



QNAP

JBOD Enclosure

**TL-R400S
TL-R1200S-RP**

User Guide

Contents

1. Preface

About This Guide.....	3
Audience.....	3
Document Conventions.....	3

2. Product Overview

About QNAP JBOD Enclosures.....	4
Hardware Specifications.....	4
Package Contents.....	6
Components.....	6
Front Panel.....	6
Rear Panel.....	7
Drive Numbering.....	9
Installation Requirements.....	10
Setting Up the JBOD Enclosure.....	10

3. Hardware Installation

Drive Installation.....	12
Installing 3.5-inch Drives on 3.5-inch Trays.....	12
Installing 2.5-inch Drives on 3.5-inch Trays.....	14
Installing Solid-State Drives on 3.5-inch Trays.....	16
Installing Handles.....	18
Connecting the JBOD Enclosure to a NAS.....	19
Connecting the JBOD Enclosure to a Server.....	21
Hot-Swapping Redundant Power Supply Units.....	22
Rail Kits.....	24

4. Basic Operations

LEDs.....	25
Audio Alert.....	25
Fan Speed Switch.....	26

5. Troubleshooting

Forcing Storage & Snapshots or QNAP JBOD Manager to Recognize the JBOD Enclosure.....	27
Hot-swapping Failed Drives.....	27
Support and Other Resources.....	28

6. Glossary

QTS.....	29
QNAP JBOD Manager.....	29
Storage & Snapshots.....	29

7. Notices

Limited Warranty.....	30
Disclaimer.....	30
GNU Public License.....	30
CE Notice.....	38
FCC Notice.....	38
VCCI Notice.....	38
BSMI Notice.....	39

1. Preface





About This Guide

This guide provides information on the QNAP TL-R400S and TL-R1200S-RP JBOD enclosures and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

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

Document Conventions

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

2. Product Overview

This chapter provides basic information about the QNAP TL-R400S and TL-R1200S-RP JBOD enclosures.

About QNAP JBOD Enclosures

QNAP JBOD enclosures are designed to increase the capacity and utility of your NAS or computer and provide a wide range of storage applications. Drives installed in JBOD enclosures can be managed independently or be configured as software RAID by the host device. The TL-R400S and TL-R1200S-RP feature SFF-8088 SATA 6 Gb/s ports to ensure quick and efficient data transfer between the JBOD enclosure and the host device.

Hardware Specifications








Warning

If your QNAP product has hardware defects, return the product to QNAP or a QNAP-authorized service center for maintenance or replacement. Any attempt to repair or perform maintenance procedures on the product by you or an unauthorized third-party invalidates the warranty.

QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.

For details, see the [QNAP Warranty Terms and Conditions](#).

Component	TL-R400S	TL-R1200S-RP
Ordering Information		
Ordering P/N	TL-R400S	TL-R1200S-RP
Storage		
Drive bays	4 x 3.5-inch SATA 6 Gbps	12 x 3.5-inch SATA 6 Gbps
Drive compatibility	<ul style="list-style-type: none"> • 3.5-inch SATA hard disk drives • 2.5-inch SATA hard disk drives • 2.5-inch SATA solid-state drives 	
Hot-swapping	Supported	
External I/O Ports & Expansion Slots		
SFF ports	1 x SFF-8088 (drive bays 1-4)	3 x SFF-8088 <ul style="list-style-type: none"> • Port 1: Drive bays 1-4 • Port 2: Drive bays 5-8 • Port 3: Drive bays 9-12
	Important <ul style="list-style-type: none"> • Each SFF-8088 port supports four SATA 6 Gb/s lanes. • These ports are only for connecting the host bus adapter to a JBOD enclosure. 	
Interface		

Component	TL-R400S	TL-R1200S-RP
Switches	<ul style="list-style-type: none"> • Power <div style="border-left: 2px solid red; padding-left: 10px; margin-left: 10px;">  <p>Important QNAP recommends waiting at least two seconds after powering off the JBOD enclosure before powering it on again.</p> </div> <ul style="list-style-type: none"> • Fan speed • Audio alert 	
Dimensions		
Form factor	1U Rackmount	2U Rackmount
Dimensions (H x W x D)	4.39 x 43.89 x 29.11 mm (1.73 x 17.28 x 11.46 in)	89 x 482 x 534 mm (3.50 x 18.98 x 21.02 in)
Net weight	3.66 kg (8.06 lbs)	6.17 kg (13.6 lbs)
Other		
Rail compatibility	Rail-B02 <div style="border-left: 2px solid blue; padding-left: 10px; margin-left: 10px;">  <p>Note Rail kits are not included with the NAS and must be purchased separately. For details, contact an authorized reseller or go to http://shop.qnap.com.</p> </div>	
Power supply unit	100W, 100-240V AC, 50/60 Hz	250W, 100-240V AC, 50/60 Hz
	<div style="border-left: 2px solid red; padding-left: 10px; margin-left: 10px;">  <p>Warning To reduce the risk of fire or electric shock, ensure that you only connect the power cord to a properly grounded electrical outlet.</p> </div>	
Sound level	22.1 db(A)	33.7 db(A)
	<div style="border-left: 2px solid blue; padding-left: 10px; margin-left: 10px;">  <p>Note The sound level was tested at a bystander position, which is within one meter of the JBOD enclosure. The test device operated at low speed with the maximum number of drives installed.</p> </div>	
Fans	System: 2 x 4 cm, 12V DC smart fan	System: 2 x 7 cm, 12V DC smart fan
	<div style="border-left: 2px solid red; padding-left: 10px; margin-left: 10px;">  <p>Warning To avoid potential injury or damage to the components, do not touch the fans while the device is connected to a power source.</p> </div>	
Operating temperature	0°C to 40°C (32°F to 104°F)	
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5% to 95% • Wet-bulb temperature: 27°C (80.6°F) 	
Security slot	Kensington security slot	



Tip

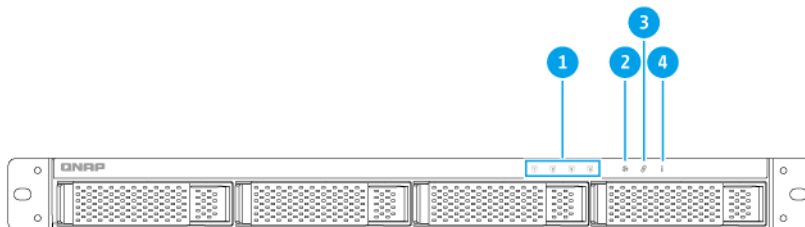
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.

Package Contents

Item	Quantity
JBOD enclosure	1
AC power adapter	TL-R400S: 1
Power cord	1
SFF-8088 connector cables	TL-R400S: 1
SFF-8088 to SFF-8644 cables	TL-R1200S-RP: 3
QXP-x00eS host bus adapter	<ul style="list-style-type: none"> TL-R400S: QXP-400eS-A1164 TL-R1200S-RP: QXP-1600eS
Screws for 2.5-inch drives	<ul style="list-style-type: none"> TL-R400S: 12 TL-R1200S-RP: 36
Screws for 3.5-inch drives	<ul style="list-style-type: none"> TL-R400S: 16 TL-R1200S-RP: 48
Quick Installation Guide (QIG)	1

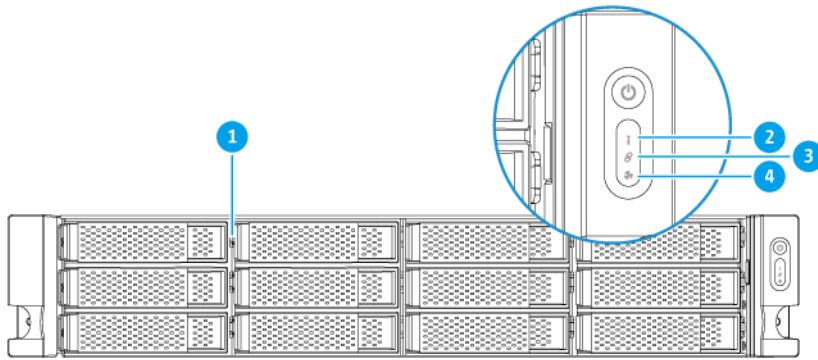
Components

Front Panel



TL-R400S

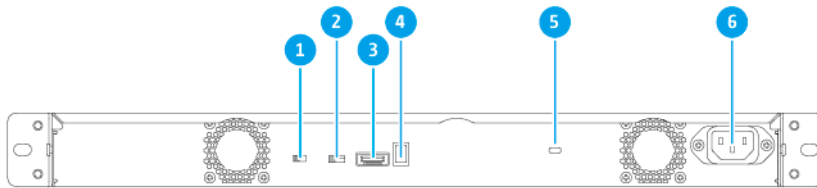
No.	Component	No.	Component
1	Drive LEDs	3	Link LED
2	Fan error LED	4	Status LED



TL-R1200S-RP

No.	Component	No.	Component
1	Drive LEDs	3	Link LED
2	Status LED	4	Fan error LED

Rear Panel

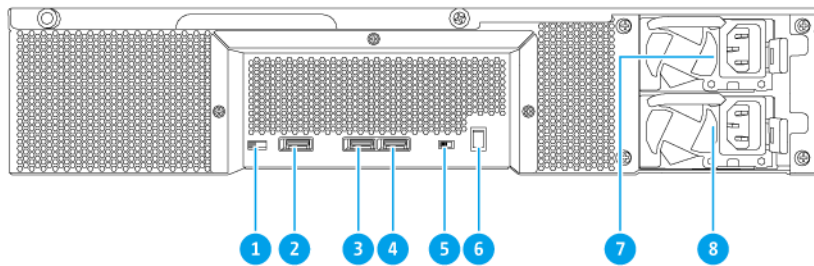


TL-R400S

No.	Component	No.	Component
1	Audio alert switch	4	Power switch
2	Fan speed switch	5	Kensington security slot

No.	Component	No.	Component
3	SFF-8088 port (drive bays 1-4)	6	Power input

TL-R1200S-RP

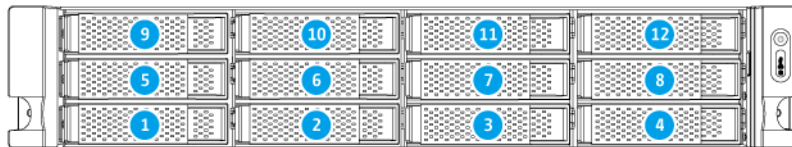


No.	Component	No.	Component
1	Fan speed switch	5	Audio alert switch
2	SFF-8088 port (drive bays 1-4)	6	Power switch
3	SFF-8088 port (drive bays 5-8)	7	Power supply unit 1
4	SFF-8088 port (drive bays 9-12)	8	Power supply unit 2

Drive Numbering





TL-R400S



TL-R1200S-RP

Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> Room temperature: 0°C to 40°C (32°F to 104°F) Non-condensing relative humidity: 5% to 95% Wet-bulb temperature: 27°C (80.6°F) Flat, anti-static surface without exposure to direct sunlight, liquids, or chemicals Restricted access <ul style="list-style-type: none"> The device should be stored in a secure location with restricted access, controlled through the use of a tool, lock, and key, or any means of security. Only qualified, trained, and authorized device administrators with knowledge of all restrictions, safety precautions, and installation and maintenance procedures should have physical access to the device.
Hardware and peripherals	<ul style="list-style-type: none"> NAS or computer Storage drives <p> Tip For the list of compatible drive models, go to https://www.qnap.com/compatibility.</p> <ul style="list-style-type: none"> One or more SF-8088 connector cables Host bus adapter <p> Important The QNAP QXP-400eS-A1164 and QXP-1600eS host bus adapters are required for connecting the JBOD enclosure to a host device. Third-party host bus adapters may not be compatible with QNAP JBOD enclosures.</p>
Tools	<ul style="list-style-type: none"> Phillips #1 or #2 screwdriver Anti-static wrist strap

Setting Up the JBOD Enclosure

- Place the JBOD enclosure in an environment that meets the requirements.
For details, see [Installation Requirements](#).
- Install the JBOD enclosure on a rack.
For details, see the following topics:
 - [Installing Handles](#)
 - [Rail Kits](#)

3. Install the drives.

For details, see the following topics:

- [Installing 3.5-inch Drives on 3.5-inch Trays](#)
- [Installing 2.5-inch Drives on 3.5-inch Trays](#)
- [Installing Solid-State Drives on 3.5-inch Trays](#)

4. Connect the power cord.**5. Connect the JBOD enclosure to your NAS or server.**

For details, see the following topics:

- [Connecting the JBOD Enclosure to a NAS](#)
- [Connecting the JBOD Enclosure to a Server](#)

6. Power on the JBOD enclosure.

3. Hardware Installation

This section provides information on installing drives and connecting the JBOD enclosure to a NAS or computer.

Drive Installation

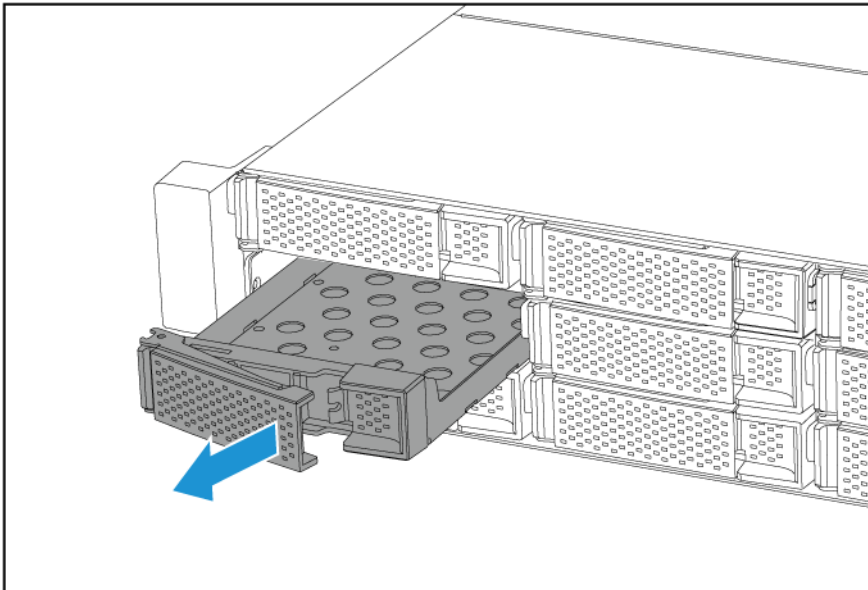
QNAP JBOD enclosures are compatible with 3.5-inch and 2.5-inch hard drives and 2.5-inch solid-state drives.

Installing 3.5-inch Drives on 3.5-inch Trays

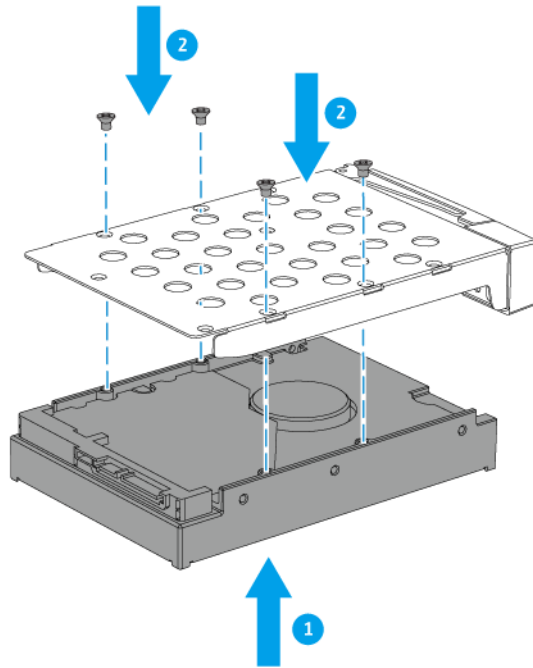
**Warning**

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

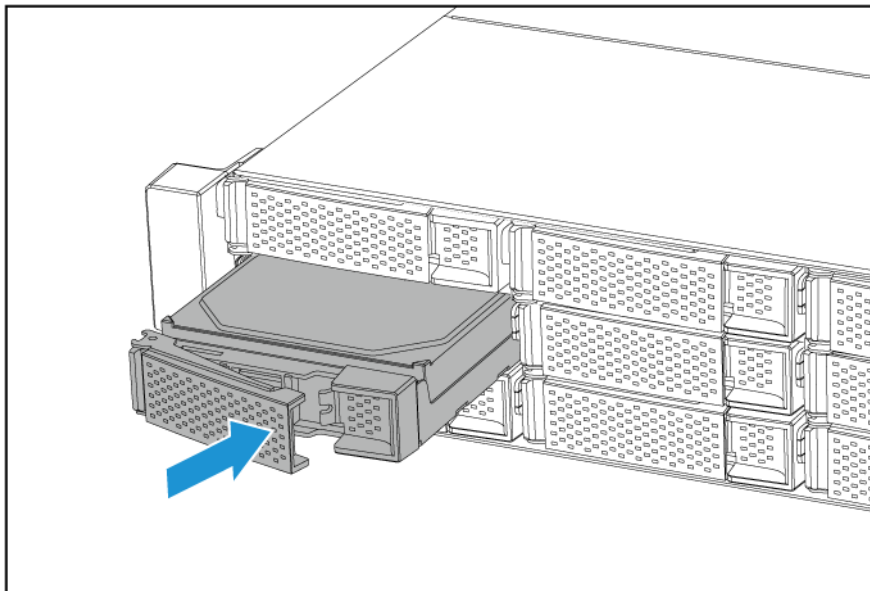
1. Power off the JBOD enclosure.
2. Remove a drive tray.
 - a. Pull the handle to release the tray.
 - b. Pull the tray out.



3. Install a drive on the tray.
 - a. 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.
 - b. Attach the screws.



4. Load the tray into the drive bay.
 - a. Insert the tray into the bay.
 - b. Push the handle.



5. Power on the JBOD enclosure.

**Note**

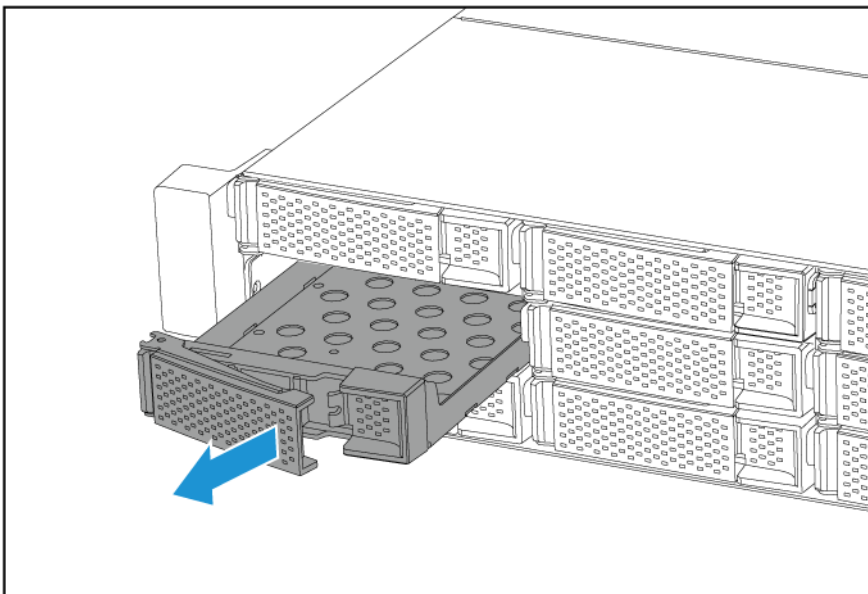
The JBOD enclosure may take up to 30 seconds to detect the new drive.

Installing 2.5-inch Drives on 3.5-inch Trays

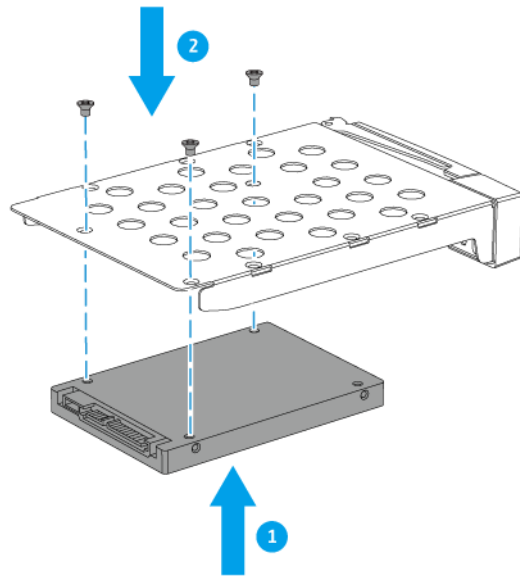
**Warning**

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

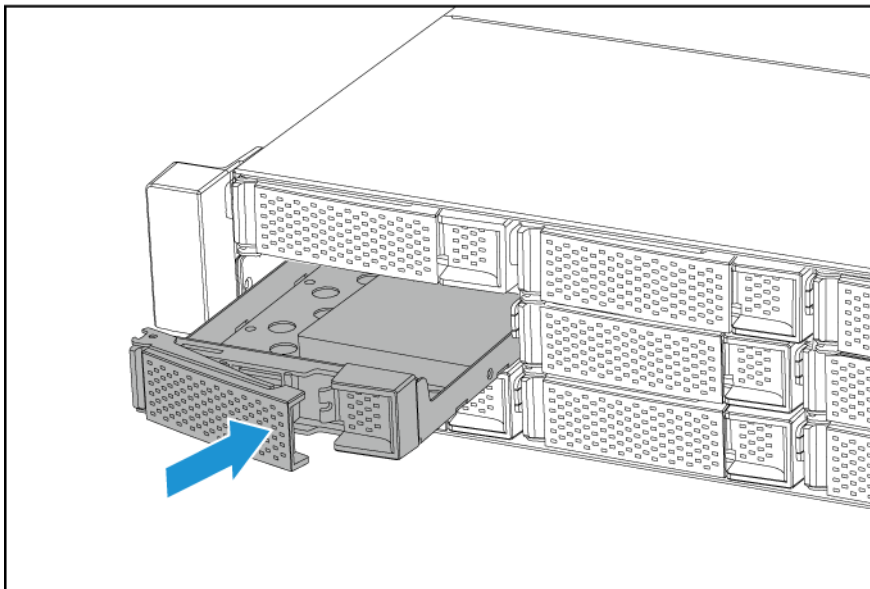
1. Power off the JBOD enclosure.
2. Remove a drive tray.
 - a. Pull the handle to release the tray.
 - b. Pull the tray out.



3. Install a drive on the tray.
 - a. 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.
 - b. Attach the screws.



4. Load the tray into the drive bay.
 - a. Insert the tray into the bay.
 - b. Push the handle.



5. Power on the JBOD enclosure.

**Note**

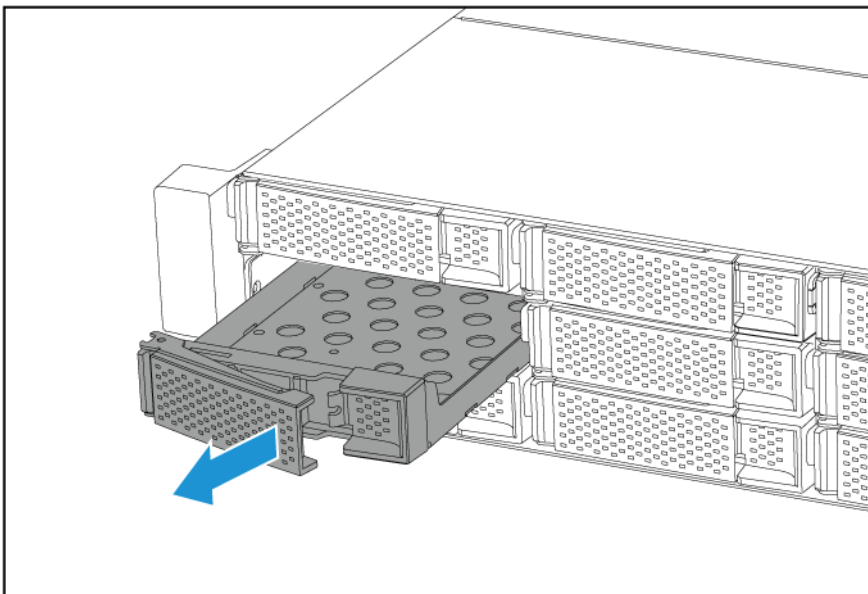
The JBOD enclosure may take up to 30 seconds to detect the new drive.

Installing Solid-State Drives on 3.5-inch Trays

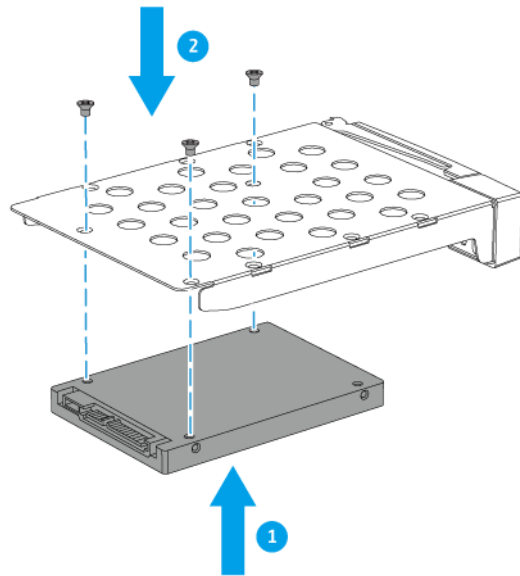
**Warning**

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

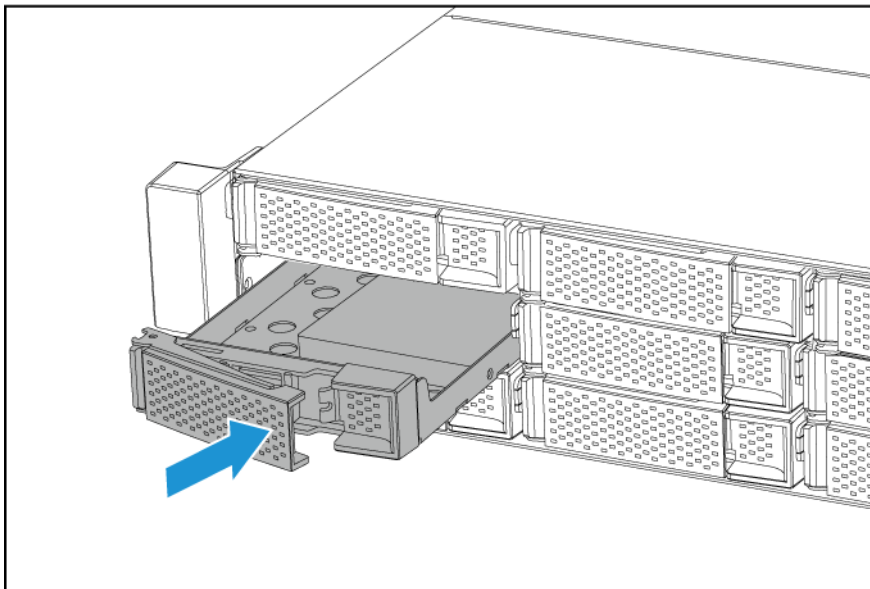
1. Power off the JBOD enclosure.
2. Remove a drive tray.
 - a. Pull the handle to release the tray.
 - b. Pull the tray out.



3. Install a drive on the tray.
 - a. 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.
 - b. Attach the screws.



4. Load the tray into the drive bay.
 - a. Insert the tray into the bay.
 - b. Push the handle.



5. Power on the JBOD enclosure.

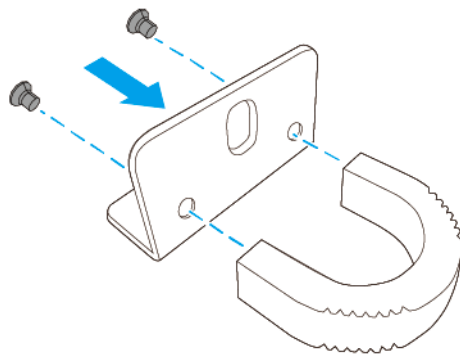
**Note**

The JBOD enclosure may take up to 30 seconds to detect the new drive.

Installing Handles

Installing handles enables you to better grip and secure the TL-R400S JBOD enclosure.

1. Power off the JBOD enclosure.
2. Install a handle on an angle bracket.
 - a. Align the openings on the handle with the two round screw holes on the angle bracket.
 - b. Attach the screws to lock the handle to the angle bracket.

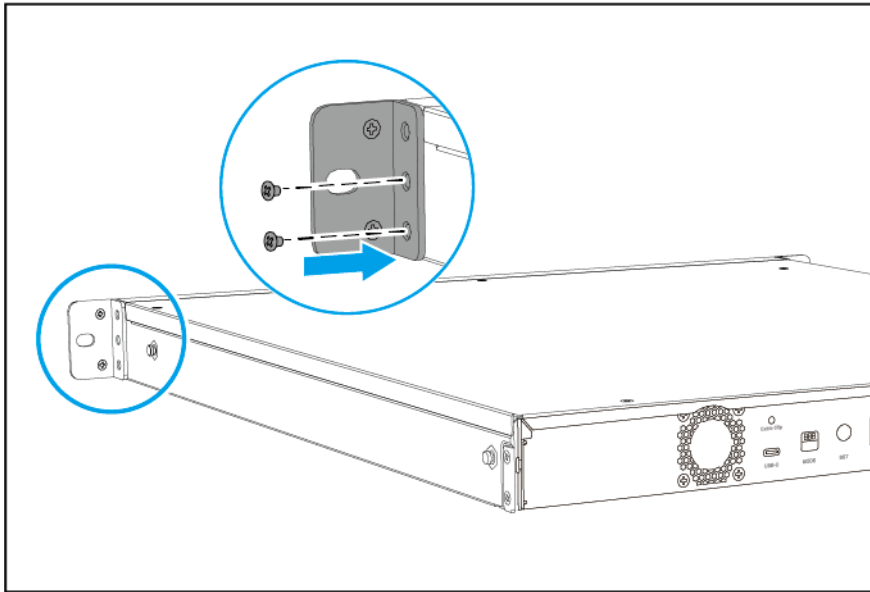


3. Install the angle bracket on the JBOD enclosure.
 - a. Align the holes on the angle bracket with the holes on the chassis.

**Note**

Ensure that the handle faces the same direction as the front panel.

- b. Attach the screws.



4. Install a second handle on the other side of the chassis.
5. Power on the JBOD enclosure.

Connecting the JBOD Enclosure to a NAS



Important

QTS can support a maximum of two JBOD enclosures.
The NAS must run QTS hero or QTS 4.4.2 (or later versions).

1. Power off the NAS.
2. Power off the JBOD enclosure.
3. Connect the JBOD enclosure to the NAS.
 - a. Connect one or more SFF-8088 connector cables to the SFF-8088 ports on the JBOD enclosure.
 - b. Connect one or more SFF-8088 connector cables to the SFF-8088 or SFF-8644 ports on the host bus adapter installed in the NAS.



Note

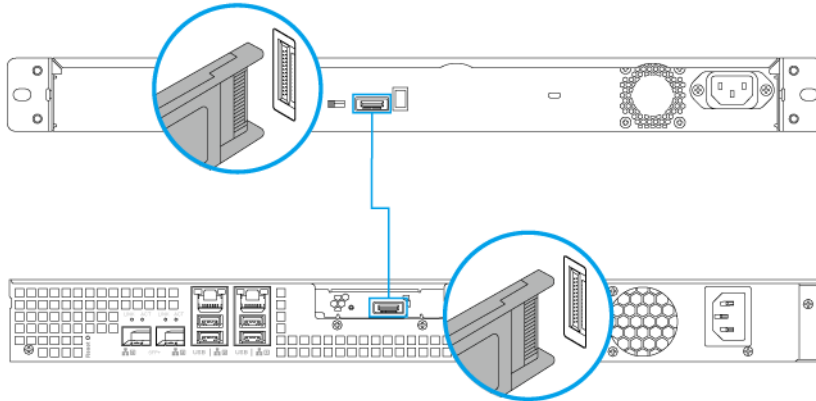
Refer to the hardware installation section of the NAS user guide for instructions on installing expansion cards.

The recommended maximum length of the SFF cable is 1 meter. Using a longer cable may degrade the signal or performance.

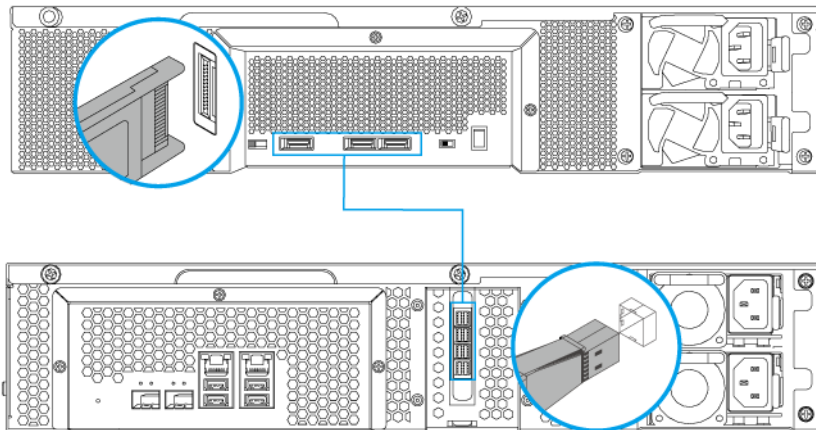


Important

The QNAP QXP-400eS-A1164 and QXP-1600eS host bus adapters are required for connecting the JBOD enclosure to a host device. Third-party host bus adapters are not compatible with QNAP JBOD enclosures.



TL-R400S



TL-R1200S-RP

4. Power on the JBOD enclosures.
5. Power on the NAS.
6. Verify that the JBOD enclosures are recognized by the NAS.
 - a. Log on to QTS as administrator.
 - b. Go to **Main Menu > Storage & Snapshots > Overview > Storage** .
 - c. Verify that the JBOD enclosures are listed.

**Note**

The NAS may take up to 30 seconds to detect the JBOD enclosure and the installed drives.

Connecting the JBOD Enclosure to a Server

**Note**

A Windows or Linux server does not limit the number of JBOD enclosures it can support.

1. Power off the server.
2. Power off the JBOD enclosure.
3. Connect the JBOD enclosure to a server.
 - a. Connect one or more SFF-8088 connector cables to the SFF-8088 ports on the JBOD enclosure.
 - b. Connect one or more SFF-8088 connector cables to the SFF-8088 or SFF-8644 ports on the host bus adapter installed in the NAS.

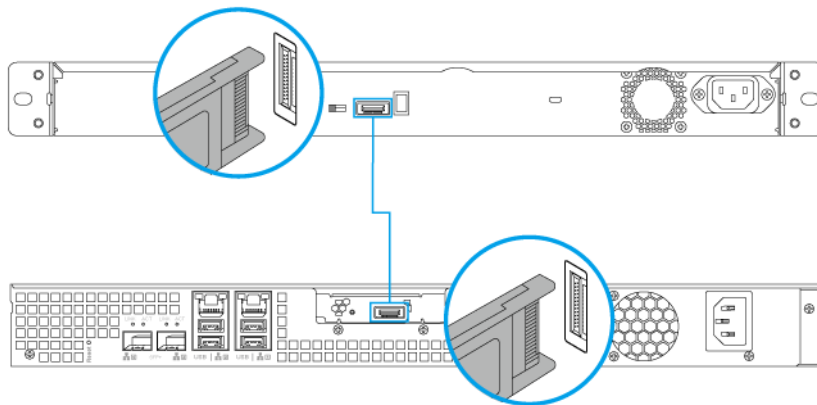
**Note**

Refer to the hardware installation section of the NAS user guide for instructions on installing expansion cards.

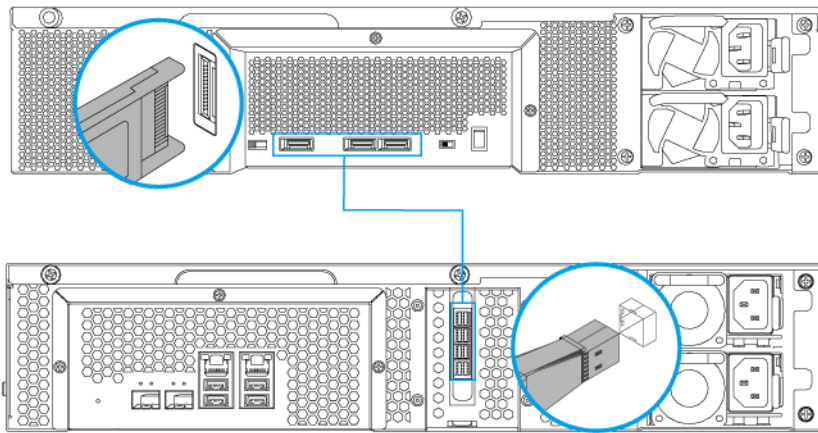
The recommended maximum length of the SFF cable is 1 meter. Using a longer cable may degrade the signal or performance.

**Important**

The QNAP QXP-400eS-A1164 and QXP-1600eS host bus adapters are required for connecting the JBOD enclosure to a host device. Third-party host bus adapters are not compatible with QNAP JBOD enclosures.



TL-R400S



TL-R1200S-RP

- c. Optional: Connect additional JBOD enclosures to the server.
- 4. Power on the JBOD enclosures.
- 5. Power on the server.
- 6. Verify that the JBOD enclosure is recognized by the server.
 - a. Go to your server's disk management utility or open QNAP External RAID Manager in Windows or Linux.



Note

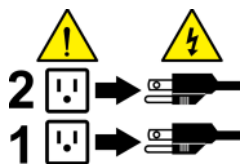
To download QNAP JBOD Manager, go to <https://download.qnap.com>.

- b. Verify that the JBOD enclosure is listed.

Hot-Swapping Redundant Power Supply Units



Warning



The NAS may have one or more power supply unit (PSU) cords. To avoid serious injuries, a trained service technician must disconnect all PSU cords before installing or replacing system components.

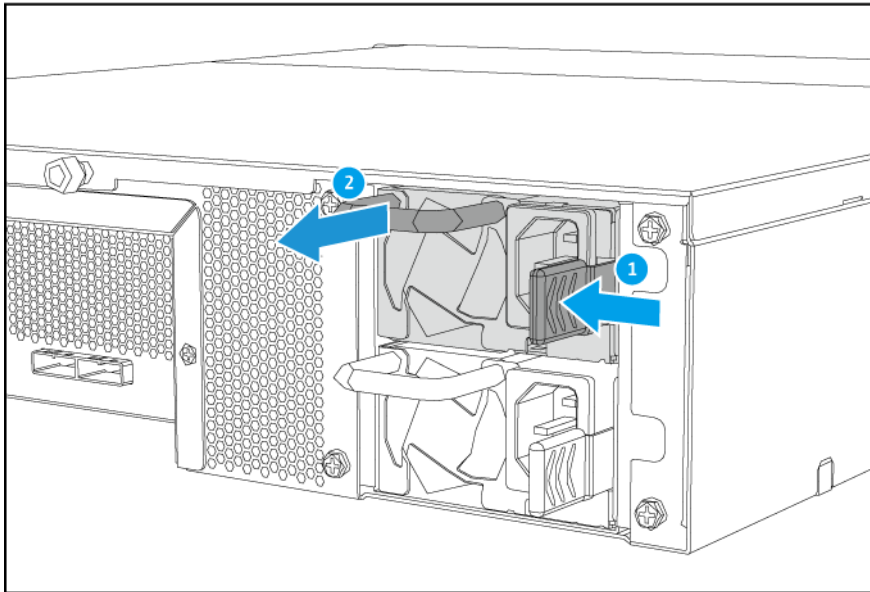


Note

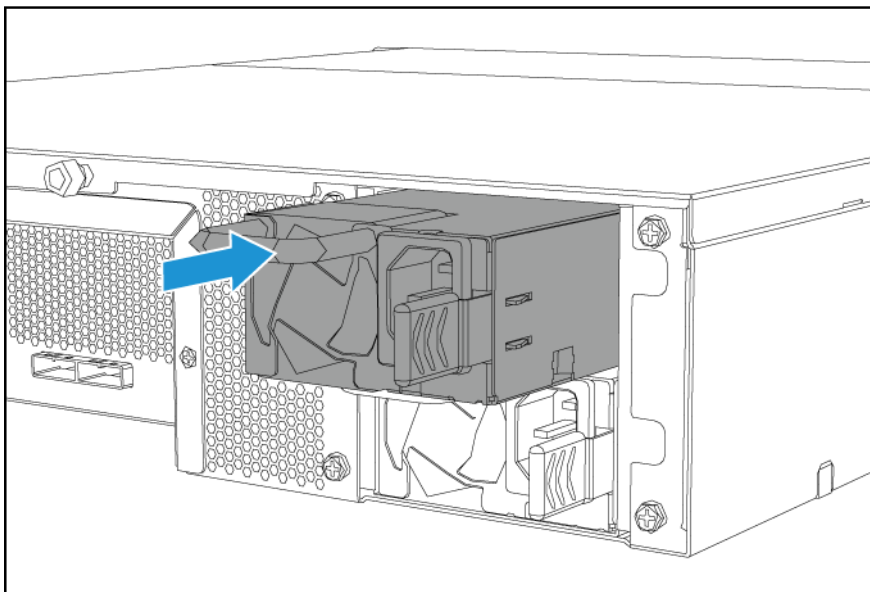
This task applies to the TL-R1200S-RP JBOD Enclosure.

- 1. Power off the NAS.

2. Disconnect the power cord from the electrical outlet and the PSU that you are replacing.
3. Firmly press the latch toward the handle and then pull the PSU out.



4. Insert the new PSU.



5. Connect the power cord to the PSU and the electrical outlet.
6. Power on the NAS.
7. Enable alerts for PSU failures.
 - a. Log on to QTS as administrator.
 - b. Go to **Control Panel > System > Hardware > General** .
 - c. Select **Enable Redundant Power Supply Mode**.

d. Click **Apply All**.

Rail Kits

The TL-R400S and TL-R1200S-RP are compatible with the following model:

- RAIL-B02

Rail kits are not included with the JBOD enclosure and must be purchased separately. For details, contact an authorized reseller or go to <http://shop.qnap.com>.

You can find installation information in the rail kit package.

4. Basic Operations

This chapter describes basic operations of the JBOD enclosure.

LEDs

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

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

LED	Status	Description
System Status	Green	The JBOD enclosure is ready.
	Red	<ul style="list-style-type: none"> The system fan is not functioning. The system temperature is over 65°C.
Link	Green	The JBOD enclosure is connected to a host device.
	Off	The JBOD enclosure is not connected to a host device.
Fan	Red	The system fan is not functioning.
Drive	Green	<ul style="list-style-type: none"> The JBOD enclosure is powered on. The drive can be accessed.
	Red	A drive read/write error occurred.



Note

The drive LEDs only function when connected to a NAS or computer running QTS, QTS hero, or QNAP JBOD Manager.

Audio Alert




Note

The audio alert can be toggled on and off by using the audio alert switch on the rear panel of the JBOD enclosure.

For details, see [Rear Panel](#).

Duration	Frequency	Description
Short beep (0.5 seconds)	1	<ul style="list-style-type: none"> The link to the JBOD enclosure is up. The link to the JBOD enclosure is down.

Duration	Frequency	Description
Long beep (2 seconds)	3 (every 5 minutes)	<ul style="list-style-type: none"> • The system fan is not functioning. • The system temperature is over the threshold. <div style="border-left: 2px solid #00AEEF; padding-left: 10px; margin-top: 10px;"> <p> Note</p> <ul style="list-style-type: none"> • The default temperature warning threshold is 65°C. You can set the threshold to a temperature between 55°C and 69°C using QNAP JBOD Manager. • The temperature critical threshold is 70°C. </div>

Fan Speed Switch

The rear panel of the JBOD enclosure includes a fan speed switch for manually configuring the speed of the system fans.

Fan speed settings:

- Auto
When set, the fan speed changes automatically according to the internal temperature of the JBOD enclosure.
- High
- Medium
- Low

For details, see [Rear Panel](#).

5. Troubleshooting

This chapter describes basic troubleshooting information.

Forcing Storage & Snapshots or QNAP JBOD Manager to Recognize the JBOD Enclosure

If Storage & Snapshots or QNAP JBOD Manager is unable to locate the JBOD enclosure during operation, the drives or data may be faulty.

1. Power off the JBOD enclosure.
2. Remove all drives.
3. Power on the JBOD enclosure.
4. Locate the JBOD enclosure using Storage & Snapshots or QNAP JBOD Manager.
5. Reinsert the drives.
6. Continue with operation.

Hot-swapping Failed Drives

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

- RAID 1: One member drive fails
- RAID 5: One member drive fails
- RAID 10:
 - One member drive fails
 - Two member drives fail
- RAID 50: One member drive per disk subgroup fails
- RAID 60: Two member drives per disk subgroup fail

1. Log on to QTS.
2. Go to **Main Menu > Storage & Snapshots > Storage > External Storage** .
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 JBOD enclosure.
6. Wait for 30 seconds or until the JBOD enclosure 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 JBOD enclosure beeps twice.

10. Wait for 30 seconds or until the JBOD enclosure beeps twice.
11. Go to **Main Menu > Storage & Snapshots > Storage > Storage/Snapshots** .
12. Locate the volume that contains the new drive and then verify that the status is *Rebuilding*.

Support and Other Resources

QNAP provides the following resources:

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

6. Glossary

QTS

QNAP NAS operating system

QNAP JBOD Manager

Software utility for Windows, Linux, and macOS that allows you to view and configure QNAP JBOD enclosures

Storage & Snapshots

QTS utility that allows you to view and configure QNAP JBOD enclosures connected to a QNAP NAS

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Version 3, 29 June 2007

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FCC Class A Notice



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