

TS-832X

User Guide

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1. Preface

About This Guide

This guide provides information on the QNAP TS-832X NAS and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

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

Document Conventions

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

2. Product Overview

This chapter provides basic information about the QNAP TS-832X NAS.

About the TS-832X

The TS-832X NAS is well-suited for growing businesses in need of cost-effective storage, backup, restoration, and private cloud solutions. Featuring two 10GbE SFP+ ports as well as two 1GbE RJ45 ports, the TS-832X scales to the needs of modern networks. The TS-832X supports up to eight storage drives, storing an enormous amount of data within its compact frame. Equipped with a quad-core ARM processor, the TS-832X also features a hardware-accelerated encryption engine to keep data secure.

Hardware Specifications



Important

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

| Component | TS-832X |
|----------------------|--|
| Ordering Information | |
| Ordering P/N | • TS-832X-2G |
| | • TS-832X-8G |
| Processor | |
| CPU | Annapurna Labs Alpine AL-324 quad-core ARM® Cortex-A57 1.7GHz Processor |
| Architecture | 64-bit |
| Encryption engine | AES-256 |
| Memory | |
| Pre-installed memory | • 2 GB RAM: 1 x 2 GB DDR4 |
| | • 8 GB RAM: 1 x 8 GB DDR4 |
| | 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. |
| | Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting. |
| Total memory slots | 1 x SODIMM DDR4 |
| Maximum memory | 16 GB (1 x 16 GB) |
| Flash Memory | 512 MB |
| Storage | |
| Drive bays | 8 x 3.5-inch SATA 6 Gbps bays |
| Drive compatibility | 3.5-inch SATA hard disk drives |
| | 2.5-inch SATA hard disk drives |
| | 2.5-inch SATA solid state drives |

| Hot-swappable Network 10 gigabit Ethernet ports Gigabit Ethernet ports External I/O Ports & Expan PCIe slots USB ports | 1 x PCle 2.0 x1 1 x PCle 2.0 x2 Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
|--|--|
| 10 gigabit Ethernet ports Gigabit Ethernet ports External I/O Ports & Expan PCIe slots | 2 x Gigabit RJ45 sion Slots • 1 x PCle 2.0 x1 • 1 x PCle 2.0 x2 • Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. • Rear: 2 x USB 3.0 Type-A • 1 x 3.5 mm line-out jack |
| Gigabit Ethernet ports External I/O Ports & Expan PCIe slots | 2 x Gigabit RJ45 sion Slots • 1 x PCle 2.0 x1 • 1 x PCle 2.0 x2 • Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. • Rear: 2 x USB 3.0 Type-A • 1 x 3.5 mm line-out jack |
| External I/O Ports & Expan PCIe slots | sion Slots 1 x PCle 2.0 x1 1 x PCle 2.0 x2 Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| PCIe slots | 1 x PCle 2.0 x1 1 x PCle 2.0 x2 Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| | 1 x PCle 2.0 x2 Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| USB ports | Front: 1 x USB 3.0 Type-A Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| USB ports | Note You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| | You can use the One-Touch Copy button with this port. Rear: 2 x USB 3.0 Type-A 1 x 3.5 mm line-out jack |
| | • 1 x 3.5 mm line-out jack |
| | |
| Audio | |
| | • 1 x speaker |
| | Note You cannot use the speaker and the line-out jack simultaneously. |
| Interface | |
| Buttons | • Power |
| | USB One Touch Copy |
| | • Reset |
| Dimensions | |
| Form factor | Tower |
| Dimensions (H x W x D) | 188.2 x.329.3 x 279.6 mm 7.41 x 12.96 x 11.01 in |
| Net weight | 6.52 kg (14.37 lbs) |
| Other | |
| Power supply unit | 250W, 100-240V AC, 50/60Hz |
| System battery | CR2032 lithium battery (3V, 225mAh) |
| | Warning When replacing the system battery, only use the same battery type as the existing one to avoid explosions. |
| Fans | 2 x 120 mm, 12V DC |
| | Warning To avoid serious injuries, do not touch the fans while the NAS is connected to a power source. |
| Operating temperature | 0 to 40°C (32 to 104°F) |
| Relative humidity | Non-condensing relative humidity: 5 to 95% |
| | Wet-bulb temperature: 27°C (80.6°F) |
| Security slot | Kensington security slot |

Tip

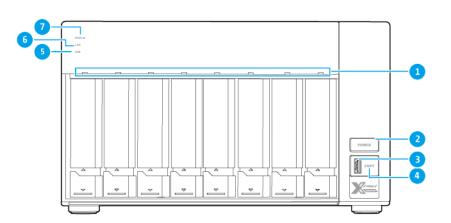
Model specifications are subject to change without prior notice. To see the latest specifications, go to https://www.qnap.com.

Package Contents

| Item | Quantity |
|--------------------------------|----------|
| TS-832X NAS | 1 |
| AC power adapter | 1 |
| Power cord | 1 |
| Ethernet cable | 2 |
| Screws for 2.5-inch drives | 24 |
| Screws for 3.5-inch drives | 32 |
| Quick Installation Guide (QIG) | 1 |

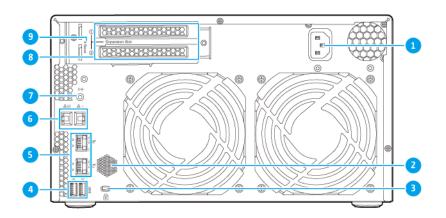
Components

Front Panel



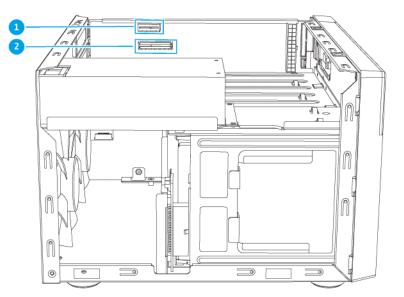
| No. | Component | No. | Component |
|-----|-----------------------------|-----|------------|
| 1 | Drive LEDs | 5 | USB LED |
| 2 | Power button | 6 | LAN LED |
| 3 | USB 3.0 One-Touch Copy port | 7 | Status LED |
| 4 | USB One-Touch Copy button | - | - |

Rear Panel



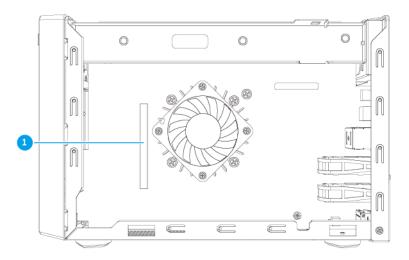
| No. | Component | No. | Component | |
|-----|--------------------------------|-------------------------------|--------------------------|--|
| 1 | Power input | 6 Gigabit Ethernet RJ45 ports | | |
| 2 | Speaker | 7 3.5 mm audio jack | | |
| 3 | Kensington security slot | 8 | 8 PCIe slots with covers | |
| 4 | USB 3.0 Type-A ports | 9 Reset button | | |
| 5 | 10 Gigabit Ethernet SFP+ ports | - | - | |

Left Panel



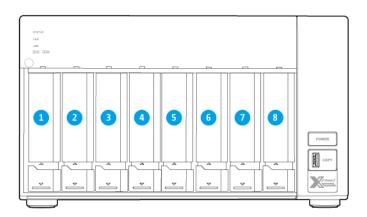
| No. | Component | No. | Component |
|-----|------------------|-----|------------------|
| 1 | PCIe 2.0 x1 slot | 2 | PCIe 2.0 x2 slot |

Right Panel



| No. | Component | No. | Component |
|-----|---------------|-----|-----------|
| 1 | Memory slot 1 | - | - |

Drive Numbering



Installation Requirements

| Category | Item |
|--------------------------|---|
| Environment | Room temperature: 0 to 40°C (32 to 104°F) |
| | Non-condensing relative humidity: 5 to 95% |
| | Wet-bulb temperature: 27°C (80.6°F) |
| | Flat, anti-static surface with no exposure to direct sunlight, liquids, and chemicals |
| Hardware and peripherals | Storage drives For details on compatible drives, go to https://www.qnap.com/ compatibility/. |
| | Network cable |
| Tools | Phillips #1 or #2 screwdriver |
| | Anti-static wrist strap |

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
- 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.

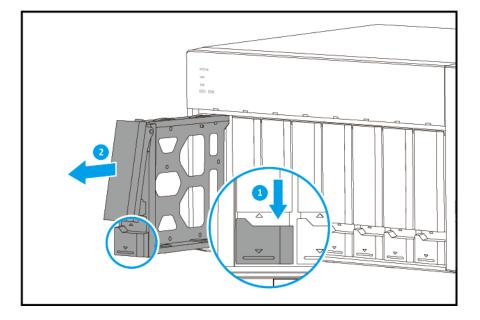
Drive Installation

The TS-832X is compatible with 3.5-inch and 2.5-inch hard drives, and 2.5-inch solid state drives.

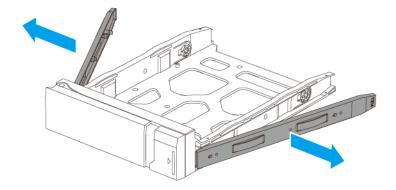
Installing 3.5-inch Hard Drives on 3.5-inch Trays



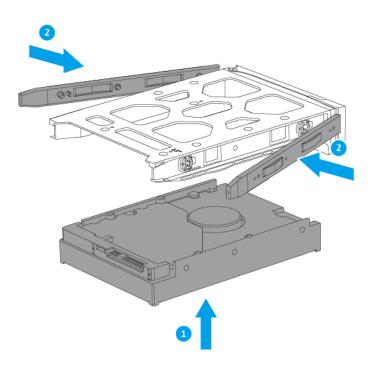
- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 1. Power off the NAS.
- 2. Remove the drive tray.
 - a. Slide the lock down.
 - **b.** Pull the tray handle outward.
 - c. Pull the tray out.



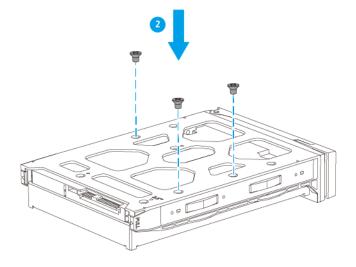
- 3. Install a drive on the tray.
 - a. Remove the fastening panels from the sides of the drive tray.



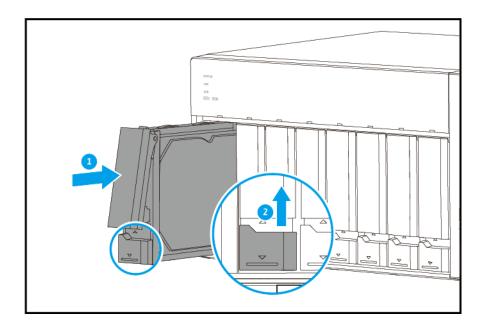
- **b.** Place the drive on the tray so that the holes on the sides of the drive are aligned with the holes on the sides of the tray.
- **c.** Attach the fastening panels to lock the drive to the tray.



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



- 4. Load the tray into the bay.
 - **a.** Slide the tray into the drive bay.
 - **b.** Push the handle.
 - **c.** Slide the lock up.

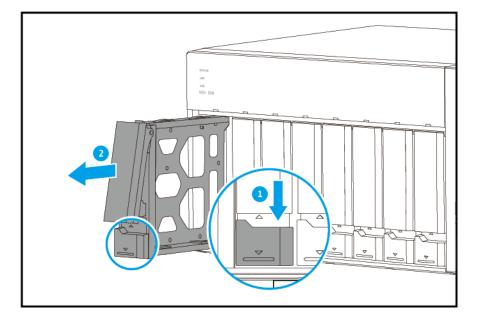


5. Power on the NAS.

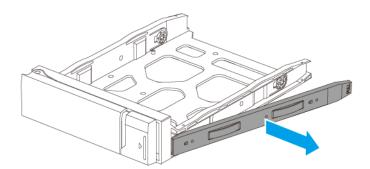
Installing 2.5-inch Hard Drives or Solid State Drives on 3.5-inch Trays



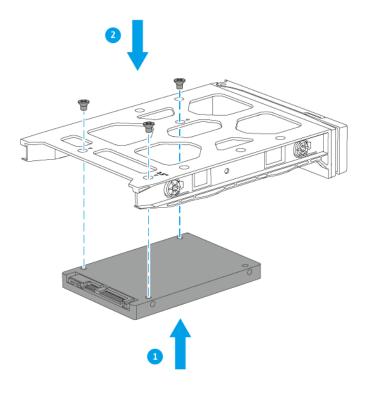
- Installing a drive deletes all data on the drive.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- **1.** Power off the NAS.
- 2. Remove the drive tray.
 - a. Slide the lock down.
 - **b.** Pull the tray handle outward.
 - c. Pull the tray out.



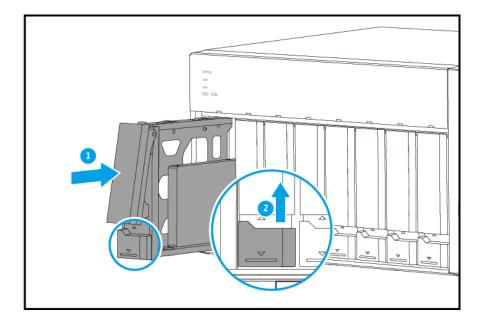
- **3.** Install a drive on the tray.
 - a. Remove the right fastening panel from the drive tray.



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



- **4.** Load the tray into the bay.
 - **a.** Slide the tray into the drive bay.
 - **b.** Push the handle.
 - c. Slide the lock up.



5. Power on the NAS.

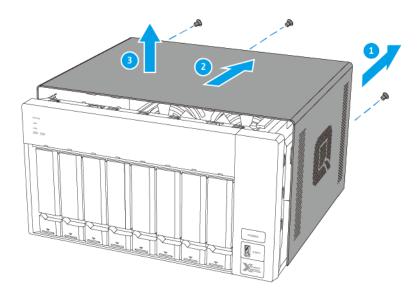
Installing Expansion Cards

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

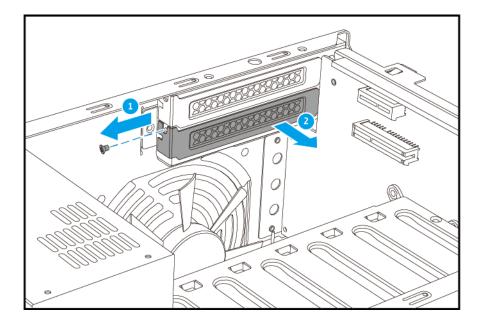


- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 1. Check the expansion cards and brackets supported by your model on the QNAP website.
 - a. Go to www.qnap.com/compatibility.
 - b. Click Search by NAS.
 - c. Specify the number of bays and the specific model of your NAS.
 - d. Under Category, select the component or device type.
 - e. Locate a specific component or device model in the list.
 - f. Optional: Click the corresponding Note icon to view more information.
- 2. Power off the NAS.
- 3. Disconnect the power cord from the electrical outlet.
- 4. Disconnect all cables and external attachments.
- 5. Remove the case cover.

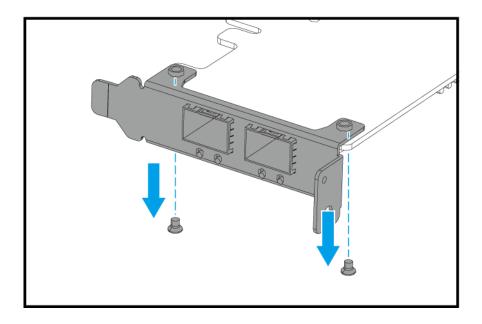
- **a.** Remove the screws that secure the cover to the chassis.
- **b.** Slide the cover back.
- c. Pull the cover up until it completely detaches from the chassis.



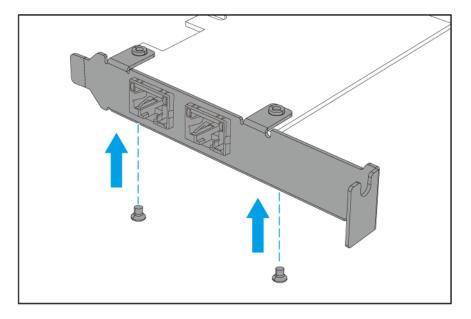
- 6. Remove the PCIe cover.
 - **a.** Remove the screw that secures the cover to the chassis.
 - **b.** Pull the cover away from the slot.



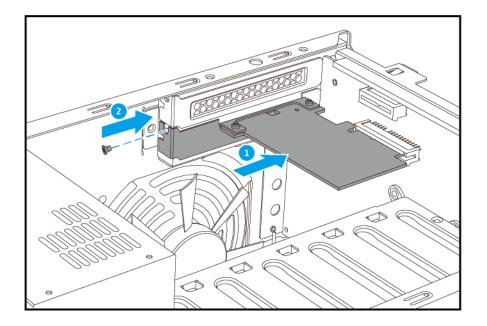
- 7. Optional: Attach the QNAP bracket to the expansion card.
 - a. Remove all screws of the existing bracket.



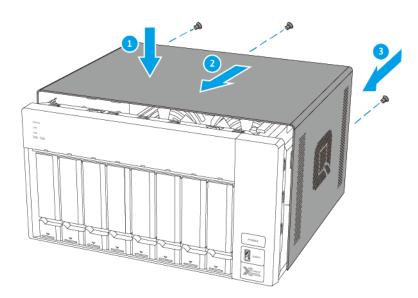
- **b.** Carefully pull the bracket away from the card.
- c. Attach the QNAP bracket to the card using the same screws.



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



- 9. Attach the case cover.
 - a. Slide the cover down until it completely connects with the chassis.
 - **b.** Slide the cover forward.
 - c. Attach the screws to the back side of the case.



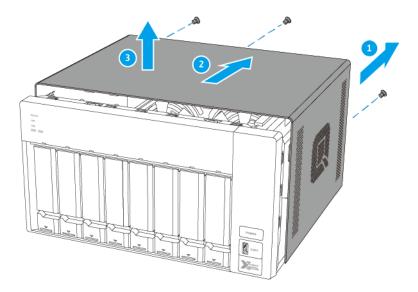
- **10.** Connect all cables and external attachments.
- **11.** Connect the power cord to the electrical outlet.
- 12. Power on the NAS.

Replacing Memory Modules

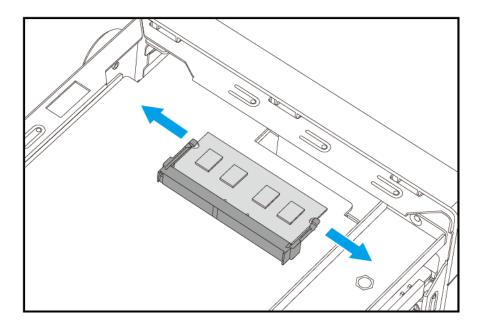
The NAS has one memory slot. You can increase the memory capacity of the NAS by upgrading the memory module. You can purchase QNAP memory modules from authorized resellers.



- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.
- 1. Power off the NAS.
- 2. Disconnect the power cord from the electrical outlet.
- 3. Disconnect all cables and external attachments.
- 4. Remove the case cover.
 - **a.** Remove the screws that secure the cover to the chassis.
 - **b.** Slide the cover back.
 - c. Pull the cover up until it completely detaches from the chassis.



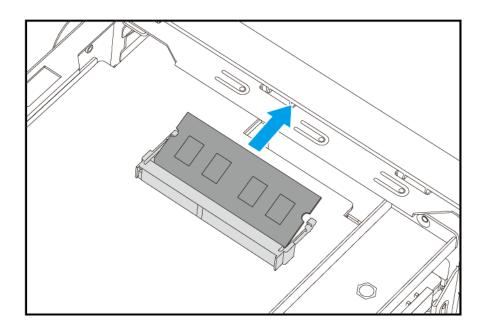
- 5. Remove an existing module.
 - **a.** Push the retention clips outward simultaneously to release the module.



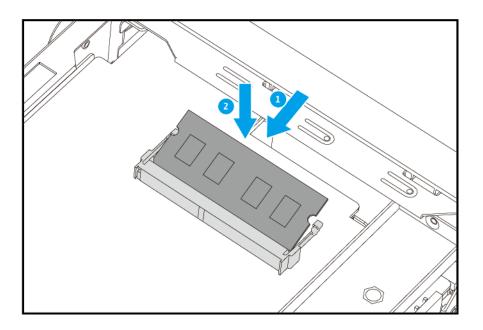
b. Hold the module by the edges and then carefully slide it out of the slot.

Warning

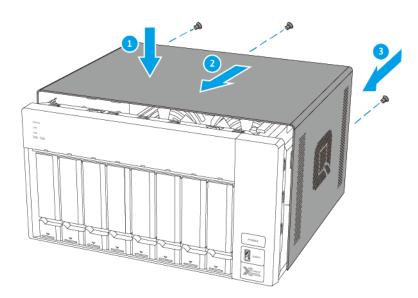
Attempting to remove a module that is not completely released may damage the module and the motherboard.



- 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.



- 7. Attach the case cover.
 - a. Slide the cover down until it completely connects with the chassis.
 - **b.** Slide the cover forward.
 - c. Attach the screws to the back side of the case.



- 8. Connect all cables and external attachments.
- 9. Connect the power cord to the electrical outlet.
- **10.** Power on the NAS.
- **11.** Verify that the module is recognized by the NAS.

- **a.** Log on to QTS as administrator.
- b. Go to Control Panel > System > System Status > Hardware Information .
- c. Check the value for Total memory.

QTS Installation

The TS-832X uses the QNAP QTS operating system. You can install QTS using any of the following methods.

| 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. For details, see Installing QTS Using Qfinder Pro. | Computer Network cable Qfinder Pro installer |
| Cloud installation | If the NAS is connected to the internet, you can do the following: Scan the QR code on the NAS. Log into your myQNAPcloud account. Use CloudLink to remotely access your NAS. Complete the steps in the Smart Installation Guide wizard. For details, see Installing QTS Using the Cloud Key. | Computer or mobile device Network cable myQNAPcloud account CloudKey |

Installing QTS Using Qfinder Pro



Warning

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

- 1. Power on the NAS.
- 2. Connect the NAS to your local area network.
- 3. Run Qfinder Pro on a computer that is connected to the same local area network.



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

- 4. Locate the NAS in the list and then double-click the name or IP address.
- 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.
- 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.** Configure the disk settings.
 - a. Select a volume type.
 - b. Select the disks that you want to use to create a RAID group.
 - c. Optional: Select a RAID type.



Note

The **Smart Installation Guide** automatically selects the optimal RAID type based on the number of the selected disks.

- d. Optional: Select Encrypted Disk Volume and Bad Block Scan.
- 16. Click Next.
- **17.** Review the settings.
- **18.** Click **Apply**. A confirmation message appears.



Warning

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

19. 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.



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

6. Specify the myQNAPcloud device name for the NAS.



Note

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

7. Optional: Select CloudLink.

Note

- CloudLink allows you to remotely access the NAS without having to configure port forwarding on your router. You can remotely access the NAS by logging into QTS or by using mobile apps.
- You can also enable CloudLink by installing the CloudLink app on the NAS.
- 8. Click Next.
- 9. 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.
- **10.** Click Start Smart Installation Guide.

- **11.** 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.
- 12. Click Next.

Tip

13. 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.

- 14. Click Next.
- 15. Select Obtain an IP address automatically (DHCP).
- 16. Click Next.
- 17. Select the types of devices that you will use to access shared folders on the NAS.
- 18. Click Next.
- 19. Configure the disk settings.
 - a. Select a volume type.
 - b. Select the disks that you want to use to create a RAID group.
 - c. Optional: Select a RAID type.



Note

The **Smart Installation Guide** automatically selects the optimal RAID type based on the number of the selected disks.

- d. Optional: Select Encrypted Disk Volume and Bad Block Scan.
- 20. Click Next.
- 21. Review the settings.
- 22. Click Apply.

A confirmation message appears.



Warning

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

23. 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 NAS powers on. | |
| Power off | Press and hold the button for 1.5 seconds. | The NAS powers off. | |
| Force power off | Press and hold the button for 5 seconds. | The NAS shuts down. | |
| | | 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. |

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.

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

LEDs

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

For details on the location of the LEDs, see Components.

| LED | Status | Description |
|---------------|-------------------------------|--|
| System Status | Flashes green and red | 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. |
| | | The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read). |
| | | Hardware self-test error |
| | Flashes red every 0.5 seconds | The NAS is in degraded mode (one member drive failed in RAID 1, RAID 5, or RAID 6). |
| | Flashes green every 0.5 | The NAS is starting up. |
| | seconds | The NAS is not configured. |
| | | A drive is not formatted. |
| | Flashes green every 2 seconds | The NAS is in S3 sleep mode. |
| | Green | The NAS is ready. |
| | Off | All drives are in standby mode. |
| LAN | Orange | A read/write error occured while another device is accessing data. |
| | Flashes orange | The NAS is being accessed from the 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 occured. |
| | Flashes green | The data is being accessed. |
| | Green | The drive can be accessed. |
| 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. |

Beep Alarm

| 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. |

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

Recovering Unintentionally Removed Healthy Drives

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

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

Support and Other Resources

QNAP provides the following resources:

| Resource | URL |
|-----------------|--------------------------|
| Documentation | http://docs.qnap.com |
| Helpdesk | http://helpdesk.qnap.com |
| Downloads | http://download.qnap.com |
| Community Forum | http://forum.qnap.com |

6. Glossary

CloudKey

Unique 8-digit code assigned to each NAS device

CloudLink

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

myQNAPcloud

Provides various remote access services such as DDNS and CloudLink

myQNAPcloud ID

Email address that was used to register for a myQNAPcloud account

Qfinder Pro

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

QTS

QNAP NAS operating system

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Further, the \mathbb{R} or \mathbb{T} symbols are not used in the text.

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Version 3, 29 June 2007

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END OF TERMS AND CONDITIONS

FCC Notice

FCC Class B Notice



This device complies with Part 15 of the FCC Rules. Operation is subject to the

following two conditions:

Note

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



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.

CE Notice



This QNAP NAS complies with CE Compliance Class B.

SJ/T 11364-2006



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|---|-----------|-----------|-----------|-----------------|---------------|-----------------|--|--|
| | 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 | | |
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| 电池 | 0 | 0 | 0 | 0 | 0 | 0 | | |
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