

TS-230

User Guide

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1. Preface

About This Guide

This guide provides information on the QNAP TS-230 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-230 NAS.

About the TS-230

The TS-230 is a user-friendly lightweight NAS designed for backup, synchronization, remote access, and home entertainment. The TS-230 offers smooth and seamless data transmission for multiple users. It is powered by a Realtek RTD1296 quad-core ARM Cortex A53 processor with 2 GB DDR4 memory. Its toolless tower design makes it an ideal NAS for homes and small offices.

Hardware Specifications



Warning

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

Ordering P/N	CPU	Memory	Power supply
TS-230	Realtek RTD1296 ARM	2 GB	Single
	Cortex-A53		

Component	TS-230		
Processor			
CPU	Realtek RTD1296 ARM Cortex-A53		
Frequency	4-core/1.4 GHz		
Architecture	ARM 64-bit		
Encryption engine	AES-256		
Memory			
Pre-installed memory	2 GB RAM DDR4 (non-expandable) Note The TS-230 reserves some RAM for shared graphics memory.		
Flash memory	4 GB (Dual-boot OS protection)		
Storage			
Drive bays	2 x 3.5-inch SATA 6 Gbps Note The 3.5-inch SATA drive bays are backward compatible with SATA 3 Gbps drives.		

Component	TS-230	
Drive compatibility	3.5-inch bays:	
	 3.5-inch SATA hard disk drives 	
	 2.5-inch SATA hard disk drives 	
	2.5-inch SATA solid-state drives	
	Important 2.5-inch drive trays only support drives with a maximum height of 9.5 mm.	
Hot-swapping	Supported	
Network		
Gigabit Ethernet ports	1 x GbE RJ45	
External I/O Ports & Expansion SI	ots	
USB ports	Front: 1 x USB 3.0 Type-A	
	Note This USB port supports One Touch Copy.	
	Back:	
	• 1 x USB 2.0 Type-A	
	• 1 x USB 3.0 Type-A	
Dimensions		
Form factor	Tower	
Dimensions (H x W x D)	188.64 x 90.18 x 156.26 mm (7.43 x 3.55 x 6.15 in)	
Net weight	1.11 kg (2.45 lbs)	
Others		
Power supply unit	65W, AC 100 to 240 V, 50/60 Hz	
	Warning To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.	
System battery	CR2032 lithium battery (3V, 225 mAh)	
	Warning To avoid potential battery explosion, causing injury or damage to components, ensure that you replace the existing battery with a battery of the same type.	
	Dispose of used batteries according to local regulations or the instructions of the battery manufacturer.	

Component	TS-230	
Sound level	15 db(A)	
	Note 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	System: 1 x 80 mm, 12V DC fan	
	Warning	
	To avoid potential injury or damage to components, do not touch the fans while the NAS is connected to a power source.	
Operating temperature	0°C to 40°C (32°F to 104°F)	
Relative humidity	Non-condensing relative humidity: 5% to 95%	
	 Wet-bulb temperature: 27°C (80.6°F) 	



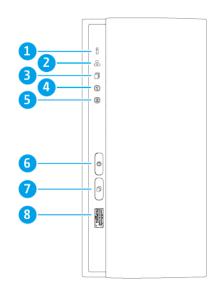
Model specifications are subject to change without prior notice. To see the latest specifications, go to https://www.qnap.com.

Package Contents

Item	Quantity
TS-230	1
AC power adapter	1
Power cord	1
Screws for 3.5-inch drives	8
Screws for 2.5-inch drives	6
Ethernet cable	1
Quick Installation Guide (QIG)	1

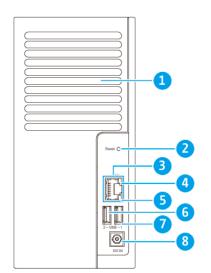
Components

Front Panel



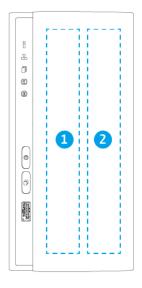
No.	Component	No.	Component
1	Status LED	5	Drive 2 LED
2	LAN LED	6	Power button
3	USB One Touch Copy LED	7	USB One Touch Copy button
4	Drive 1 LED	8	USB 3.0 One Touch Copy Type-A port

Rear Panel



No.	Component	No.	Component
1	System fan	5	Gigabit Ethernet speed LED
2	Reset button	6	USB 2.0 Type-A port
3	Ethernet port (GbE RJ45)	7	USB 3.0 Type-A port
4	Gigabit Ethernet activity LED	8	Power input

Front Drive Numbering



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	 Room temperature: 0°C to 40°C (32°F to 104°F) 	
	 Non-condensing relative humidity: 5% to 95% 	
	 Wet-bulb temperature: 27°C (80.6°F) 	
	 Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals 	
	 Free from objects that may obstruct NAS ventilation or apply pressure to the NAS or power cord 	
Hardware and peripherals	Storage drives For the list of compatible drive models, go to https:// www.qnap.com/compatibility.	
	Network cable	
Tools	Phillips #1 or #2 screwdriver	
	Flat head screwdriver	
	Anti-static wrist strap	

Setting Up the NAS



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

- 1. Place your NAS device in an environment that meets the requirements.
- 2. Install the drives.

For details, see the following topics:

- Installing 3.5-inch Hard Drives on 3.5-inch Drive Trays
- Installing 2.5-inch Hard Drives or Solid-State Drives on 3.5-inch Drive Trays
- 3. Connect the power cord and all applicable cables.
- 4. Power on the NAS.
- **5.** Install QTS. For details, see QTS Installation.
- 6. Log on to QTS.

3. Installation and Configuration

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

Hardware Installation

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

Drive Installation

The TS-230 is compatible with 3.5-inch and 2.5-inch SATA hard drives, and 2.5-inch solid-state drives.

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



Warning

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

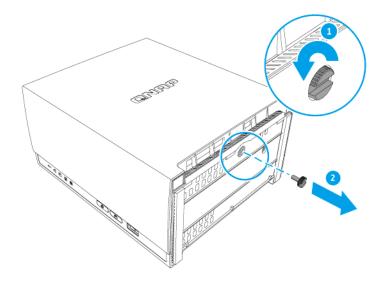


Moving fan blades: Keep your hands and other body parts away from moving fan blades.

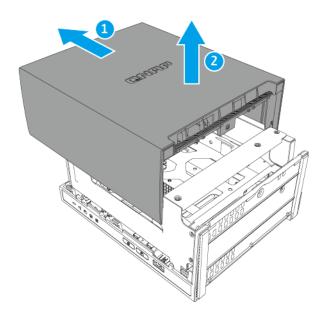


Other moving components: Keep your hands and other body parts away from other moving components.

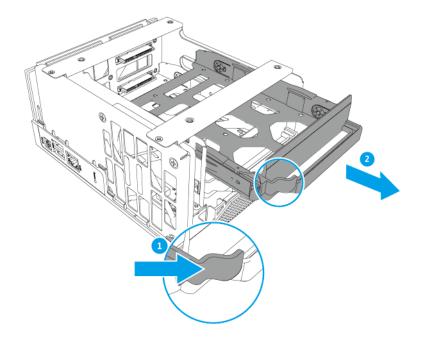
- 1. Power off the NAS.
- 2. Disconnect the power cord from the electrical outlet.
- 3. Disconnect all cables and external attachments.
- 4. Remove the case cover.
 - a. Lay the NAS on the left side.
 - b. Loosen the screw.



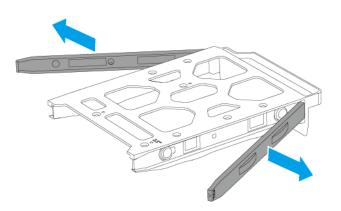
- c. Slide the cover back.
- **d.** Lift up the cover.



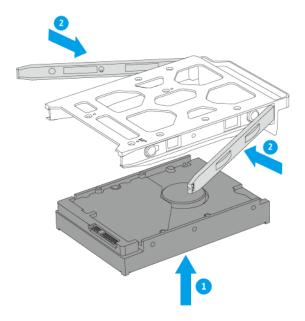
- 5. Install a drive on the tray.
 - **a.** Remove a drive tray by simultaneously pressing the latch and pulling the tray.



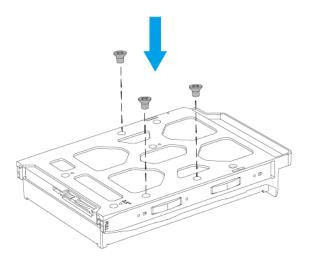
b. Remove the fastening panels from the sides of the drive tray.



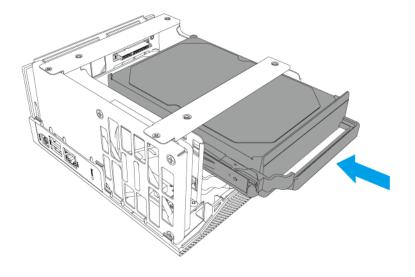
- **c.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- d. Attach the fastening panels to lock the drive to the tray.



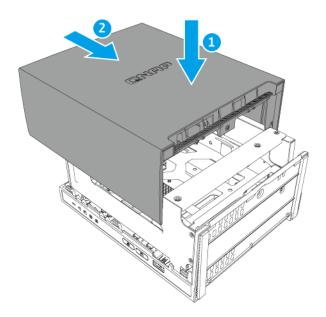
e. Optional: Attach the screws.



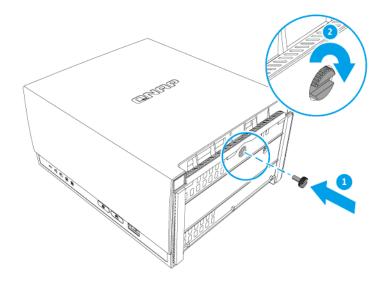
- 6. Load the tray into the bay.
 - **a.** Slide the tray into the drive bay.
 - **b.** Push the handle.



- **7.** Attach the case cover.
 - **a.** Place the cover on the NAS.
 - **b.** Slide the cover forward.



c. Attach the screw to the bottom of the NAS.



d. Place the NAS in its normal upright position.



- 8. Connect all cables and external attachments.
- 9. Power on the NAS.

Installing 2.5-inch Hard Drives or Solid-State Drives on 3.5-inch Drive Trays



Warning

• Installing a drive and installing QTS deletes all data on the drive.

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

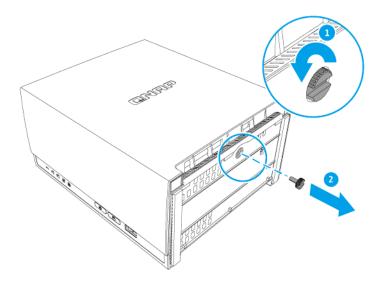


Moving fan blades: Keep your hands and other body parts away from moving fan blades.

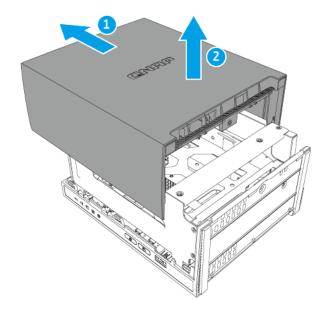


Other moving components: Keep your hands and other body parts away from other moving components.

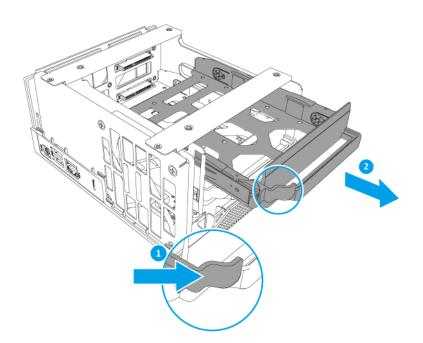
- 1. Power off the NAS.
- 2. Disconnect the power cord from the electrical outlet.
- 3. Disconnect all cables and external attachments.
- 4. Remove the case cover.
 - a. Lay the NAS on the left side.
 - **b.** Loosen the screw.
 - c. Remove the screw.



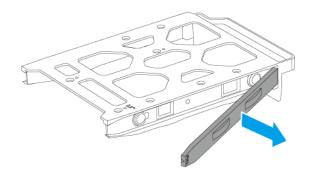
- d. Slide the cover back.
- e. Lift up the cover.



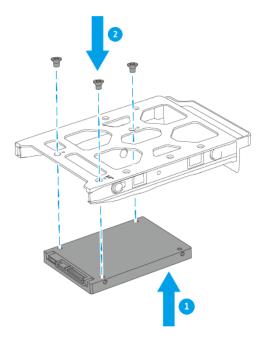
- **5.** Install a drive on the tray.
 - **a.** Remove a drive tray by simultaneously pressing the latch and pulling the tray.



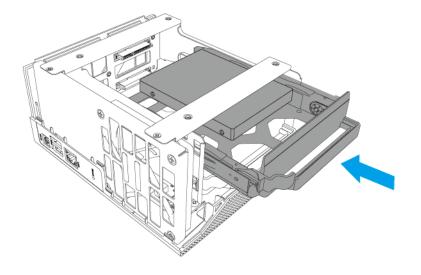
b. Remove the right fastening panel from the drive tray.



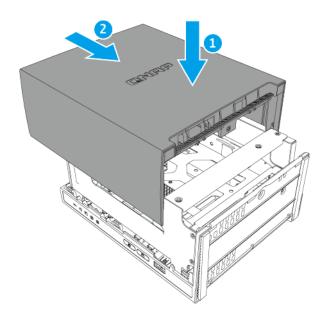
- **c.** Place the drive on the tray so that the holes on the bottom of the drive are aligned with the holes on the bottom of the tray.
- d. Attach the screws.



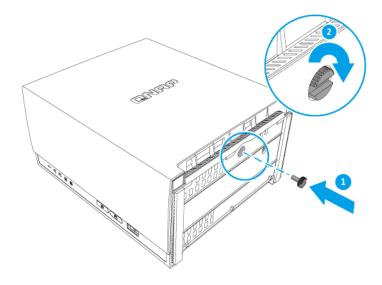
- 6. Load the tray into the bay.
 - **a.** Slide the tray into the drive bay.
 - **b.** Push the handle.



- 7. Attach the case cover.
 - **a.** Place the cover on the NAS.
 - **b.** Slide the cover forward.



c. Attach the screw.



d. Place the NAS in its normal upright position.



- 8. Connect all cables and external attachments.
- 9. Power on the NAS.

QTS Installation

Method	Description	Requirements
Qfinder Pro installation (Recommended)	 If the NAS is connected to your local area network, you can do the following: Locate the NAS using Qfinder Pro. Complete the steps in the Smart Installation Guide wizard. 	ComputerNetwork cableQfinder Pro installer
Cloud installation	 If the NAS is connected to the internet, you can do the following: Scan the QR code on the NAS. Specify the Cloud Key. Log into your myQNAPcloud account. Use myQNAPcloud Link to remotely access your NAS. Complete the steps in the Smart Installation Guide wizard. 	 Computer or mobile device myQNAPcloud account CloudKey

Installing QTS Using Qfinder Pro



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.
- 5. Perform any of the following actions.
 - To check for the latest available version, click Start.
 The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the Smart Installation Guide.
 - To install the out-of-the-box version, click Skip.

6. Click Start Smart Installation Guide.

- 7. 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.
- 8. Click Next.

Tip

9. Specify the time zone, date, and time.



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

- 10. Click Next.
- 11. Select Obtain an IP address automatically (DHCP).
- 12. Click Next.
- **13.** Select the types of devices that you will use to access shared folders on the NAS.
- 14. Click Next.
- **15.** Review the settings.
- **16.** Click **Apply**. A confirmation message appears.



Warning

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

17. Click **Confirm**. QTS is installed.

Installing QTS Using the Cloud Key



Warning

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

- 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.



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.

- Tou must re
- 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.
- 8. Perform any of the following actions.
 - To check for the latest available version, click **Start**. The wizard downloads the latest available version, and then the NAS restarts after the download is complete. If a newer version is not available, the wizard automatically displays the **Smart Installation Guide**.
 - To install the out-of-the-box version, click Skip.
- 9. Click Start Smart Installation Guide.
- **10.** Specify the following information.
 - NAS name: Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
 - **Password**: Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
- 11. Click Next.
- 12. Specify the time zone, date, and time.



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

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

A confirmation message appears.



Warning

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

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20. 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 N	IAS powers on.
Power off	Press and hold the button for 1.5 seconds.	The N	IAS powers off.
Force power off	Press and hold the button for 5 seconds.	The NAS shuts down.	
			Important Use this method only when the NAS is unresponsive.

Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default:
		System administrator password: admin
		TCP/IP configuration:
		 Obtain IP address settings automatically via DHCP
		Disable jumbo frames
		 If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to "Active Backup (Failover)".
		System port: 8080 (system service port)
		Security level: Low (Allow all connections)
		LCD panel password: (blank)
		VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored.
		 To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.

LEDs

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

For details on the location of the LEDs, see Front Panel.

LED	Status	Description
System Status	Flashes green and red	The drive is being formatted.
	alternately every 0.5 seconds	The NAS is being initialized.
		 The operating system is being updated.
		 RAID rebuilding is in progress.
		Online RAID Capacity Expansion is in progress.
		Online RAID Level Migration is in progress.
	Red	The drive is invalid.
		 The disk volume has reached its full capacity.
		The disk volume is about to reach its full capacity.
		The system fan is not functioning.
		• An error occured when accessing (read/write) the data.
		 A bad sector is detected on the hard drive.
		 One drive failed under any RAID condition other than RAID 1.
		Both drives failed.
		A hardware self-test error occurred.
	Flashes red every 0.5 seconds	The NAS is in degraded mode (one member drive failed in RAID 1).
	Flashes green every 0.5	The NAS is starting up.
	seconds	The NAS is not configured.
		A drive is not formatted.
	Green	The NAS is ready.
	Off	All drives are in standby mode.
LAN	Orange	A read/write error occured while another device is accessing data.
	Flashes orange	The NAS is being accessed from the network.
Drive	Flashes red	The data is being accessed and a read/write error occurs during the process.
	Red	A drive read/write error occured.
	Flashes green	The data is being accessed.
	Green	The drive can be accessed.

LED	Status	Description
USB	Flashes blue every 0.5 sec	 A USB device (connected to the front USB port) is detected.
		 A USB device (connected to the front USB port) is being removed from the NAS.
		 A USB device (connected to the front USB port of the NAS) is being accessed.
		 Data is being copied to or from a USB or eSATA device.
	Blue	A USB device is detected in the front USB port.
	Off	No USB device is detected.
		 The NAS has finished copying data to or from the USB device connected to the front USB port.

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.

Audio Alert

Duration	Frequency	Description
Short beep (0.5 seconds)	1	 The NAS is starting up.
		The NAS is shutting down (software shutdown).
		 The user pressed the Reset button.
		 The operating system was updated.
	3	The user tried to copy the NAS data to the external storage device from the front USB port, but the data cannot be copied.
Long beep (1.5 seconds)	3 (every 5 minutes)	The system fan is not functioning.
	2	 The disk volume is about to reach its full capacity.
		The disk volume has reached its full capacity.
		The drives are in degraded mode.
		The user started the drive rebuilding process.
		 A drive is plugged in or out.
	1	The NAS was powered off by force shutdown (hardware shutdown).
		 The NAS was powered on successfully and is ready.

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5. Troubleshooting

This chapter describes basic troubleshooting information.

Hot-Swapping Failed Drives

The NAS supports hot-swapping drives when one member drive fails in RAID 1.

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

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.

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 volume to degraded mode, or an inactive RAID 0 and JBOD configuration to normal.

Disk Volume	RAID Recovery Support	Maximum Number of Removed Drives		
Single	No	N/A		
JBOD	Yes	1		

Disk Volume	RAID Recovery Support	Maximum Number of Removed Drives		
RAID 0	Yes	1		
RAID 1	Yes	1		

Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	https://docs.qnap.com
Service Portal	https://service.qnap.com
Downloads	https://download.qnap.com
Community Forum	https://forum.qnap.com

6. Glossary

CloudKey

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 ID

Email address that was used to register for a myQNAPcloud account

myQNAPcloud

Provides various remote access services such as DDNS and myQNAPcloud Link

Qfinder Pro

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

QTS

QNAP NAS operating system

7. Notices

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

Limited Warranty

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Version 3, 29 June 2007

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CE 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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VCCI-B

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SJ/T 11364-2006



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