



**QNAP**

# **TS-x28A**

**TS-128A**

**TS-228A**

**User Guide**

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# 1. Preface





## About This Guide

This guide provides information on the QNAP TS-x28A 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-x28A NAS.

### About the TS-x28A

The TS-x28A is an easy-to-use lightweight NAS designed for backup, synchronization, remote access, and home entertainment. The TS-x28A offers smooth and seamless data transmission for multiple users. It is powered by a Realtek RTD 1295 quad-core ARM Cortex A53 processor with 1 GB DDR4 memory. Its tool-less tower design makes it an ideal NAS for homes and small offices.

### 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-128A	TS-228A
Processor		
CPU	Realtek RTD 1295 quad-core ARM Cortex A53 1.4 GHz processor	
Architecture	64-bit	
Memory		
Maximum memory	System: 1 GB DDR4 Flash: 4 GB eMMC	
Storage		
Supported HDDs	1 x 3.5-inch SATA 6 Gbps	2 x 3.5-inch SATA 6 Gbps
Drive compatibility	3.5-inch SATA hard disk drives	
Network		
Gigabit Ethernet ports	1 x RJ45	
External I/O Ports & Expansion Slots		
USB ports	<ul style="list-style-type: none"> <li>Front: 1 x USB 3.0 Type-A</li> </ul> <div style="display: flex; align-items: center; margin: 5px 0;"> <p><b>Note</b> You can use the One-Touch Copy button with this port.</p> </div> <ul style="list-style-type: none"> <li>Back: 2 x USB 2.0 Type-A</li> </ul>	
Dimensions		
Form factor	Tower	
Dimensions (H x W x D)	187.7 x 60 x 125 mm 7.36 x 2.36 x 4.92 in	187.7 x 90 x 125 mm 7.36 x 3.54 x 4.92 in
Net weight	0.56 kg (1.23 lbs)	0.7 kg (1.54 lbs)
Other		
Power supply unit	36W, 100-240V AC, 50/60Hz	60W, 100-240V AC, 50/60Hz
System fan	40 x 40 mm	
Operating temperature	0 to 40°C (32 to 104°F)	

Component	TS-128A	TS-228A
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>	



### Important

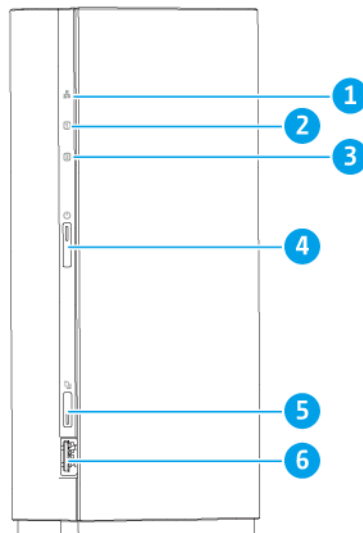
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

## Package Contents

Item	Quantity
TS-x28A	1
HDD fastening panels	TS-128A: 1 pair TS-228A: 2 pairs
AC power adapter	1
Power cord	1
Ethernet cable	1
Quick Installation Guide (QIG)	1

## Components

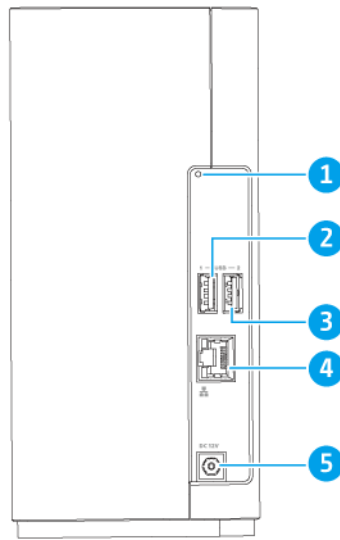
### Front Panel



### TS-228A

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

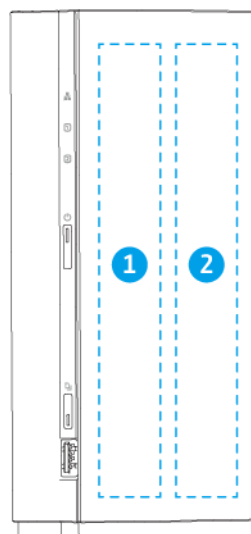
## Rear Panel



### TS-228A

No.	Component	No.	Component
1	Reset button	4	Gigabit RJ45 Ethernet port
2	USB 2.0 port 1	5	Power input
3	USB 2.0 port 2	-	-

## Front Drive Numbering



## Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> <li>• Room temperature: 0 to 40°C (32 to 104°F)</li> <li>• Non-condensing relative humidity: 5 to 95%</li> <li>• Wet-bulb temperature: 27°C (80.6°F)</li> <li>• Flat, anti-static surface with no exposure to direct sunlight, liquids, and chemicals</li> </ul>
Hardware and peripherals	<ul style="list-style-type: none"> <li>• Storage drives</li> <li>• Network cable</li> </ul>
Tools	Anti-static wrist strap

## Setting Up the NAS

1. Place your NAS device in an environment that meets the requirements.
2. Install the drives.  
For details, see [Installing 3.5-inch Hard Drives](#).
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.

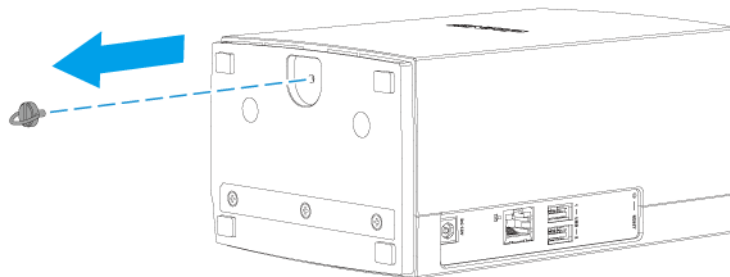
### Drive Installation

#### Installing 3.5-inch Hard Drives

**Warning**

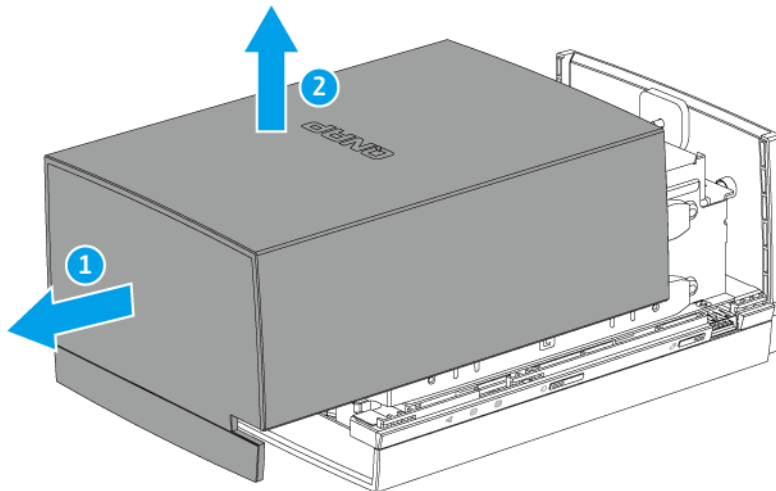
Installing a drive deletes all data on the drive.  
Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the NAS.
2. 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 its left side.
  - b. Remove the tool-less screw from the bottom of the NAS.



- c. Slide the cover away from the base to unlock.
    - d. Pull the cover up until it completely detaches from the chassis.

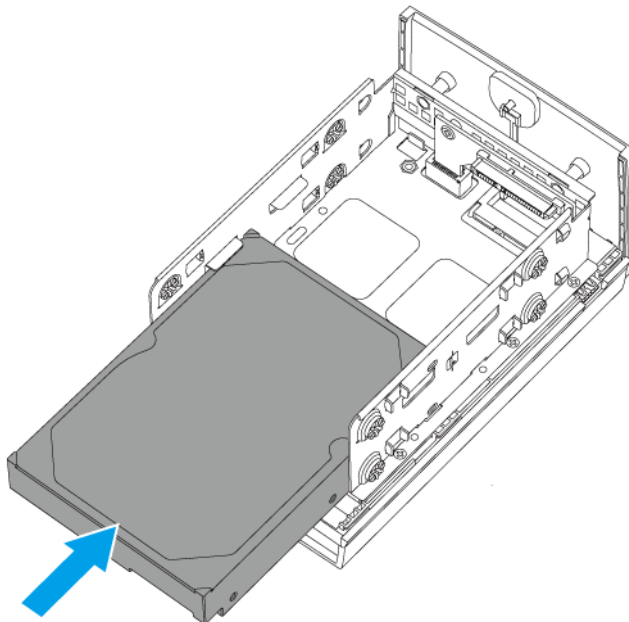




5. Slide the drive into the tray until it is fully connected to the SATA connector.

**Important**

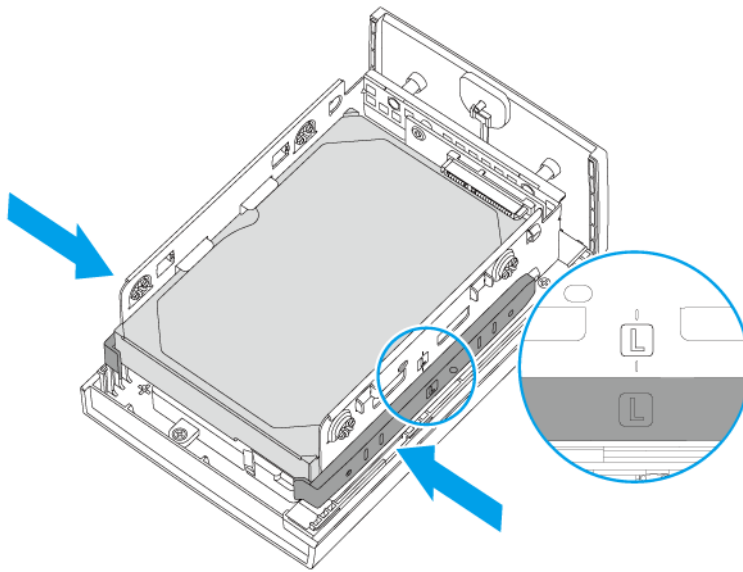
When installing drives on the TS-228A, always start with slot 1.  
For more details, see [Front Drive Numbering](#).



6. Attach the fastening panels.

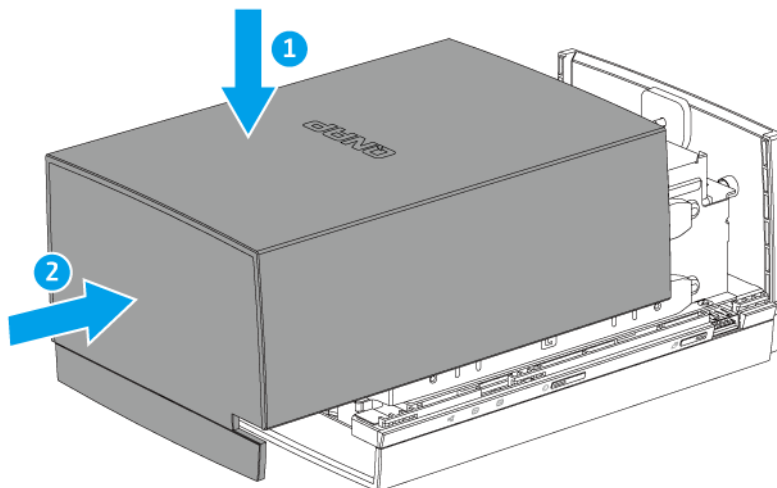
**Tip**

The fastening panels are not interchangeable. Check the labels on the panels and attach them to the correct side.

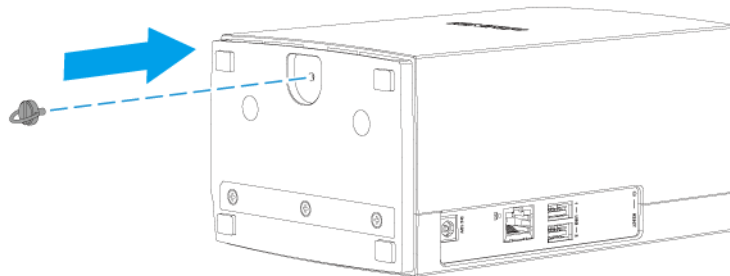


**7. Attach the case cover.**

- a. Align the cover with the grooves on the case.
- b. Slide the cover towards the base to lock it in place.



- c. Attach the tool-less screw to the bottom of the NAS.



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

## QTS Installation

### Installing QTS Using Qfinder Pro



#### Warning

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

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



#### Note

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

4. Locate the NAS in the list and then double-click the name or IP address.  
The **Smart Installation Guide** opens in the default web browser.
5. 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.

**Tip**

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. Select **Configure disks later**.

**Note**

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

16. 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**.

17. Click **Next**.

18. Select **No**.

**Note**

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

19. Click **Next**.

20. Review the settings.

- Click **Apply**.  
A confirmation message appears.

**Warning**

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

- Click **Confirm**.  
QTS is installed.

## Installing QTS Using the Cloud Key

**Warning**

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

- Power on the NAS.
- Connect the NAS to the internet.
- 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.

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

**Note**

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

The installation wizard opens in the default web browser.

- Create an account or sign in to myQNAPcloud.

**Note**

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

- Specify the myQNAPcloud device name for the NAS.

**Note**

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

- 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.

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

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



**Tip**

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

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. Select **Configure disks later**.



**Note**

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

20. Configure the disk settings.

- Select a volume type.
- Select the disks that you want to use to create a RAID group.
- Optional: Select a RAID type.



**Note**

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

- Optional: Select **Encrypted Disk Volume** and **Bad Block Scan**.

21. Click **Next**.

22. Select **No**.

**Note**

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

**23.** Click **Next**.

**24.** Review the settings.

**25.** Click **Apply**.

A confirmation message appears.

**Warning**

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


**26.** 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.   <b>Important</b> Use this method only when the NAS is unresponsive.

### Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default: <ul style="list-style-type: none"> <li>• System administrator password: admin</li> <li>• TCP/IP configuration: <ul style="list-style-type: none"> <li>• Obtain IP address settings automatically via DHCP</li> <li>• Disable jumbo frames</li> <li>• If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to “Active Backup (Failover)”.</li> </ul> </li> <li>• System port: 8080 (system service port)</li> <li>• Security level: Low (Allow all connections)</li> <li>• LCD panel password: (blank)</li> <li>• VLAN: Disabled</li> </ul>
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. <ul style="list-style-type: none"> <li>• To retrieve old data after an advanced system reset, recreate the previous folder structure on the NAS.</li> </ul>

### USB One Touch Copy Button

The USB One Touch Copy button allows you to copy data backups from an external USB device to the NAS or from the NAS to an external 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 alternately every 0.5 seconds	<ul style="list-style-type: none"> <li>The drive is being formatted.</li> <li>The NAS 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>The drive is invalid.</li> <li>The disk volume has reached its full capacity.</li> <li>The disk volume is about to reach its full capacity.</li> <li>The system fan is not functioning.</li> <li>An error occurred when accessing (read/write) the data.</li> <li>A bad sector is detected on the hard drive.</li> <li>The NAS is in degraded read-only mode (two member drives failed in RAID 5 or RAID 6 but the data can still be read).</li> <li>Hardware self-test error</li> </ul>
	Flashes red 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 seconds	<ul style="list-style-type: none"> <li>The NAS is starting up.</li> <li>The NAS is not configured.</li> <li>A drive is not formatted.</li> </ul>
	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 occurred 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 occurred.
	Flashes green	The data is being accessed.
	Green	The drive can be accessed.
USB	Flashes blue every 0.5 sec	<ul style="list-style-type: none"> <li>• A USB device (connected to the front USB port) is detected.</li> <li>• A USB device (connected to the front USB port) is being removed from the NAS.</li> <li>• A USB device (connected to the front USB port of the NAS) is being accessed.</li> <li>• Data is being copied to or from a USB or eSATA device.</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 NAS has finished copying data to or from the USB device connected to the front USB port.</li> </ul>

## Beep Alarm

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> <li>• The NAS is starting up.</li> <li>• The NAS is shutting down (software shutdown).</li> <li>• The user pressed the Reset button.</li> <li>• The operating system was updated.</li> </ul>
	3	The user tried to copy the NAS data to the external storage device from the front USB port, but the data cannot be copied.
Long beep (1.5 seconds)	3 (every 5 minutes)	The system fan is not functioning.
	2	<ul style="list-style-type: none"> <li>• The disk volume is about to reach its full capacity.</li> <li>• The disk volume has reached its full capacity.</li> <li>• The drives are in degraded mode.</li> <li>• The user started the drive rebuilding process.</li> <li>• A drive is plugged in or out.</li> </ul>
	1	<ul style="list-style-type: none"> <li>• The NAS was powered off by force shutdown (hardware shutdown).</li> <li>• The NAS was powered on successfully and is ready.</li> </ul>

## 5. Troubleshooting

This chapter describes basic troubleshooting information.

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

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

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

### Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	<a href="http://docs.qnap.com">http://docs.qnap.com</a>
Help Desk	<a href="http://helpdesk.qnap.com">http://helpdesk.qnap.com</a>
Downloads	<a href="http://download.qnap.com">http://download.qnap.com</a>
Community Forum	<a href="http://forum.qnap.com">http://forum.qnap.com</a>

## 6. Glossary

### **CloudKey**

Unique 8-digit code assigned to each NAS device

### **CloudLink**

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

### **myQNAPcloud**

Provides various remote access services such as DDNS and CloudLink

### **myQNAPcloud ID**

Email address that was used to register for a myQNAPcloud account

### **Qfinder Pro**

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

### **QTS**

QNAP NAS operating system

## 7. Notices

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

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Back up the system periodically to avoid any potential data loss is recommended. QNAP disclaims any responsibility of all sorts of data loss or recovery.

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Version 3, 29 June 2007

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#### FCC Class B Notice



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

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



#### Note

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

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



#### Important

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### CE Notice



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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
金属螺帽	0	0	0	0	0	0
电缆组装	0	0	0	0	0	0
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