

# JBOD Enclosure Software User Guide

**User Guide** 

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# 1. Overview

## **About QNAP JBOD Enclosures**

QNAP JBOD enclosures are a series of expansion units designed to increase the storage capacity of your NAS or computer. JBOD enclosures offer a wide range of storage applications; you can manage drives independently or group them together in a software RAID configuration using a host NAS or computer. QNAP offers JBOD enclosures with USB 3.1 Gen 2 Type-C or SFF interface ports to ensure quick and efficient data transfer between the JBOD enclosure and the host device.

## **QNAP JBOD Enclosure Types**

Enclosure Type	Description	Supported Platforms	Example Models
SATA JBOD enclosure	A JBOD enclosure that uses SFF interface ports to connect to a NAS or computer. These enclosures can only be connected to a host device that has a QNAP QXP host bus adapter installed.	Computer: • Windows • Linux NAS: • QTS	<ul> <li>TL-D400S, TL- D800S, TL-D1600S</li> <li>TL-R400S, TL- R1200S-RP</li> </ul>
		QTS hero	
USB JBOD enclosure	A JBOD enclosure that uses USB 3.1 Gen 2 Type-C ports to connect to a NAS or computer.	Computer: <ul> <li>Windows</li> <li>Linux</li> <li>macOS</li> </ul>	<ul><li>TL-D800C</li><li>TL-R1200C-RP</li></ul>
		NAS:	
		• QTS	
		QTS hero	

# 2. QNAP JBOD Manager

QNAP JBOD Manager is a utility for Windows, Linux, and macOS that enables you to view and configure connected QNAP JBOD enclosures.

**Tip** To download QNAP JBOD Manager, go to https://www.qnap.com/utilities.

QNAP   🚔 🛛	QNAP JBOD Man	ager		
Select device:	a			Log
✓ TL-D800C #1	Device Information	Disk Information	Firmware Information	C
	TL-D800C #1 Infor	mation		
Serial No.: Q19BT00349	Enclosure health:	🧭 Good		
Action 🔻	Firmware version:	1.0.0		
	Bus type:	🖞 USB		
You can go to Windows Storage Space to create a RAID group and	System temperature	: 🧭 <u>31°C/ 87</u>	<u>°°F</u>	
protect your data.	System fan 1 speed	: 📀 540 rpm		
Connect to a USB 3.1 Gen2 port for faster	System fan 2 speed	: 🔣 540 rpm		
transfer speeds of up to 10Gbps.	System fan speed se	etting: Auto		

#### **Home Screen**

The home screen displays basic information about the selected device and provides access to several device management options.

QNAP   🚔	QNAP JBOD Manage	r	
Select device:			
Serial No.: Q19BT00349			
You can go to Windows <u>Storage Space</u> to create a RAID group and protect your data.			
Connect to a USB 3.1 Gen2 port for faster transfer speeds of up to 10Gbps.			

UI Element	Description		
Select device	Select the JBOD enclosure that you want to manage.		
	<ul> <li>View the status of each installed disk.</li> <li>Green: The disk is healthy and operating normally.</li> <li>Orange: The disk has encountered one or more issues.</li> <li>Tip Click on an installed disk to view S.M.A.R.T information for the disk.</li> </ul>		
Action > Locate	Prompt the drive LEDs to blink and the enclosure to beep so that you can easily locate the device in a server room or on a rack.		
Action > View Mapping Table (SATA JBOD only)	Opens the <b>SATA JBOD Mapping Table</b> screen. This table shows which JBOD enclosures are connected to each QXP card. Each JBOD port can connect 4 JBOD enclosure disks to the host.		
Action > Rename (SATA JBOD only)	Modify the display name of your SATA JBOD enclosure.		
Action > Edit Alert	<ul> <li>Enable or disable audio alerts.</li> <li>Note         This feature is only available when the JBOD enclosure's audio alert switch is toggled on.         For details, refer to the JBOD enclosure's hardware user guide.     </li> </ul>		

UI Element	Description
<ul> <li>Action &gt; Eject (Windows)</li> </ul>	Disconnect the device from the host computer.
<ul> <li>Action &gt; Unmount Volumes (Linux/ macOS)</li> </ul>	
LOG	View the system logs. For details, see System Logs.
:	Check for updates, view help, and modify the language or region settings.

#### **Device Information**

This screen shows basic information about the selected JBOD enclosure.

QNAP   🚔 🤇	QNAP JBOD Manager		
	Device Information		C
	TL-D800C #1 Informatio	on	
States in community	Enclosure health:	📀 Good	
COMPLEX NO.	Firmware version:	1.0.1	
	Bus type:	∳ USB	
· Contraction	System temperature:	<u>30°C/ 86°F</u>	
and the second	System fan 1 speed:	🧭 540 rpm	
Internet internet	System fan 2 speed:	🧭 540 rpm	
and some first	System fan speed setting:	Auto	

Click to refresh enclosure information and statuses.

## Modifying the Device Temperature Threshold

QNAP JBOD Manager issues a temperature warning when the device's internal temperature reaches the specified threshold.

- 1. Open QNAP JBOD Manager.
- 2. Go to Device Information.
- **3.** Click the system temperature.

The Device Temperature Threshold window appears.

- 4. Specify a temperature threshold between 55°C and 69°C.
- 5. Click Apply.

#### **Disk Information**

This screen shows basic disk information and the status of selected disks. You can choose to view information for a single disk or select **All disks** to view the installed disks as a list.



Tip Clic

Click on a disk's status to view detailed information about the disk, including its S.M.A.R.T. information.

		Disk 1					
	Temperature 30°C/ 86°F	Current Speed 6 Gbps			Firmware Versi SC60	ion	
S.M.A.F	R.T. Information						
ID	Description	Curr	rent Worst	Threshold	Raw Value	Status	^
	Raw_Read_Error_Rate	82	72	0	147208338	Good	
3	Spin_Up_Time	88	87	0	0	Good	
4	Start_Stop_Count	100	100	0	142	Good	
	Retired_Block_Count	100	100	0	0	Good	
	Seek_Error_Rate	64	61	0	2750111	Good	
9	Power-On_Hours	100	100	0	444	Good	~
						Clos	se

## Modifying the S.M.A.R.T. Polling Time

You can specify how often (in minutes) the device checks disks for S.M.A.R.T. errors.

- 1. Open QNAP JBOD Manager.
- 2. Go to Disk Information.
- 3.

- 4. Specify the S.M.A.R.T. polling time (in minutes).
  - Allowed values: 1 to 60
  - Default value: 5



Warning

High polling frequency may affect disk performance.

5. Click Apply.

#### **Firmware Information**

This screen shows the current firmware version of your JBOD enclosure and provides options for updating the firmware.

QNAP   🚔	QNAP JBOD Manager	
	Firmware	Ċ
	The latest firmware version is installed. Current firmware version: 1.0.0 Latest firmware version: 1.0.1 Update method: • Automatically install the latest firmware version • Select a local firmware file: © Go to download qnap.com to manually download firmware updates	Update Firmware

Firmware Update Method	Description		
Automatic update	QNAP JBOD Manager automatically downloads and installs the latest ver of the device firmware. For details, see Updating the Firmware Automatically.		
	Note You can only select this option if a firmware update is available for the JBOD enclosure.		
Manual update	Update the firmware by uploading a local firmware IMG file from your computer. For details, see Updating the Firmware Manually.		
	You can download firmware updates at https:// download.qnap.com.		

## Updating the Firmware Automatically

## Important

- All cables must be connected to the JBOD enclosure to update the firmware.
- In macOS, the host device must be connected to power to update the firmware.
- QNAP recommends unmounting RAID groups from disks installed in the JBOD enclosure before updating the firmware.
- 1. Open QNAP JBOD Manager.
- 2. Go to Firmware Information.

3. Under Update method, select Automatically install the latest firmware version.



Note

- You can only select this option if a firmware update is available for the JBOD enclosure.
- Click Update Firmware. The Firmware Update window appears. QNAP JBOD Manager downloads the firmware update file.
- **5.** Restart the computer. QNAP JBOD Manager opens and installs the firmware.
- 6. Ensure that the firmware is updated.
  - a. Go to Firmware Information.
  - b. Verify that the Current firmware version matches the Latest firmware version.

## **Updating the Firmware Manually**

#### Important

- All cables must be connected to the JBOD enclosure to update the firmware.
- In macOS, the host device must be connected to power to update the firmware.
- QNAP recommends unmounting RAID groups from disks installed in the JBOD enclosure before updating the firmware.
- 1. Open QNAP JBOD Manager.
- 2. Go to Firmware Information.
- 3. Under Update method, select Select a local firmware file.



You can download firmware updates at https://download.gnap.com.

- 4. Click Browse.
- 5. Select the firmware update file from your computer.
- 6. Click Update Firmware. The Firmware Update window appears.
- **7.** Restart the computer. QNAP JBOD Manager opens and installs the firmware.
- **8.** Ensure that the firmware is updated.
  - a. Go to Firmware Information.
  - b. Verify that the Current firmware version matches the Latest firmware version.

## System Logs

System logs are records of all the events that occur on a JBOD enclosure. You can filter, search, and download logs for help with troubleshooting.



		System Logs		×
∑ All Eve	nt Types 🔹	Enter keywords	Reset	
Event Type	Date	Source	Message	
<ol> <li>Information</li> </ol>	on 2019-11-15 17:1	3:19 TL-D800C #1: SN:Q19BT00343	Enabled JBOD device audio alerts. Device: [ D800C #1: SN:Q19BT00343].	TL-
<ol> <li>Information</li> </ol>	on 2019-11-15 17:1	3:15 TL-D800C #1: SN:Q19BT00343	Disabled JBOD device audio alerts. Device: [ D800C #1: SN:Q19BT00343].	TL-
⊲   Page [	1/1   ▶ ᢓ		Display item: 1-2, Total: 2   Show 100 🔻	Items
Clear			Export Ca	incel

UI Element	Description
$\nabla$	Filter the log messages by event type or keyword. Select one of the following event types:
	All Event Types
	Information
	• Warning
	• Error
Reset	Remove the filter and show all log messages.
Clear	Delete all log messages.
Export	Export all log messages to a CSV file. If a filter is applied, only the filtered logs are exported.
Cancel	Close the System Logs window.

# 3. QTS JBOD Management

You can manage JBOD enclosures in QTS from the following locations in the Storage & Snapshots utility.

Location	Description
Disks/VJBOD	View, manage, and configure storage for attached JBOD enclosures. You can create storage pools, volumes, and RAID groups using disks installed in the JBOD enclosure. For details, see Disks/VJBOD.
External Storage	View and manage attached JBOD enclosures and installed disks. For details, see External Storage.

### Autoplay Menu

The autoplay menu appears in QTS when a JBOD enclosure is connected to a NAS. The actions available in this menu vary according to the enclosure's current configuration.

External Device (WDC TL-D800C)		
An external device has been detected. What do you want to do?		
View external storage settings using Storage & Snapshots		
Do not ask me again		
	Close	

## **Disks/VJBOD**

Open QTS and go to **Storage & Snapshots > Storage > Disks/VJBOD** to access JBOD enclosure storage configuration options.

For information on managing disks, including creating and managing storage pools, volumes, and other features, see the QTS User Guide.

Storage & Snapshots						- + ×
Storage & Snapshots	External RAID Device 🔻	SSD Over-Provi	isioning 🔻 💊 Qt	ier 🔹 🍼 VJBOD	D/VJBOD Cloud 🔻	\$ @ \$
<ul> <li>Overview</li> <li>Storage</li> <li>Snapshot</li> <li>Storage</li> <li>Storage</li> <li>Storage</li> <li>Storage</li> <li>Storage/Snapshots</li> <li>Cache Acceleration</li> <li>External Storage</li> <li>Snapshot Backup</li> </ul>	Image: NAS Host         Image: Nash Host	<	Perfor	TL-D800C-N343	OD/VJBOD Cloud •	Recover
Snapshot Replica Snapshot Vault Ĉ- iSCSI & Fibre Channel	<ul> <li>SSD • Disk</li> <li>Adapter</li> <li>Cache</li> <li>Data • Spare = Free</li> </ul>	NAS and Enclosure	Enclo Model Name: Serial Number. Bus Type: System Temperature:	TL-D800C sure Info Disk H TL-D800C Q19BT00343 USB 3.1 Gen1 35°C / 95°F	ealth Action • PSU 1 Status: Fan speed: System fan 1 speed: System fan 2 speed:	RAID Group

UI Element	Description		
Device menu	Select a JBOD enclosure or disk to manage.		
Performance test	QTS can test the sequential and random read speeds of your disks. For more information, see the QTS User Guide.		
Recover > Recover Enclosure	Recover storage pools or static volumes on a JBOD enclosure that was accidentally disconnected from the NAS. For more information, see the QTS User Guide.		
Recover > Reinitialize Enclosure IDs	Reset all JBOD enclosure IDs, and then give each enclosure a new ID number starting from 1 based on the order in which they are physically connected.  Tip Use this action if the expansion unit IDs appear out of sequential order in the enclosure list.		
Recover > Scan and Recover Storage Space	Scan all free disks on the NAS and all connected expansion units for existing volumes and storage pools.           Image: Tip Perform this action after moving disks between NAS devices.		
RAID Group	Select and view RAID group details.		

## **JBOD Enclosure Actions**

Go to **Storage & Snapshots > Storage > Disks/VJBOD** and select a JBOD enclosure to perform any of the following actions.

Storage & Snapshots					- + ×
Storage & Snapshots	External RAID Device 🔻	🤔 SSD Over-Provisioning 🔻	) 🥪 Qtier 🔹 🅑 VJBO	D/VJBOD Cloud 🔻	\$ O   \$
<ul> <li>Overview</li> <li>Storage</li> <li>Snapshot</li> <li>Storage</li> <li>Storage</li> <li>Storage</li> <li>Cache Acceleration</li> <li>External Storage</li> <li>Snapshot Backup</li> <li>Snapshot Replica</li> <li>Snapshot Yault</li> </ul>	MAS Host      Disk 1      Disk 1      Disk 2      Disk 3      Disk 4      Disk 5      Disk 6      Disk 7      Disk 8		Performance test VJE TL-D800C-N343	BOD/VJBOD Cloud •	Recover •
	<ul> <li>SSD • Disk</li> <li>Adapter</li> <li>Cache</li> <li>Data • Spare • Free</li> </ul>	NAS and Enclosure Model Na Serial Nu Bus Type Good System T	TL-D800C Enclosure Info Disk F me: TL-D800C mber: Q19BT00343 : USB 3.1 Gen1 emperature: 35°C / 95°F	PSU 1 Status: Fan speed: System fan 1 speed: System fan 2 speed:	RAID Group Ready - 540 rpm S40 rpm

Action	Description
Action > Locate	Prompt the chassis LEDs to blink and the enclosure to beep so that you can easily locate the device in a server room or on a rack.
Action > Scan	QTS scans the JBOD enclosure for existing RAID groups, storage pools, volumes and/or iSCSI LUNs.
Action > Safely Detach	Stop all activity and safely unmount the enclosure from the host NAS.
Action > Check for Update	Update the JBOD enclosure's firmware.

## **JBOD Enclosure Disk Actions**

Go to **Storage & Snapshots > Storage > Disks/VJBOD** and select a disk installed in a JBOD enclosure to perform any of the following actions.

Storage & Snapshots						- + ×
Storage & Snapshots	External RAID Device 🔹	🤔 SSD Over-Prov	risioning 🔻 💊	Qtier 🔻 🥑 VJBOD	D/VJBOD Cloud 🔻	\$ @   \$\$
Overview ^ Storage Snapshot	Imin NAS Host     Imin TL-D800C-N343     Oisk 1		Pe	TL-D800C-N343	IBOD/VJBOD Cloud •	Recover •
<ul> <li>Storage</li> <li>Disks/VJBOD</li> <li>Storage/Snapshots</li> <li>Cache Acceleration</li> <li>External Storage</li> <li>Snapshot Backup</li> <li>Snapshot Replica</li> </ul>	<ul> <li>Disk 2</li> <li>Disk 3</li> <li>Disk 4</li> <li>Disk 5</li> <li>Disk 6</li> <li>Disk 7</li> <li>Disk 8</li> </ul>	<				>
Snapshot Vault	SSD • Disk • Adapter • Cache • Data • Spare • Free	Disk Information	Manufacturer. Model: Disk Capacity: Bus Type: Status:	TL-D800C Disk Info Disk WDC WD5003ABYZ-011 465.76 GB (50 SAA Ready	Health Action  Current Speed: Maximum Speed: Temperature: Disk Access History (I/O): Disk SMART Information:	RAID Group

Action	Description
Disk Info	View full details of the installed disk, including the manufacturer, model, serial number, firmware version, and BUS type.
Disk Health	View detailed information about the health of the installed disk, including health summary and S.M.A.R.T. information. You can also run a S.M.A.R.T test and modify disk settings. For more information, see the QTS User Guide.
Action > Scan Now	QTS scans the installed disk for bad blocks and other disk errors.
Action > Locate	Prompt the drive LED to blink so that you can easily locate the disk in a server room or on a rack.
Action > Secure Erase	Permanently delete all data on the disk to ensure that the data is not recoverable. Performing this action also restores the disk's performance to its original factory state. For more information, see the QTS User Guide.
Action > New Volume	Create a new static volume or RAID group using the disks installed in the JBOD enclosure. For more information, see the QTS User Guide.
Action > Detach	Stop all activity and safely unmount the enclosure from the host NAS.

## **External Storage**

Go to **Storage & Snapshots > Storage > External Storage** to view and manage disks installed in the JBOD enclosure.

Storage 8	& Snapshots					- + ×
6	Storage & Snapshot	s [ 🔤 External RAID Device 🔹 😍 SSI	D Over-Provisioning 🔻	) 🥪 Qtier 🔻 (	VJBOD/VJBOD Cloud 🔹	<u>\$</u> 0
(?) c	Dverview 🔨	Total - Devices: 2, Partition: 2 $ oldsymbol{\mathcal{G}}$				Actions •
Ŭ	Storago	Name/Alias	Status	Туре	Capacity Utilization	
		✔ 📇 Device 1 QNAP Systems, Inc. TL-D		USB 3.1 Ge	465.76 GB	
	Snapshot	— USBDisk1	Uninitialized	Unknown	465.76 GB	
🛛 😂 s	Storage ^	➤ 🚍 Device 2 QNAP Systems, Inc. TL-D…		USB 3.1 Ge	465.76 GB	
	Disks/VJBOD	— USBDisk2	Uninitialized	Unknown	465.76 GB	
	Storage/Snapshots					
	Cache Acceleration					
	External Storage					
രെട	Snanshot Backun					
	Snapshot Replica					
	Snapshot Vault					
< <del>,</del> it	SCSI & Fibre Channel					
		To access devices that use the exFAT file syste	m, you must purchase an exF	AT driver license in Lice	nse Center. Click to purchase now.	

## **External Storage Device Actions**

Go to **Storage & Snapshots > Storage > External Storage** and select a device to perform any of the following actions.

Action	Description
Actions > Erase	Erase all existing partitions and data on the selected device.
Actions > Eject	Eject the device.

## **External Storage Disk Actions**

Go to **Storage & Snapshots > Storage > External Storage** and select a disk to perform any of the following actions.

Action	Description
Actions > Storage Information	View storage information about the installed disk.

Action	Description
Actions > Format	The Format Partition window opens.
	1. Select a disk.
	2. Select a file system.
	3. Specify a label for the disk.
	4. Optional: Enable encryption.
	a. Select an encryption type.
	b. Specify and verify an encryption password.
	c. Optional: Select Save encryption key.
	5. Click Format.
Actions > Eject	Eject the disk.