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1. Preface

About This Guide

This guide provides information on the QNAP TS-x53Be 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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>📝</td>
<td>Notes provide default configuration settings and other supplementary information.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Important notes provide information on required configuration settings and other critical information.</td>
</tr>
<tr>
<td>💡</td>
<td>Tips provide recommendations or alternative methods of performing a task or configuring settings.</td>
</tr>
<tr>
<td>❗️</td>
<td>Warnings provide information, that when ignored, may result to potential loss, injury, or even death.</td>
</tr>
</tbody>
</table>
2. Product Overview

This chapter provides basic information about the QNAP TS-x53Be NAS.

About the TS-x53Be

TS-x53Be is powered by an Intel® Celeron® J3455 quad-core 1.5 GHz processor with burst frequency up to 2.3 GHz. The TS-x53Be comes with two Gigabit LAN ports and supports 4K (H.264) video playback, and 1080p or 4K real-time transcoding. With an accelerated AES-NI engine, the TS-x53Be also provides AES 256-bit encryption to enhance system performance and security, and to protect sensitive business data.

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>TS-253Be</th>
<th>TS-453Be</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordering P/N</td>
<td>• TS-253Be-2G</td>
<td>• TS-453Be-2G</td>
</tr>
<tr>
<td></td>
<td>• TS-253Be-4G</td>
<td>• TS-453Be-4G</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Celeron® J3455 quad-core 1.5 GHz, burst up to 2.3 GHz</td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>64-bit</td>
<td></td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 500</td>
<td></td>
</tr>
<tr>
<td>Encryption engine</td>
<td>AES-NI</td>
<td></td>
</tr>
</tbody>
</table>

Memory

Pre-installed memory

• 2 GB RAM: 2 x 1 GB DDR3L
• 4 GB RAM: 2 x 2 GB DDR3L

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.

Important
Using unsupported modules may degrade performance, cause errors, or prevent the operating system from starting.

Total memory slots 2 x SODIMM DDR3L
Maximum memory 8 GB (2 x 4 GB)

Storage

Drive bays 2 x SATA 6 Gbps 4 x SATA 6 Gbps
Drive compatibility

• 3.5-inch SATA hard disk drives
• 2.5-inch SATA hard disk drives
• 2.5-inch SATA solid state drives
### Component

<table>
<thead>
<tr>
<th>Component</th>
<th>TS-253Be</th>
<th>TS-453Be</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot-swappable</td>
<td>Yes</td>
<td>Note</td>
</tr>
<tr>
<td>SSDs using PCIe expansion slots are not hot-swappable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gigabit Ethernet ports</td>
<td>2 x RJ45</td>
<td></td>
</tr>
<tr>
<td>External I/O Ports &amp; Expansion Slots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCIe slots</td>
<td>1 x PCIe 2.0 x2</td>
<td></td>
</tr>
<tr>
<td>USB ports</td>
<td>5 x USB 3.0</td>
<td></td>
</tr>
<tr>
<td>Front: 1 x USB 3.0 Type-A</td>
<td></td>
<td>Tip</td>
</tr>
<tr>
<td>You can use the One Touch Copy button with this port.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back: 4 x USB 3.0 Type-A</td>
<td></td>
<td>Note</td>
</tr>
<tr>
<td>You cannot use the speakers and the line-out jack simultaneously.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDMI outputs</td>
<td>2 x HDMI 1.4b (up to 3840 x 2160 @ 30Hz resolution)</td>
<td></td>
</tr>
<tr>
<td>Audio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 x 3.5 mm dynamic microphone jacks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x 3.5 mm line-out jack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x speaker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buttons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB One Touch Copy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form factor</td>
<td>Tower</td>
<td></td>
</tr>
<tr>
<td>Dimensions (H x W x D)</td>
<td>168 x 105 x 226 mm 6.61 x 4.13 x 8.90 in</td>
<td>168 x 170 x 226 mm 6.61 x 6.69 x 8.90 in</td>
</tr>
<tr>
<td>Net weight</td>
<td>1.66 kg (3.66 lbs)</td>
<td>2.33 kg (5.14 lbs)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply unit</td>
<td>65W, 100-240V AC, 50/60Hz</td>
<td>90W, 100-240V AC, 50/60Hz</td>
</tr>
<tr>
<td>Fans</td>
<td>System: 1 x 7 cm</td>
<td>System: 1 x 12 cm</td>
</tr>
<tr>
<td>Sound level</td>
<td>16.4 dB</td>
<td>Note</td>
</tr>
<tr>
<td>The sound levels were tested at a bystander position, which is within one meter from the NAS. The test NAS operated at low speed with the maximum number of drives installed.</td>
<td>18.5 dB</td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0 to 40˚C (32 to 104˚F)</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>TS-253Be</td>
<td>TS-453Be</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>• Non-condensing relative humidity: 5 to 95%</td>
<td>• Non-condensing relative humidity: 5 to 95%</td>
</tr>
<tr>
<td></td>
<td>• Wet-bulb temperature: 27°C (80.6°F)</td>
<td>• Wet-bulb temperature: 27°C (80.6°F)</td>
</tr>
<tr>
<td>Security slot</td>
<td>Kensington security slot</td>
<td>Kensington security slot</td>
</tr>
</tbody>
</table>

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

**Package Contents**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-x53Be</td>
<td>1</td>
</tr>
<tr>
<td>AC power adapter</td>
<td>1</td>
</tr>
<tr>
<td>Power cord</td>
<td>1</td>
</tr>
<tr>
<td>Ethernet cable</td>
<td>2</td>
</tr>
<tr>
<td>Screws for 3.5-inch drives</td>
<td>TS-253Be: 6, TS-453Be: 12</td>
</tr>
<tr>
<td>Screws for 2.5-inch drives</td>
<td>TS-253Be: 6, TS-453Be: 12</td>
</tr>
<tr>
<td>Quick Installation Guide (QIG)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Components**

**Front Panel**

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
<th>No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power button</td>
<td>4</td>
<td>USB LED</td>
</tr>
<tr>
<td>No.</td>
<td>Component</td>
<td>No.</td>
<td>Component</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------</td>
<td>-----</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Status LED</td>
<td>5</td>
<td>USB 3.0 One Touch Copy port</td>
</tr>
<tr>
<td>3</td>
<td>LAN LED</td>
<td>6</td>
<td>USB One Touch Copy button</td>
</tr>
</tbody>
</table>

**Rear Panel**

![Rear Panel Diagram]

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
<th>No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Speaker</td>
<td>6</td>
<td>3.5 mm speaker jack</td>
</tr>
<tr>
<td>2</td>
<td>Power input</td>
<td>7</td>
<td>Kensington security slot</td>
</tr>
<tr>
<td>3</td>
<td>Gigabit RJ-45 Ethernet ports</td>
<td>8</td>
<td>3.5 mm dynamic microphone jacks</td>
</tr>
<tr>
<td>4</td>
<td>USB 3.0 Type-A ports</td>
<td>9</td>
<td>Reset button</td>
</tr>
<tr>
<td>5</td>
<td>HDMI ports</td>
<td>10</td>
<td>PCIe slot cover</td>
</tr>
</tbody>
</table>
Right Panel

Note
The image does not include the chassis.

<table>
<thead>
<tr>
<th>No.</th>
<th>Component</th>
<th>No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PCIe slot</td>
<td>3</td>
<td>Memory slot 2</td>
</tr>
<tr>
<td>2</td>
<td>Memory slot 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Front Drive Numbering

TS-253Be
### Installation Requirements

<table>
<thead>
<tr>
<th>Category</th>
<th>Item</th>
</tr>
</thead>
</table>
| 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. Verify that the intake vents on the bottom of the case are unobstructed.

3. Remove the protective films from the OLED screen and the front cover.

4. 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
5. Connect the power cord and all applicable cables.

6. Power on the NAS.

7. Install QTS.
   For details, see QTS Installation.

8. 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-x53Be is compatible with 3.5-inch and 2.5-inch hard drives, 2.5-inch solid state drives, and M.2 solid state drives.

Installing 3.5-inch Hard Drives on 3.5-inch Trays

**Warning**

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

1. Power off the NAS.
2. Remove the front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.
   c. Slide the cover to the left and then pull.
3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.

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

d. Optional: Attach screws to further secure the drive.
5. Load the drive tray into the drive bay.

6. Attach the front cover.
   a. Align the cover with the grooves on the case, and then slide to the right.
b. Slide the lock up.

7. Power on the NAS.

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

**Warning**

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

1. Power off the NAS.

2. Remove the front cover.
a. Locate the lock on the left side of the NAS.

b. Slide the lock down to release the cover.

c. Slide the cover to the left and then pull.

3. Remove a drive tray by simultaneously pressing the latch and pulling the tray.
4. Install a drive on the drive tray.
   
a. Remove the right fastening panel from the 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.
5. Load the drive tray into the drive bay.

6. Attach the front cover.
   a. Align the cover with the grooves on the case, and then slide to the right.
b. Slide the lock up.

7. 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. The TS-x53Be series uses low-profile flat brackets.

Warning

- 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.
   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. 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 front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.
   c. Slide the cover to the left and then pull.
6. Remove the case cover.
   
a. Remove the screws that secure the cover to the chassis.

b. Push down on the cover and then pull the chassis.

c. Pull the chassis to the right until it completely detaches from the cover.
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 to the right until it connects with the chassis, and then pull.
b. Attach the screws to the back side of the case.

10. Attach the front cover.

   a. Align the cover with the grooves on the case, and then slide to the right.
b. Slide the lock up.

11. Connect all cables and external attachments.

12. Connect the power cord to the electrical outlet.

13. Power on the NAS.

**Replacing Memory Modules**

The NAS has two memory slots. Depending on the model, you can increase the memory capacity of the NAS by upgrading one or both modules. When using two modules, use only QNAP modules of the same type and capacity to maintain system performance and stability. You can purchase QNAP memory modules from authorized resellers.
Warning

- 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 front cover.
   a. Locate the lock on the left side of the NAS.
   b. Slide the lock down to release the cover.
   c. Slide the cover to the left and then pull.
5. Remove each drive tray by simultaneously pressing the latch and pulling the tray.

6. Place the NAS on its right side.

7. Remove an existing memory module.
   a. Push the retention clips outward simultaneously to release the module.
b. Verify that the module has tilted upward and is completely released from the slot.

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

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

**Warning**  
Do not touch the components, particularly the metal connectors. Do not bend the module.

8. Install a new memory module.

   a. Align the notch with the ridge in the slot.
b. Insert the module into the slot.

c. Verify that the metal connectors are completely inserted into the slot.

d. Carefully press down on the module until the retention clips lock the module into place.

9. Attach the front cover.

   a. Align the cover with the grooves on the case, and then slide to the right.

   b. Slide the lock up.
10. Connect all cables and external attachments.
11. Connect the power cord to the electrical outlet.
12. Power on the NAS.
13. 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**

TS-x53Be uses the QNAP QTS operating system. You can install QTS using any of the following methods.

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qfinder Pro installation</td>
<td>If the NAS is connected to your local area network, you can do the following:</td>
<td>• Computer</td>
</tr>
<tr>
<td>(Recommended)</td>
<td>• Locate the NAS using Qfinder Pro.</td>
<td>• Network cable</td>
</tr>
<tr>
<td></td>
<td>• Complete the steps in the Smart Installation Guide wizard.</td>
<td>• Qfinder Pro installer</td>
</tr>
<tr>
<td></td>
<td>For details, see <a href="#">Installing QTS Using Qfinder Pro</a>.</td>
<td></td>
</tr>
<tr>
<td>Method</td>
<td>Description</td>
<td>Requirements</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Cloud installation</td>
<td>If the NAS is connected to the internet, you can do the following:</td>
<td>• Computer or mobile device</td>
</tr>
<tr>
<td></td>
<td>• Scan the QR code on the NAS.</td>
<td>• Network cable</td>
</tr>
<tr>
<td></td>
<td>• Log into your myQNAPcloud account.</td>
<td>• myQNAPcloud account</td>
</tr>
<tr>
<td></td>
<td>• Use CloudLink to remotely access your NAS.</td>
<td>• CloudKey</td>
</tr>
<tr>
<td></td>
<td>• Complete the steps in the Smart Installation Guide wizard.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For details, see Installing QTS Using the Cloud Key.</td>
<td></td>
</tr>
<tr>
<td>Local installation</td>
<td>If the NAS supports HDMI output, you can do the following:</td>
<td>• Monitor</td>
</tr>
<tr>
<td></td>
<td>• Connect the NAS to the required hardware.</td>
<td>• HDMI cable</td>
</tr>
<tr>
<td></td>
<td>• Complete the steps in the Smart Installation Guide wizard.</td>
<td>• USB keyboard or remote control (not available on all models)</td>
</tr>
<tr>
<td></td>
<td>For details, see Installing QTS Using an HDMI Connection.</td>
<td></td>
</tr>
</tbody>
</table>

**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.

21. Click Apply.
A confirmation message appears.

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

22. Click Confirm.
QTS is installed.

**Installing QTS Using the Cloud Key**

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

1. Power on the NAS.
2. Connect the NAS to the internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
   - On your computer, go to http://install.qnap.com/.
   - Scan the QR code on the NAS using a mobile device.
   The web page lists all the uninitialized QNAP NAS devices on the local network.
4. Find your NAS from the list and then click **Initialize**.

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

   The installation wizard opens in the default web browser.
5. Create an account or sign in to myQNAPcloud.

   **Note**
   You must return to this page to complete the installation after creating an account.
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.
   The **Smart Installation Guide** opens in the default web browser.
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**.

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

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**.

20. 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.

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.

Installing QTS Using an HDMI Connection

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

1. Connect an HDMI monitor to the NAS.

2. Connect a USB keyboard to the NAS or prepare the QNAP IR remote control (not available on all models).

3. Power on the NAS.
   The Welcome screen of the Smart Installation Guide appears.

4. Select Start Smart Installation Guide.

5. Select No, skip this process.
   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.

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

7. Review the settings.

8. Click Next.

9. Review the settings.

10. Click Next.
    The Confirm screen appears.

Warning
Clicking Next deletes all data on the drive before installing QTS.

11. Click Next.
QTS is installed.
4. Basic Operations

This chapter describes basic NAS operations.

Power Button

<table>
<thead>
<tr>
<th>Operation</th>
<th>User Action</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power on</td>
<td>Press the button once.</td>
<td>The NAS powers on.</td>
</tr>
<tr>
<td>Power off</td>
<td>Press and hold the button for 1.5 seconds.</td>
<td>The NAS powers off.</td>
</tr>
<tr>
<td>Force power off</td>
<td>Press and hold the button for 5 seconds.</td>
<td>The NAS shuts down.</td>
</tr>
</tbody>
</table>

**Important**
Use this method only when the NAS is unresponsive.

Reset Button

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

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.

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
</table>
| System Status | Flashes green and red alternately every 0.5 seconds | • The drive is being formatted.  
• 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       | Flashes red every 0.5 seconds          | • 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 occurred 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 green 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        | • The NAS is starting up.  
• The NAS is not configured.  
• A drive is not formatted. |
<p>|           | 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. |</p>
<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive</td>
<td>Flashes red</td>
<td>The data is being accessed and a read/write error occurs during the process.</td>
</tr>
<tr>
<td></td>
<td>Red</td>
<td>A drive read/write error occurred.</td>
</tr>
<tr>
<td></td>
<td>Flashes green</td>
<td>The data is being accessed.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>The drive can be accessed.</td>
</tr>
<tr>
<td>USB</td>
<td>Flashes blue every 0.5 sec</td>
<td>• A USB device (connected to the front USB port) is detected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A USB device (connected to the front USB port) is being removed from the NAS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A USB device (connected to the front USB port of the NAS) is being accessed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Data is being copied to or from a USB or eSATA device.</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>A USB device is detected in the front USB port.</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>• No USB device is detected.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The NAS has finished copying data to or from the USB device connected to the front USB port.</td>
</tr>
</tbody>
</table>

**Beep Alarm**

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

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.

<table>
<thead>
<tr>
<th>Disk Volume</th>
<th>RAID Recovery Support</th>
<th>Maximum Number of Removed Drives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>JBOD</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>RAID 0</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>RAID 1</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>RAID 5</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>RAID 6</td>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>RAID 10</td>
<td>No</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Support and Other Resources

QNAP provides the following resources:

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

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Version 3, 29 June 2007

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7. Conveying Non-Source Forms.
You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c. Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d. Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with
the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e. Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

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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:

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

**Note**

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

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

**Important**

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

**CE Notice**

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