

QNAP

TL-R1200C-RP & TL-D800C

USB 3.1 Gen2 Type-C JBOD Enclosure

for NAS QTS, Windows, macOS & Linux



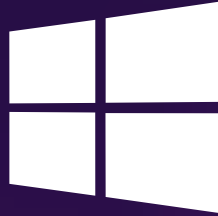
- What if you run out of storage space
- TL-D800C & TL-R1200C-RP USB JBOD overview
- Use QNAP JBOD Manager utility on Windows/macOS/Ubuntu to manage JBOD enclosures
- Expand NAS capacity



How to easily and economically expand storage capacity of the host?



Mac



PC



Server



QNAP TS-251D

Pick your own interface based on performance & budget

Popularity

Interface

Theoretical throughput



eSATA



USB 3.0/3.1 Gen1



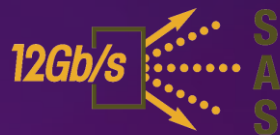
USB 3.1/3.2 Gen2



USB 3.2 Gen2 x2



Thunderbolt 3



SAS 12Gb/s



A TL USB JBOD enclosure can simplify many things

01

Consolidate multiple external storage devices into one unit.



02

Just need a USB port to connect.



03

Does not take multiple power outlets



All-new USB 3.1 Gen2 TL JBOD enclosures

USB 3.0 UX enclosures



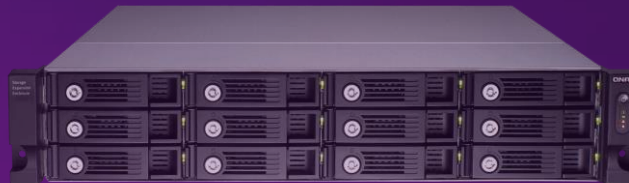
UX-500P



UX-800P



UX-800U-RP



UX-1200U-RP



High speed 10Gbps

USB 3.1 Gen2 TL series JBOD enclosures



TL-D800C






TL-R1200C-RP

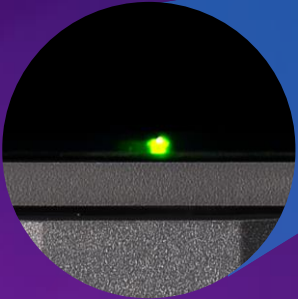
- Twice the speed
- Supported by NAS QTS 4.4.2 or later
- Type-C design to support either a Type-A or Type-C host
- For NAS QTS, Windows, macOS and Ubuntu

TL-D800C front view

Status indicators

-  System
-  USB link
-  Fan error

Drive status indicators



Lockable drive trays



Two keys supplied

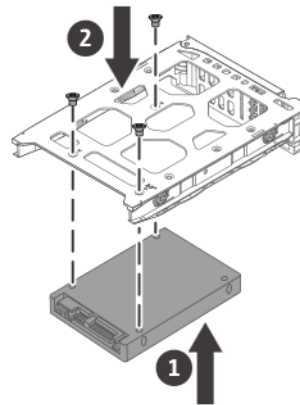
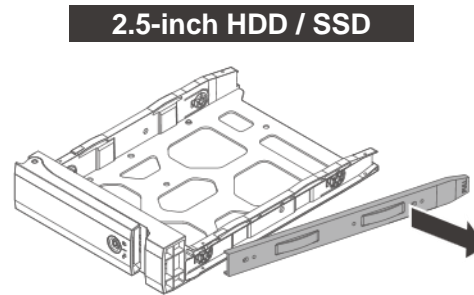
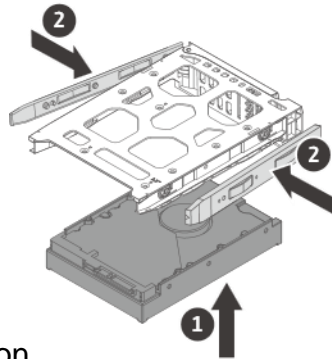
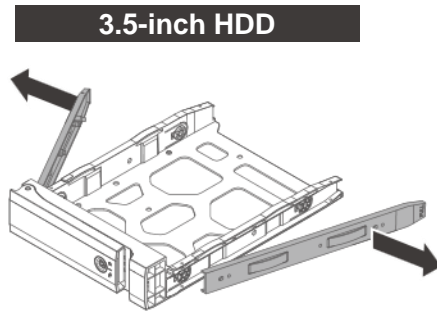
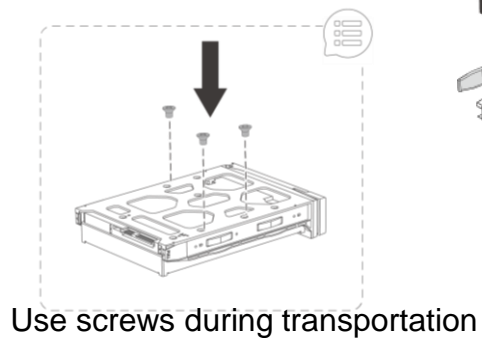


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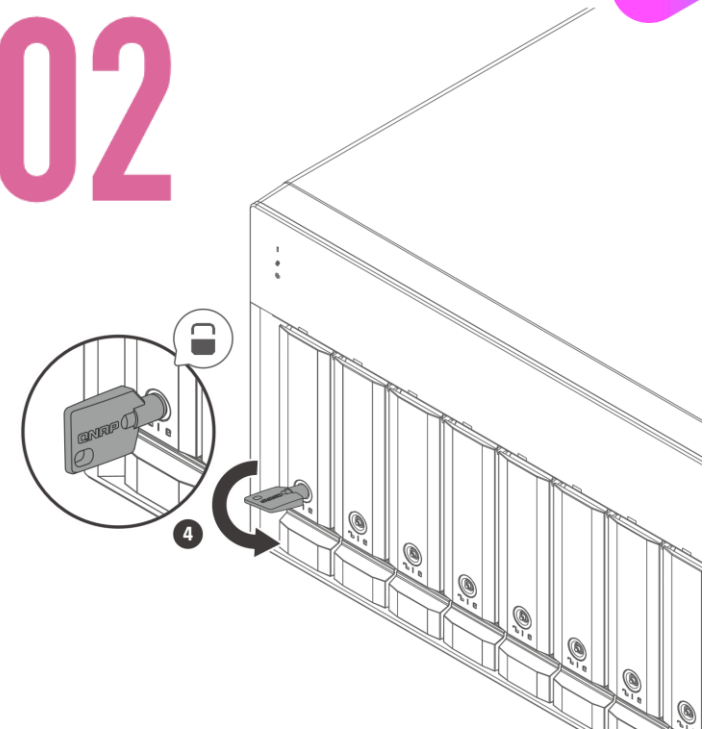
TL-D800C HDD/SSD installation

01

Tool-less 3.5" HDD installation



02



TL-D800C rear view



TL-D1200C-RP front view

Drive status LED indicator

Status LED indicator

Optional **RAIL-B02**
rail kit

System status

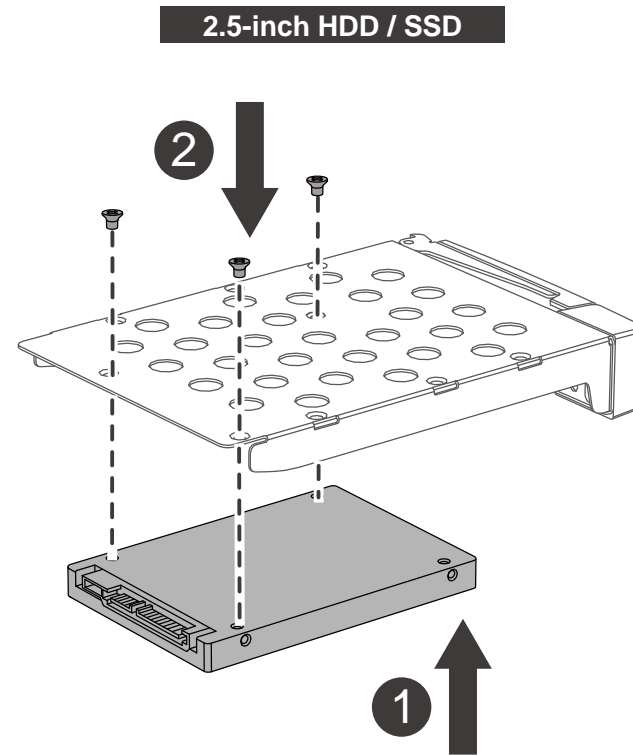
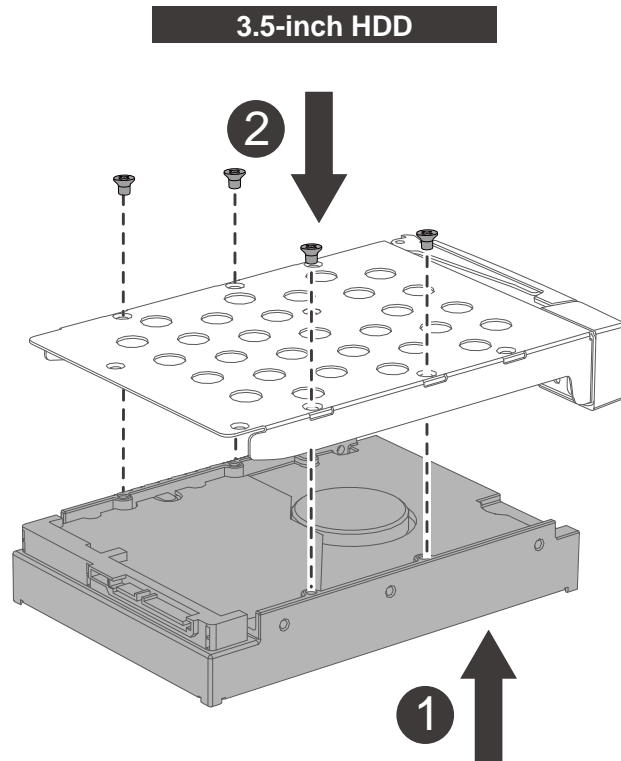
USB link

Fan error

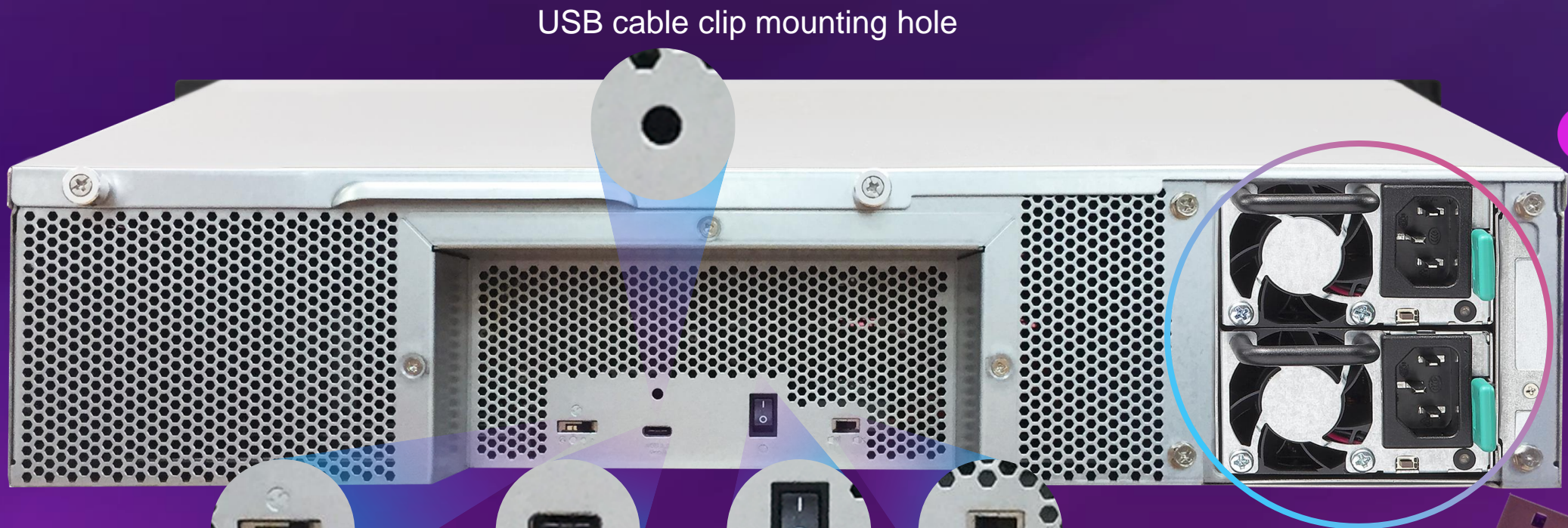


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TL-R1200C-RP HDD/SSD installation



TL-R1200C-RP rear view



Fan speed
(Auto, high, med, low)

USB 3.1 Gen2
10Gbps Type-C port

Power
switch

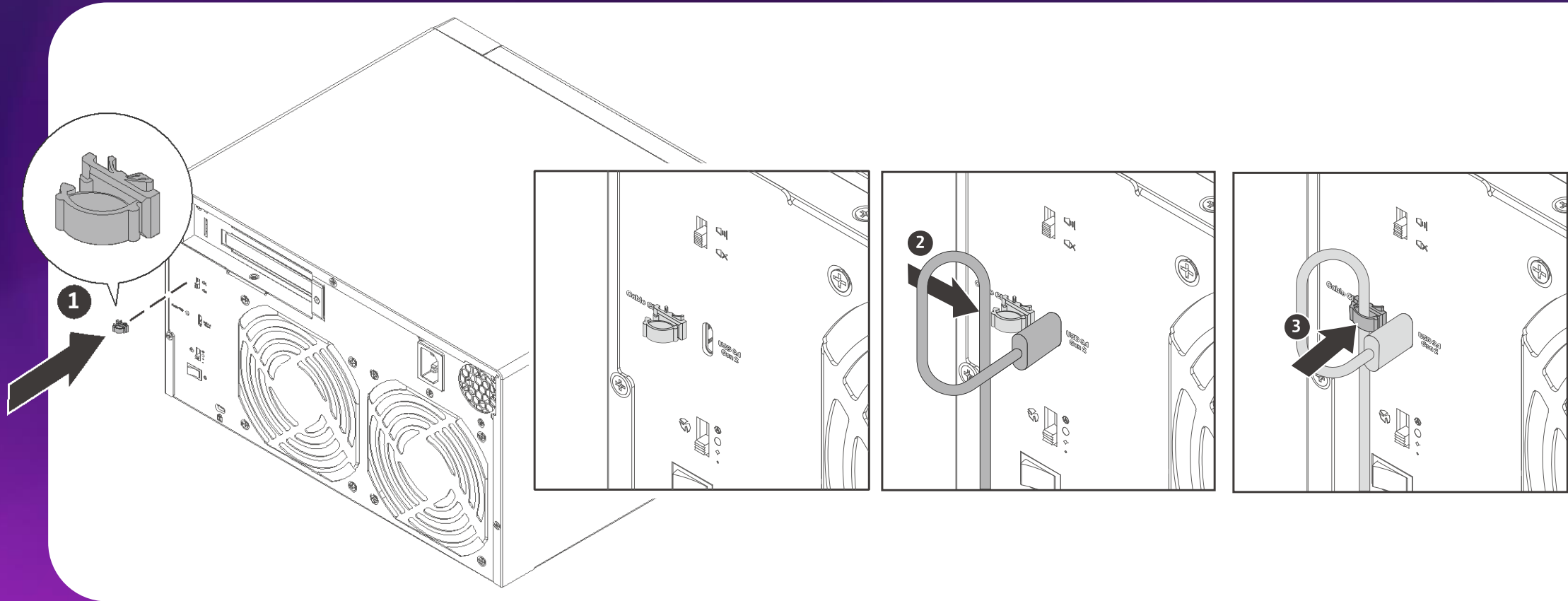
Audio alert
(On, Off)

Redundant
power supply
2 x 250W

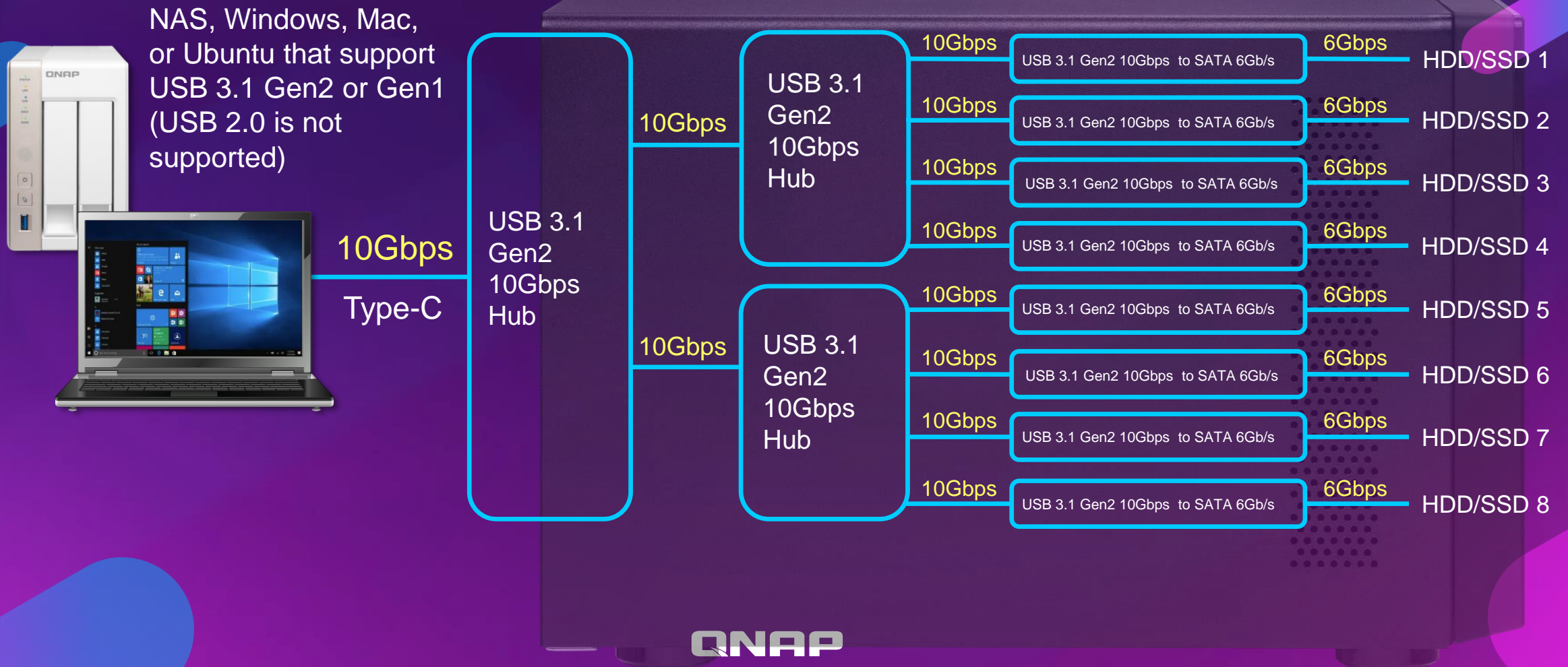
1M USB 3.1 Gen2 Type-C
to Type-A cable supplied

QNAP

How to install the USB cable clip



TL-D800C USB JBOD architecture



TL-R1200C-RP USB JBOD architecture

NAS, Windows, Mac,
or Ubuntu that support
USB 3.1 Gen2 or Gen1
(USB 2.0 is not
supported)



10Gbps
Type-C

USB 3.1
Gen2
10Gbps
Hub

10Gbps

USB 3.1
Gen2
10Gbps
Hub

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 1

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 2

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 3

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 4

10Gbps

USB 3.1
Gen2
10Gbps
Hub

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 5

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 6

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 7

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 8

10Gbps

USB 3.1
Gen2
10Gbps
Hub

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 9

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 10

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

HDD/SSD 11

10Gbps

USB 3.1 Gen2 10Gbps to SATA 6Gb/s

6Gbps

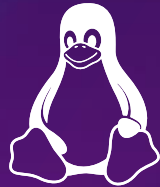
HDD/SSD 12

QNAP

Support more OS platforms than UX-500P/ UX-800P/UX-800U-RP/UX-1200U-RP enclosures

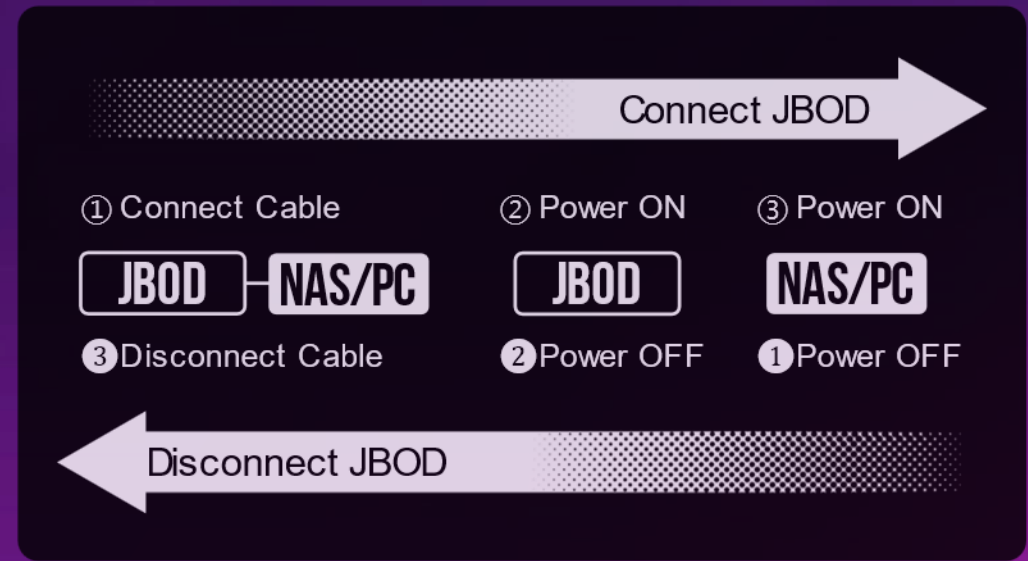
Mainstream operating systems

- Windows / macOS / Ubuntu users can use QNAP JBOD Manager to manage JBOD units



- Expand NAS capacity with QTS & QTS hero OS

Follow these steps to connect or disconnect the JBOD enclosure.



Build a software RAID 0/1/5 volume with native Windows utility

Create a new pool and storage space in Windows

Manage Storage Spaces

Use Storage Spaces to save files to two or more drives to help protect you from a drive failure. Storage Spaces also lets you easily add more drives if you run low on capacity. If you don't see task links, click Change settings.



Create a new pool and storage space

Resiliency type including [Simple] 、 [Two-way mirror] 、 [Three-way mirror] and [Parity]

Enter a name, resiliency type, and size for the storage space

Name and drive letter

Name:

Storage space

Drive letter:

E: ▾

File system:

NTFS ▾

Resiliency

Resiliency type:

Parity ▾
Simple (no resiliency)
Two-way mirror
Three-way mirror
Parity

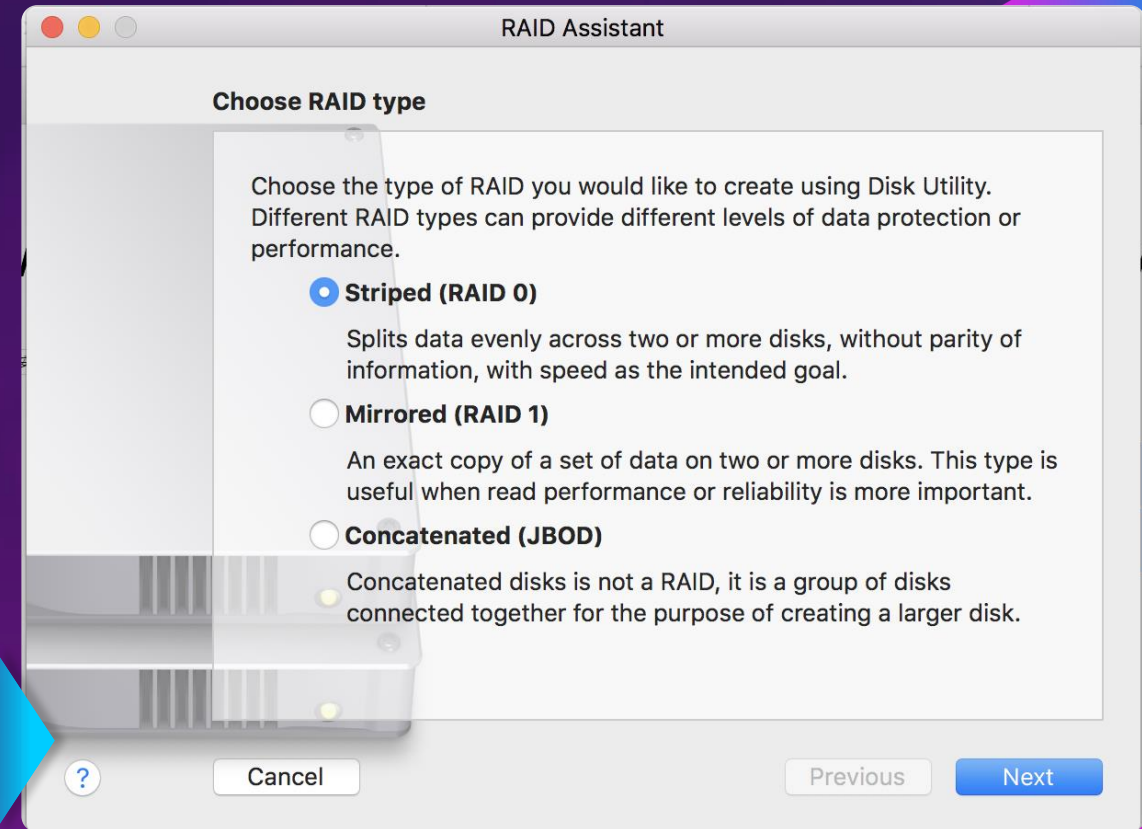


A parity storage space writes your data across multiple drives, helping to protect you from a single drive failure. A parity storage space also provides redundancy, helping to protect you from a single drive failure.

<https://support.microsoft.com/zh-tw/help/12438/windows-10-storage-spaces>

Build a software RAID 0/1 volume with native macOS Disk utility


In 「Disk Utility」 App , choose 「File」 > 「RAID Assistant...」



<https://support.apple.com/zh-tw/guide/disk-utility/dskua23150fd/mac>

Build a RAID 0/1/5 volume with a third-party application - SoftRAID



Download 30 day FREE TRIAL!	 SoftRAID	
	SoftRAID Lite	
RAID Levels Supported	RAID 0 (Stripes) RAID 1 (Mirrors) RAID 4, RAID 5, RAID 1+0	RAID 0 (Stripes) RAID 1 (Mirrors)
Disk Certification	✓	✓
Disk Monitoring	✓	✓
Email Alerts	✓	✗
Command Line Interface	✓	✗
Tech Support	Free	Online Forum
Price	\$179	\$49

<https://www.softraid.com/>

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Create a RAID 0/1/5 pool with Linux

- * Please DO NOT unplug the USB cable while RAID space is connected & mounted, which may cause unexpected data loss or trigger RAID degrade.

Install mdadm via terminal

```
sudo apt-get install -y mdadm
```

Build RAID 5 with mdadm

```
sudo mdadm --create --verbose /dev/md0 --level=5 --  
raid-devices=3 /dev/sda /dev/sdb /dev/sdc
```

Create & mount RAID pool

```
sudo mkfs.ext4 -F /dev/md0  
sudo mkdir -p /mnt/md0  
sudo mount /dev/md0 /mnt/md0
```



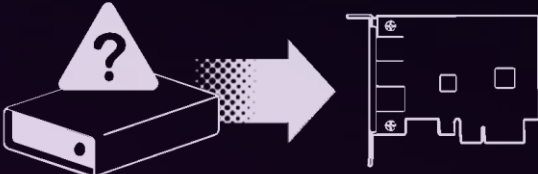
<https://www.digitalocean.com/community/tutorials/how-to-create-raid-arrays-with-mdadm-on-ubuntu-18-04>

When your device could not recognize all drives or insufficient resources occurred

- Windows/Mac/Linux


NOTE

Out of available USB endpoints?



Add a QNAP USB expansion card to your NAS or PC!

Do not connect via USB hub



- QNAP NAS

Follow the [QNAP Expansion compatibility](https://www.qnap.com/go/compatibility-expansion/) to check the maximum number of supported JBOD units.

<https://www.qnap.com/go/compatibility-expansion/>

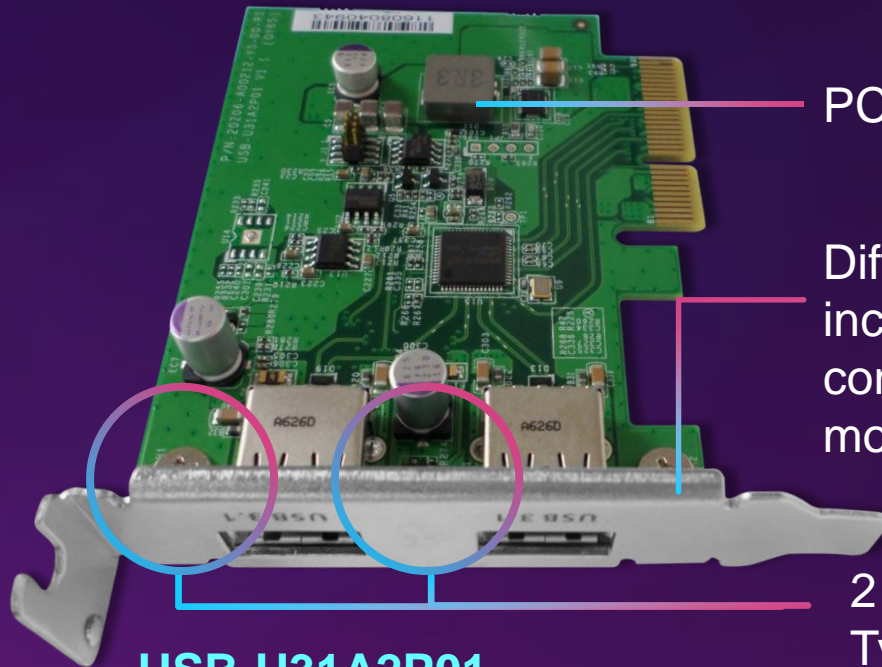
USB endpoints

A host computer's USB 3.0/3.1/3.2 (xHCI) controller usually has the maximum number of supported USB endpoints (normally 64~128 USB endpoints). When a USB device is connected to a host, depending on the device, a number of USB endpoints may be consumed. Therefore, when a host has multiple USB devices connected, the issue of insufficient USB endpoint resource may occur, which in turn resulted in missing some devices.

Source: https://www.cambrionix.com/articles_support/endpoint-limitation-usb-hubs/

Add dual USB 3.1 Gen2 ports to PC or NAS

QNAP USB 3.1 Gen2 expansion cards (P/N : USB-U31A2P01 & QXP-10G2U3A) are equipped with two USB type-A ports running USB 3.1 Gen2 speed for faster file transfer speed and more device compatibility.



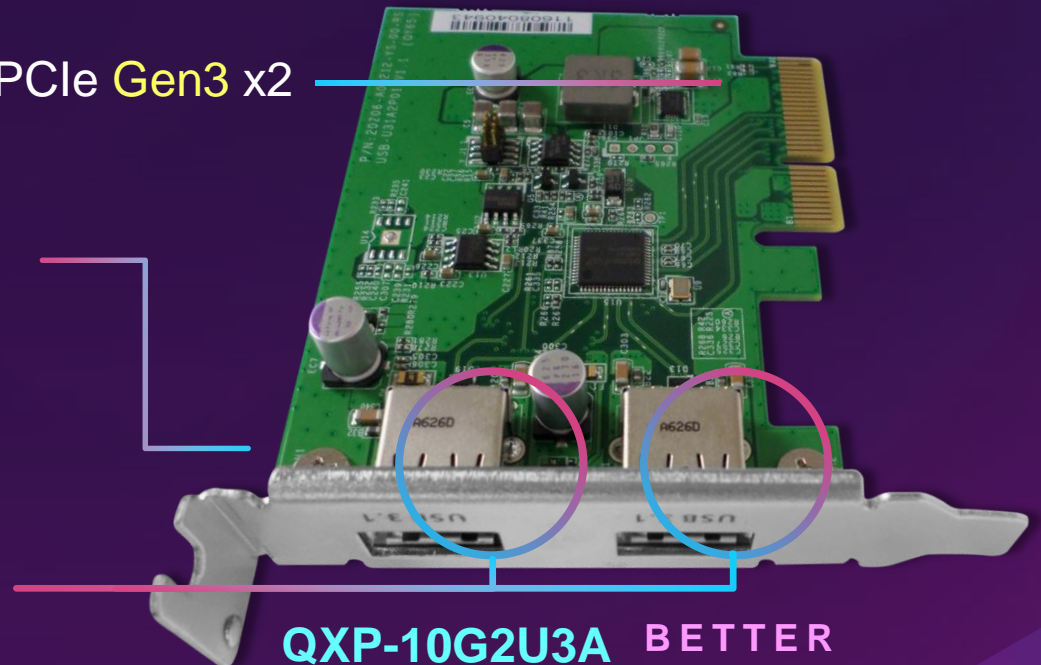
USB-U31A2P01

PCIe Gen2 x2

Different brackets included for various computer and NAS models

2 x USB 3.1 Gen2 Type-A

PCIe **Gen3** x2

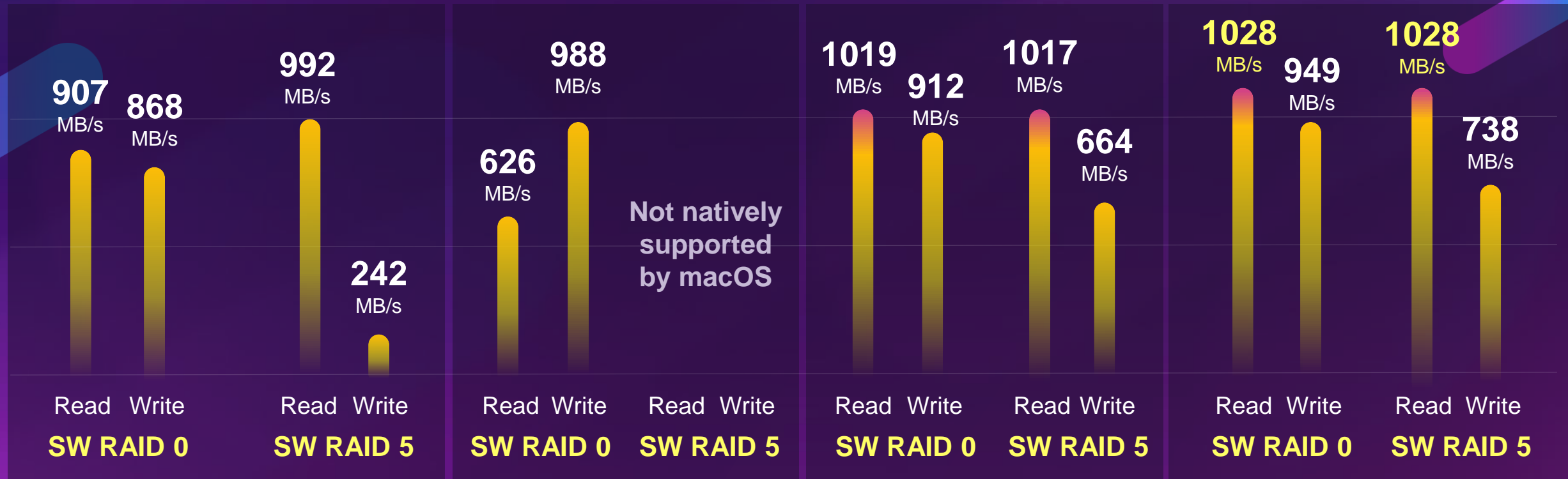


QXP-10G2U3A
Coming soon

**BETTER
PERFORMANCE**

UASP protocol support for high performance

TL-D800C performance tests



Windows 10 Pro



Mac



Ubuntu



NAS

QNAP

QNAP

DEMO

Performance & Device

Performance

TL-R1200C-RP

Device

TL-D800C

Test environment:

TL-R1200C-RP + 12 x 2.5" SSDs

Windows 10 with a TL-R1200C-RP and RAID 0





QNAP JBOD Manager

QNAP JBOD Manager could let you know the information and status of JBOD device and each disk.

Supported platforms and operating system:

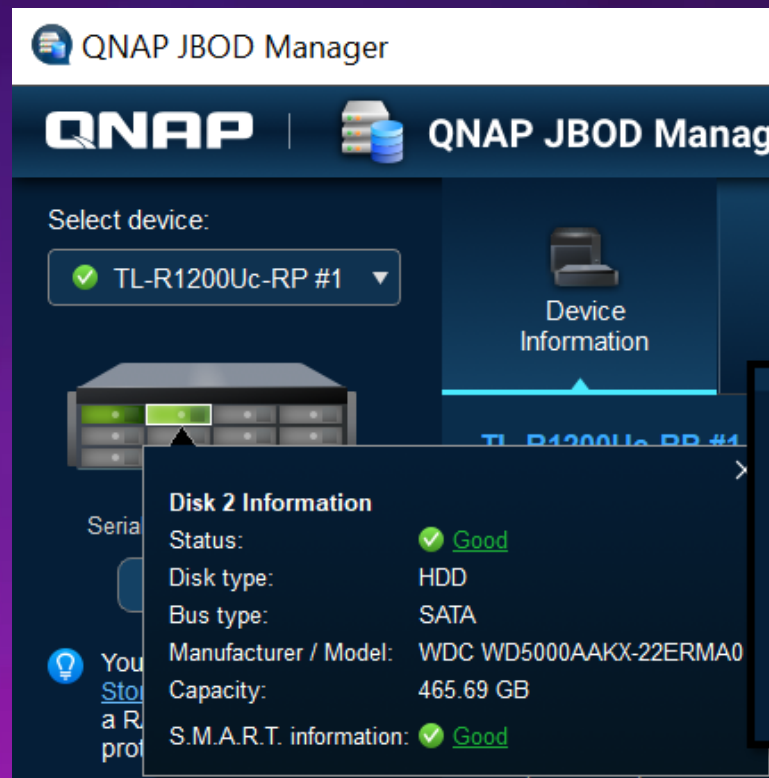
- Windows: Windows 8 (or newer), Server 2012 R2 (or newer)
- Mac: macOS 10.13 & 10.14, (10.15 will coming soon)
- Linux: Ubuntu 18.04



Monitor the disk health

Quickly Explore

The color of the disk allows you to easily identify the disk status. Click it can get more detail like type, manufacturer, capacity...etc.



Detail Info

The tab of "Disk Information" will provide you the detail SMART info of each disk.



Device Information and Health View

Detail information of each enclosure

- Enclosure health
- Bus type
- PSU status
(only for RP model)
- System temperature
- Fan speed



Device Temperature Threshold

You can set up the temperature threshold from 55 to 69 degree C, when the temperature exceeds the threshold, the enclosure will alarm and the health status will change to red. **(Warning)**

Device Temperature Threshold

×

Specify a temperature threshold for the device. When the temperature exceeds the threshold, the device will beep and the health status will change to "Warning".

Temperature threshold (°C): = 149 °F

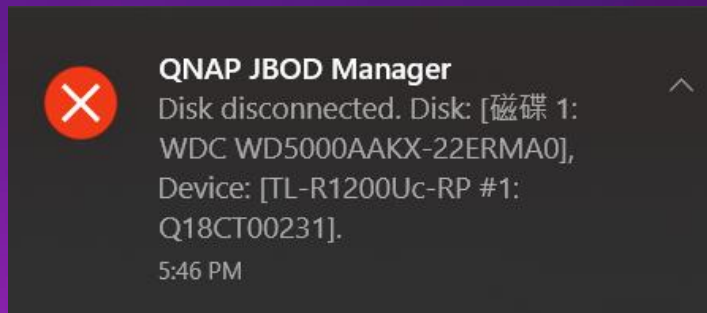
Apply

Cancel

You can also see that the fan speeds up automatically when encountering high temperatures. **(FAN set Auto)**

Log history and Notification

- Utility UI
+ desktop notification
- Independent log, it record all events that occur in the TL JBOD, and allows to export events for analysis



The screenshot shows the "System Logs" window. At the top, there is a filter section with "All Event Types" and a search bar "Enter keywords" with a "Reset" button. Below is a table with columns: Event Type, Date, Source, and Message. The table contains five entries. At the bottom, there is a pagination bar showing "Page 1 / 3" and "Display item: 1-100, Total: 219". There are also "Clear", "Export", and "Cancel" buttons.

Event Type	Date	Source	Message
Information	2019-06-05 14:25:06	TL-R1200Uc-RP #1: Q18CT00012	JBOD device connected. Device: [TL-R1200Uc-RP #1: Q18CT00012].
Error	2019-06-05 14:25:06	Disk 1 (WDC WD5000AAKX-22ER...)	Disk disconnected. Disk: [Disk 1: WDC WD5000AAKX-22ERMA0], Device: [TL-R1200Uc-RP #1: Q18CT00012].
Error	2019-06-05 14:25:06	Disk 1 (WDC WD5000AAKX-22ER...)	Disk disconnected. Disk: [Disk 1: WDC WD5000AAKX-22ERMA0], Device: [TL-R1200Uc-RP #1: Q18CT00012].
Information	2019-06-05 14:23:45	TL-R1200Uc-RP #1: Q18CT00012	JBOD device disconnected. Device: [TL-R1200Uc-RP #1: Q18CT00012].
Information	2019-06-05 14:16:42	Disk 1 (WDC WD5000AAKX-22ER...)	Disk connected. Disk: [Disk 1: WDC WD5000AAKX-22ERMA0], Device: [TL-R1200Uc-RP #1: Q18CT00012].

QNAP

QNAP NAS

TL USB 3.1 Gen2 JBOD

With QTS Storage & Snapshot manager

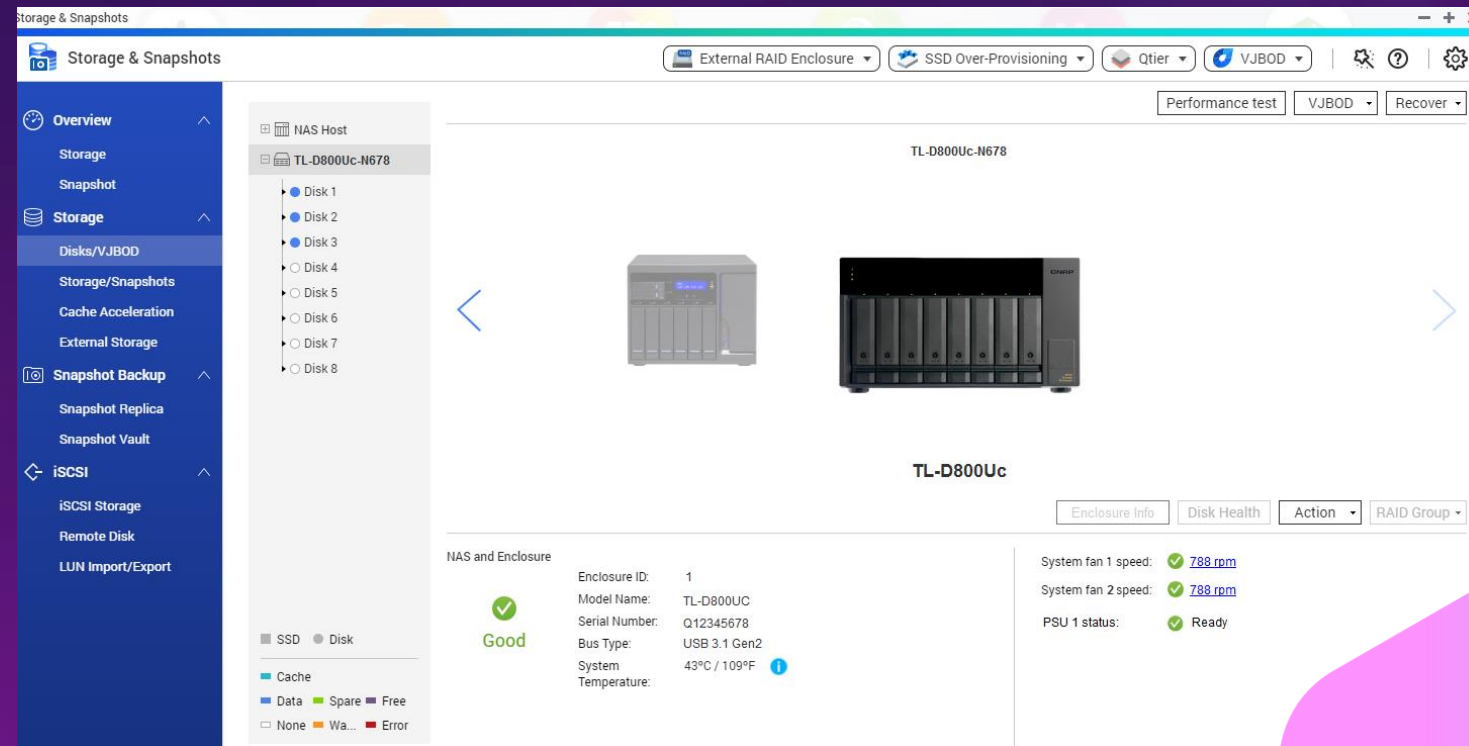


Based on Software RAID, manage JBOD with QTS

TL-D800C、TL-R1200C-RP JBOD can be monitored and managed in the storage and snapshot manager like the old USB JBOD. Without external RAID chip, compared with TR series, it supports more QTS local disk management features.

Enclosure & QTS Disk related features:

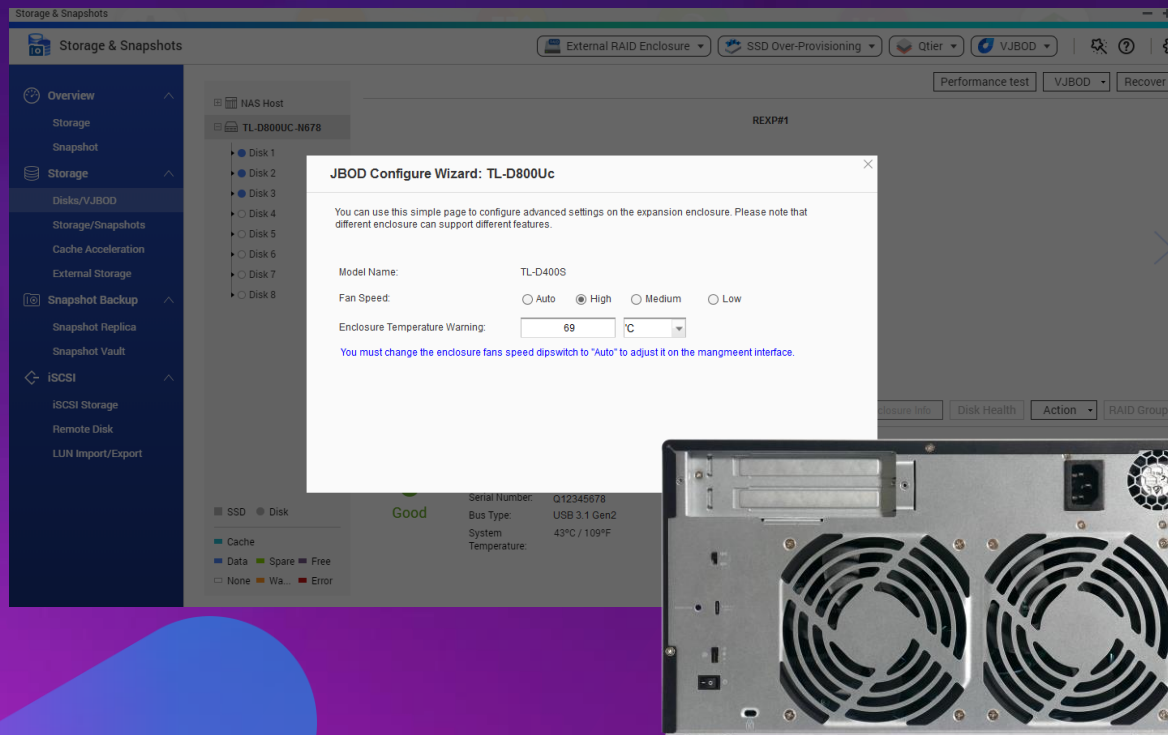
- Temperature warning
- S.M.A.R.T test
- Seagate Ironwolf IHM
- Disk Scan
- Disk Erase
- Disk performance test



QTS integrate customized enclosure management for TL

When SSD becomes more popular, the temperature management of the enclosure is more important than before.

Monitor the FAN speed of TL-JBOD via NAS UI, and configure the threshold of temperature warning.

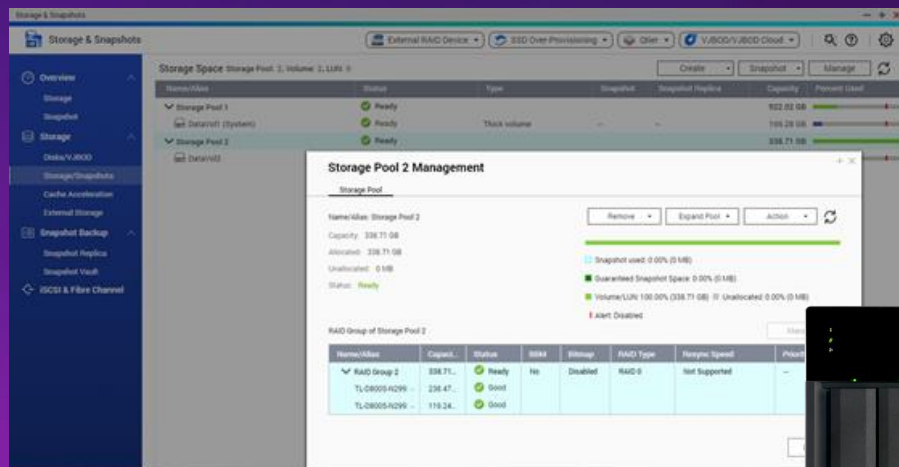


Storage Temperature		Acceleration Factor	Max storage duration at end of drive life
(°C)	(°K)		
85	358	168	2 days
80	353	101	4 days
75	348	60	6 days
70	343	35	10 days
65	338	20	18 days
60	333	11.5	32 days
55	328	6.5	56 days
50	323	3.5	104 days
45	318	1.9	192 days
40	313	1	365 days
35	308	0.52	1.9 years
30	303	0.26	3.8 years
25	298	0.13	7.8 years
20	293	0.062	16 years
15	288	0.029	34 years
10	293	0.013	75 years

One machine for two uses: internal expansion or external disk mode

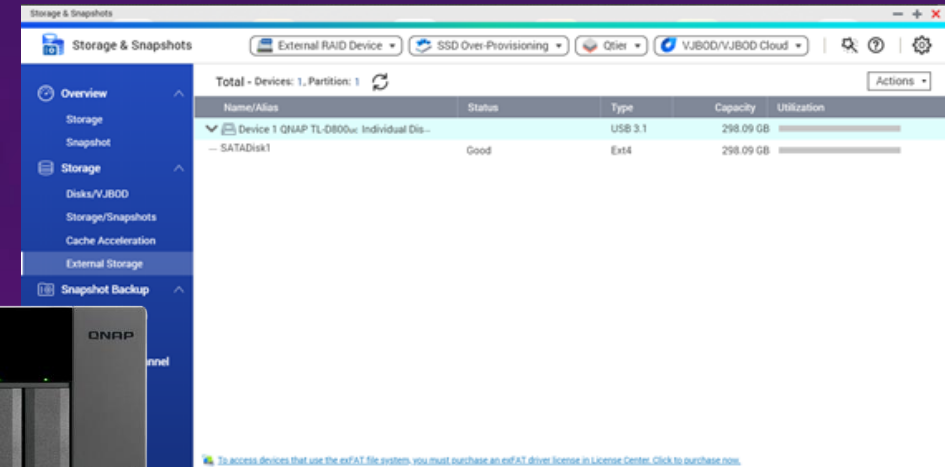
RAID & Storage Pool

All disks of TL-JBOD would be identified by Storage & Snapshot manager, then configure as a RAID of storage pool.



External Disk mode

The storage is individual for each disk, it will show 8 independent external disks on UI.



QNAP

Easily create storage space in QTS / QTS hero

In three steps, it will be changed the TL-JBOD from an external storage device to the expansion storage.

01 Storage & Snapshot manager > Storage / Snapshot

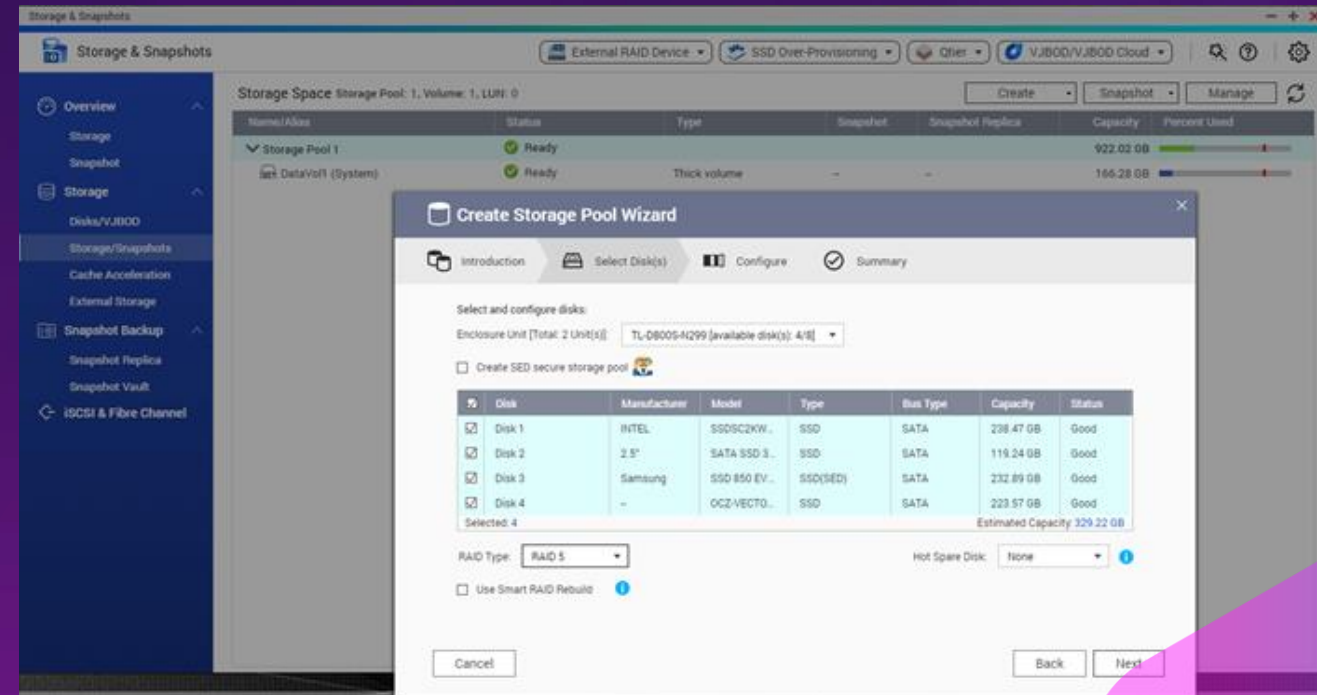
02 Create > New Storage Pool

03 Select TL JBOD and set up the RAID type



TL -JBOD cannot be configured as a RAID group with those internal disks from NAS.

Different than the TR series, TL-JBOD based on QNAP software RAID will support all local RAID operations, also supports RAID migration and RAID expansion. TL-R1200C can even be configured as RAID 50/60.



Flexible Storage Expansion or as a backup space

TL USB JBOD can expand QNAP NAS storage capacity. It supports either the configurations of the storage pool, or the snapshots storage from volume and LUN.

Based on the structure of software RAID, TL JBOD units are more suitable for expansion devices than TR series.

Be the
Snapshot Vault



Be the Storage
Expansion



TL-D800C



TS-877

Use QNAP USB 3.1 Gen2 card connecting more JBOD

If you don't have the enough USB slot? (Virtualization station / HD station)



TS-877

Add QNAP USB 3.1 Gen2 card, then supports two TL USB JBOD.



USB-U31A2P01

TL USB JBOD need to establish a separate storage pool, and cannot be used to expand the original pool on NAS.



TL-D800C



TL-R1200C-RP

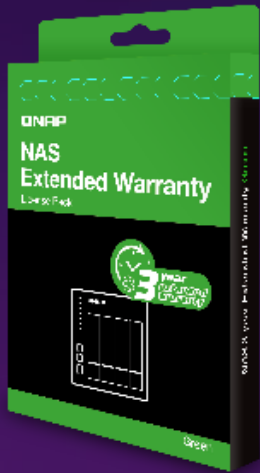
TL USB JBOD feature comparison

	QNAP TL USB JBOD	QNAP TR-002/004/004U
Connectivity	USB 3.1 Gen2	TR-002: USB 3.1 Gen2 TR-004: USB 3.1 Gen1 TR-004U: USB 3.1 Gen1
Number of bays	TL-D800C: 8 TL-R1200C-RP: 12	TR-002: 2 TR-004/TR-004U: 4
Supported O.S	QNAP QTS, Windows, Mac, Linux	QNAP QTS, Windows, Mac, Linux
Cerate QTS storage pool	Supported	Supported
QTS operation like disk scan	Supported	X
H/W RAID Protection	X	Supported
RAID level migration	Supported	X
Scenario	High capacity for expansion	Cross paltform / plug & play

Extend the warranty for up to 5 years

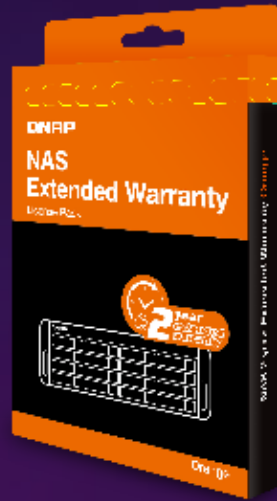
Available **2-Year or 3-Year Extended Warranty**

For 2-year standard warranty
TL-D800C



Order P/N:
LIC-NAS-EXTW-GREEN-3Y

For 3-year standard warranty
TL-R1200C-RP



Order P/N:
LIC-NAS-EXTW-ORANGE-2Y



Standard Warranty

- Warranty service that comes in effect at the time of purchase.
- Free repair and part replacement for products under normal use during warranty period. (Spare parts and consumables are excluded)



Extended Warranty (extra cost)

- Extending your warranty, available within **270 days** of the initial unit purchase.
- Offers identical service to standard warranty.

TL USB 3.1 Gen 2 JBOD series

8-bay TL-D800C
12-bay TL-R1200C-RP

USB 3.1 Gen2 TL JBOD
enclosures for NAS、
Windows、Mac、
Ubuntu



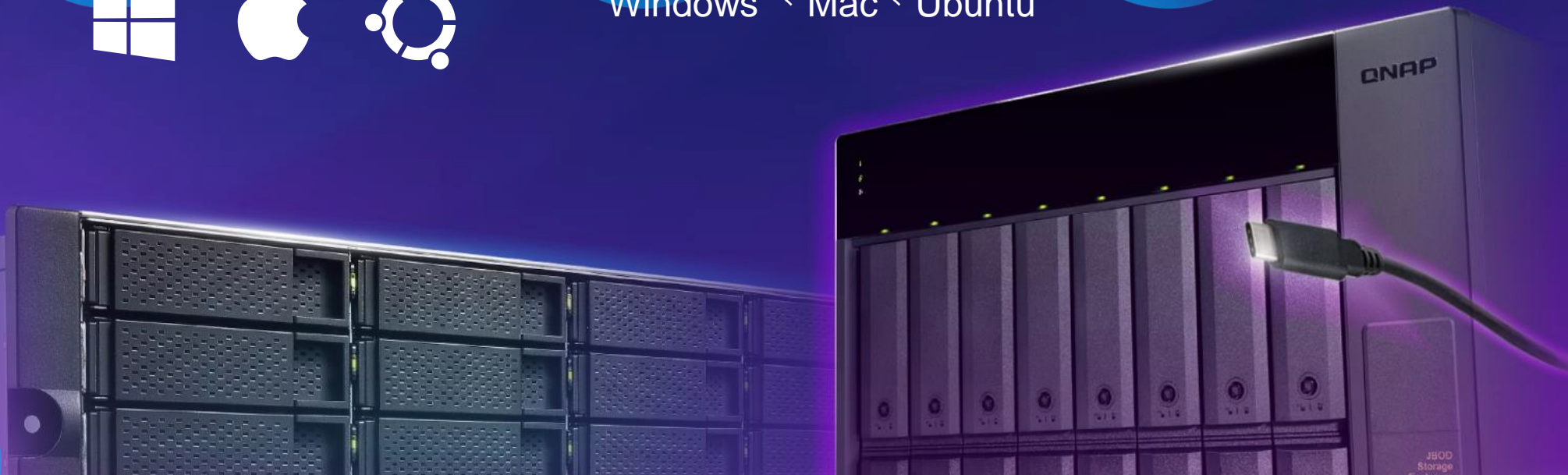
QNAP JBOD Manager



Free utility to monitor
JBOD and disk status on
Windows、Mac、Ubuntu

QNAP NAS expansion

Flexible 2 usage modes
(internal and external
modes) with comprehensive
QTS/QTS hero features



QNAP

TL-D800C & TL-R1200C-RP USB 3.1 Gen2 Type-C JBOD Enclosure

is Your Best Choice!

