.
Flashes green	The drive is being accessed.
Off	No drive was detected.

### LAN LED

Status	Description
Orange	A network connection has been established.
Flashes orange	The device is being accessed from the network.
Off	The device is not connected to a network.

### 2.5 Gigabit Ethernet Speed LED

Status	Description
Green	The network connection is operating at 2.5 Gbps.
Orange	<ul style="list-style-type: none"> <li>The network connection is operating at 1 Gbps.</li> <li>The network connection is operating at 100 Mbps.</li> </ul>
Off	<ul style="list-style-type: none"> <li>The network connection is operating at 10 Mbps.</li> <li>There is no network connection.</li> </ul>

### 2.5 Gigabit Ethernet Activity LED

Status	Description
Orange	A network connection has been established.
Flashes orange	The device is being accessed from the network.
Off	There is no network connection.

### Gigabit Ethernet Speed LED

Status	Description
Green	The network connection is operating at 1 Gbps.
Orange	The network connection is operating at 100 Mbps.
Off	<ul style="list-style-type: none"> <li>The network connection is operating at 10 Mbps.</li> <li>There is no network connection.</li> </ul>



### Gigabit Ethernet Activity LED

Status	Description
Green	A network connection has been established.
Flashes green	The device is being accessed from the network.
Off	There is no network connection.

### USB One Touch Copy LED

Status	Description
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 USB One Touch Copy port is being removed from the device.</li> <li>A USB device connected to the USB One Touch Copy port is being accessed.</li> </ul>
Blue	A USB device is detected in the front USB port.
Off	<ul style="list-style-type: none"> <li>No USB device is detected.</li> <li>The host device has finished copying data to or from the USB device connected to the front USB port.</li> </ul>

### 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 15 seconds, the NAS resets configurations and reboots.</li> <li>The operating system was updated.</li> </ul>
	3	<ul style="list-style-type: none"> <li>The NAS data cannot be copied to the external storage device connected to the USB One Touch Copy port.</li> </ul>

Duration	Frequency	Description
Long beep (1.5 seconds)	3 (every 5 minutes)	<ul style="list-style-type: none"> <li>• A system fan is not functioning.</li> <li>• A fan module has been removed.</li> </ul>
	2	<ul style="list-style-type: none"> <li>• A disk volume is about to reach its full capacity.</li> <li>• A disk volume has reached its full capacity.</li> <li>• The drives are in degraded mode.</li> <li>• A drive is rebuilding.</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. NAS Migration

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

### NAS migration requirements

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

Your device must meet the following requirements:

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



#### Note

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

- The destination NAS must run on the same QTS version as the source NAS (or later).



#### Important

Due to incompatibilities in file system, system migration between QTS NAS and QuTS hero NAS is not supported.



#### Warning


Migrating drives between QTS NAS and QuTS hero NAS can cause data corruption.




- The destination NAS must have sufficient free drive bays to accommodate all the drives that you are migrating from the source NAS.

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

### Status and setting changes after NAS migration

The status of NAS data and settings varies after migration.

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

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

## Migrating a NAS



### Important

Before performing NAS migration, ensure that you understand all requirements and possible changes after migration.

For details see the following topics:

- [NAS migration requirements](#)
- [Status and setting changes after NAS migration](#)

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



### Important

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

- a. Remove the drives from the source NAS.

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

## Migrating NAS data using HBS 3

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

## Preparing the destination NAS



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

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

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

## Creating a one-way sync job

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

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

7. Optional: Test the connection.

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

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

10. Select the paired folders.



### Important

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

a. Under the source, click **+**.  
A dialog box opens.

b. Select a folder.

c. Click **OK**.  
The dialog box closes.

d. Under the destination, click **+**.  
A dialog box opens.

e. Select a folder.

f. Click **OK**.

g. Optional: Add more paired folders if necessary.

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

12. Select **Sync now**.

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

14. Optional: Configure job rules.

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

16. Review the job summary.

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



### Note

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

## Importing local users or group settings to the destination NAS

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

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

**Note**

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

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



## 6. Troubleshooting

This chapter describes basic troubleshooting information.

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

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

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

### Hot-swapping failed drives

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

RAID Type	Number of Disks	Situation
RAID 1	2	One member drive fails.

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

### Recovering unintentionally removed healthy drives

The NAS supports exclusive RAID recovery technology to recover failed RAID groups from unintentional disconnection or removal of drives. Users can recover an inactive RAID 1 group from degraded mode.

RAID Type	RAID Recovery Support	Number of Disks	Disk Failure Tolerance
Single	No	1	N/A
JBOD	Yes	$\geq 2$	N/A
RAID 0	Yes	$\geq 2$	N/A
RAID 1	Yes	2	1

## 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/go/nas-migration">https://www.qnap.com/go/nas-migration</a>
Expansion Unit Compatibility	<a href="https://www.qnap.com/go/compatibility-expansion">https://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/go/product/eol.php">https://www.qnap.com/go/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>

## 7. Glossary

### **Cloud Key**

Unique 8-digit code assigned to each NAS device

### **myQNAPcloud**

Provides various remote access services such as DDNS and myQNAPcloud Link

### **myQNAPcloud Link**

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

### **Qfinder Pro**

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

### **QNAP ID**

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

### **QTS**

QNAP NAS operating system

## 8. Notices

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

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Version 3, 29 June 2007

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**FCC notice**

**FCC Class B Notice**



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

**Note**

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

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## SJ/T 11364-2006



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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
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