SAS JBOD CLI 1.0

User Guide

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Contents

1. Setting Up Access to the CLI

QNAP SAS JBOD enclosures come with a command-line interface (CLI) that you can use to configure the enclosures from a terminal emulator on a Windows, macOS, or Linux computer.

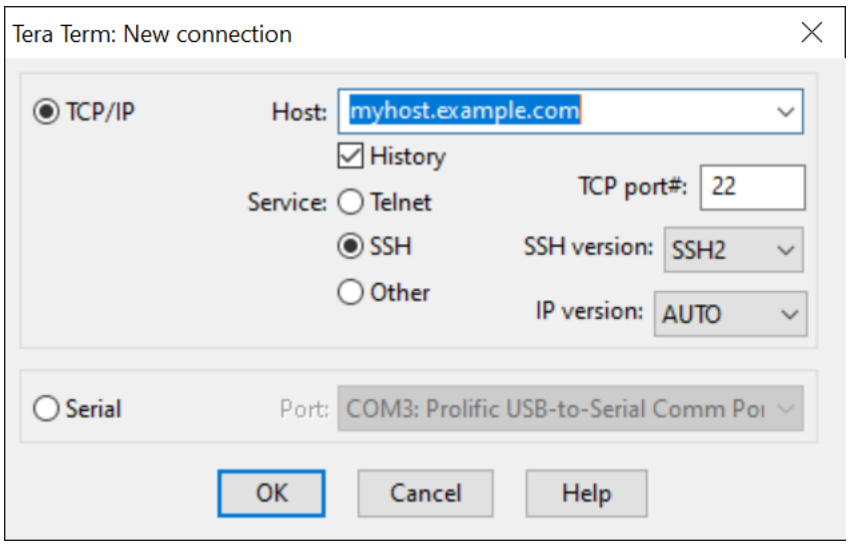
This task requires a console cable and a USB adapter. The console cable came with your SAS JBOD, but the USB adpater is a separate purchase. Ensure that a USB connector on the adapter matches a USB port on your computer.

1. Power on the device.
2. Connect one end of the console cable to the 3.5 mm line-out jack.
   For details on the location of the 3.5 mm line-out jack, see the Rear Panel in your SAS JBOD User Guide.
3. Connect the other end of the console cable to the USB adapter.
4. Locate an open USB port on your computer and plug in the USB connector from the adapter.

2. Accessing the CLI from a Terminal Emulator

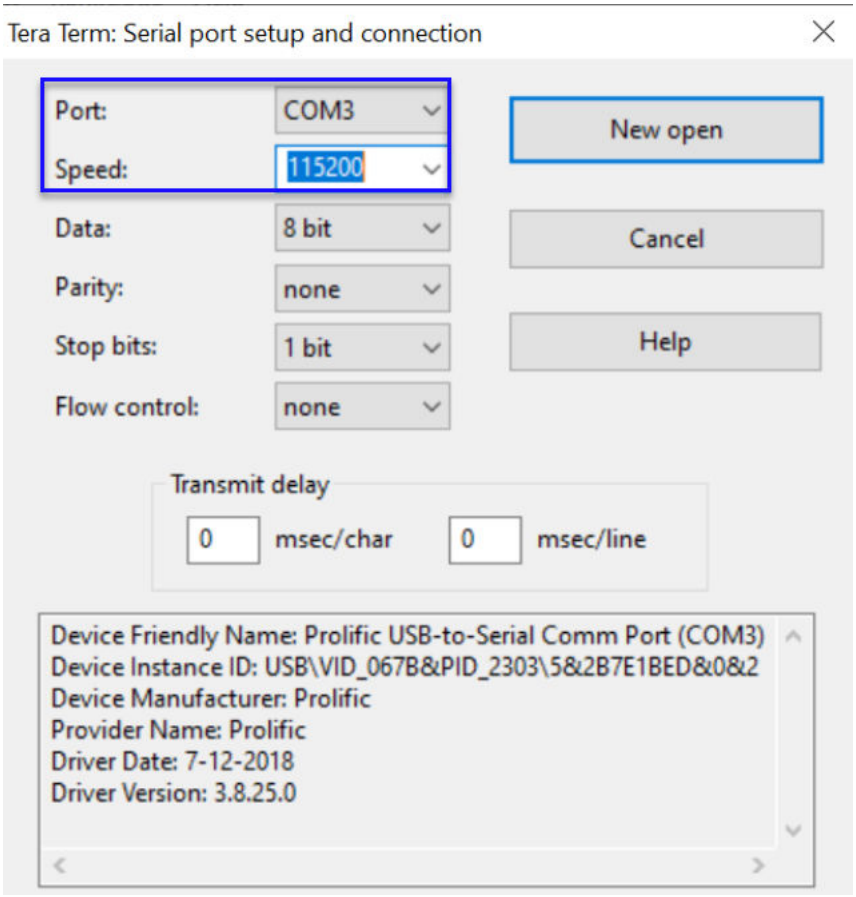
For Windows, you must use a terminal emulator to access the CLI. For macOS and Linux, you can use the Terminal. QNAP uses Tera Term, an open-source terminal emulator for Windows, for this User Guide. This task requires that your computer is already successfully connected to the SAS JBOD.

1. Download Tera Term from https://ttssh2.osdn.jp/index.html.en, and then follow the on-screen instructions to install the software.
2. Open Tera Term.
   The **Tera Term: New connection** window opens.



3. Click **Cancel**.
4. Go to **Setup** > **Serial Port** .
   The **Tera Term: Serial port setup and connection** window opens.
5. Check the port connection.
   a. Right-click , and then select **Device Manager**.
      The **Device Manager** window opens.
   b. Click **Ports (COM & LPT)**, and then check the port connected to the SAS JBOD.
6. Select the **Port** and **Speed**.
   a. Select the port that is connected to the SAS JBOD.
   b. Select **115200** as the speed.

Note
Depending on the terminal emulator you use, you may be required to enter the port and speed.



7. Optional: Configure the remaining options.
8. Click **New open**.
9. Press **ENTER**.
   The SAS JBOD connects to Tera Term.
10. Enter the default password.

Note
The default password is 00000000.

You can now use the CLI.

3. Conventions and CLI Commands

The following table describes the typographic conventions used in the documentation.

Convention	Description
[]	This convention indicates optional values. Example: [a | b] indicates that you can choose a, b, or none.
{}	This convention indicates required values. Example: {a | b} indicates that you must choose a or b.
|	This convention indicates that you have a choice between two or more choices.
<>	This convention indicates placeholder text that is replaced by the user or the system.

This following table covers all available CLI commands. Each command topic includes at least three of the following sections.

Section	Description
Description	This section describes the purpose of the command.
Command	This section is the main or entire command you enter in the CLI.
Syntax	This section shows any mandatory or optional parameters you add to the main command. For details on how to differentiate between optional or mandatory parameters, see Conventions.
Parameters	This section is any mandatory or optional argument or arguments and their possible values you enter in the CLI.
Examples	This section shows an example or examples of the command in the CLI.

Device Access

The CLI commands in this section are related to device access.

Help

Description

Display all available commands.

Command

```
help
```

Examples

```
help
        List available commands
setpass
        Set the Password
lo
        Exit QNAP CLI
link [link-index(D)][high-rate(D)][low-rate(D)]
        Display all phy or set phy link rate
        - no arguments displays phy link speed
        - 'link-index(D)' subcommand set the phy index
        - 'high-rate(D)' subcommand set the high-rate
        - 'low-rate(D)' subcommand set the low-rate
          speed-rate(0-1.5G, 1-3G, 2-6G, 3-12G)
fan [auto|speed_level(D)]
        Display fan speed or control speed level
        - no arguments displays the fan speed
        - 'auto' subcommand set auto speed level
        - 'speed_level(D)' subcommand set the speed level 1~7
fdl [BufferID(H)][Offset(H)][Erase(*)]
        Upgrade Firmware
        - BufferID :0 firmware,1 manufacturing data area
        - Offset suggest from 0
        - Erase is replaced with "Y" or "N"
systeminfo
```

Log Out Shell

Description

Log out of the CLI.

Command

`lo`

Examples

```
cmd > lo
CLI Success
```

Nickname

Description

Display or change the device nickname.

Command

`nickname`

Syntax

`nickname [<xxx>]`

Parameters

`<xxx>`

Enter the device's new nickname.

Examples

The following example shows the current nickname of the device and then changes the nickname.

```
cmd > nickname
Nickname: TL-R1620Sep-RP
 CLI Success

 cmd > nickname TL-R1620Sep-RP
New Nickname: TL-R1620Sep-RP
 CLI Success
```

Set Password

Description

Set a new login password for CLI.

Command

`setpass`

> **Note**
> Enter a maximum of eight ASCII characters for the new password.

Examples

The following example sets the new password to 00000000.

```
cmd > setpass
New password:00000000
Password Changed
CLI Success
```

System Commands

The CLI commands in this section are related to system control.

System Info

Description

Display system and firmware information.

Command

`systeminfo`

Examples

```
cmd > systeminfo
16 Bay system
Power num: 2
Fan num: 3
Machine type: SAS JBOD
Enclosure FW V 1.14.0.14
VendorID: QNAP
Model: TL-R1620Sep
CLI Success
```

System Status

Description

Display the chip and ENC temperatures.

Command

`system status`

Examples

```
cmd > system status
Chip Temp: 60C
ENC1. Temp: 21C
ENC2. Temp: 21C
ENC3. Temp: 21C
ENC4. Temp: 35C
CLI Success
```

Get SAS Address

Description

Display the SAS addresses of connected ports.

Command

`sasaddr`

Examples

```
cmd > sasaddr

Expander SAS Addresses -

 SxP Port 0 SAS Address: 0x5E843B61001ADFFD
 SxP Port 1 SAS Address: 0x5E843B61001ADFFF
 SxP Port 2 SAS Address: 0x0000000000000000

CLI Success
```

Route Table Read

Description

Display the default route and the routes for specific destination addresses.

Command

```
rtr
```

Syntax

```
rtr [d | z | dz]
```

Parameters

Parameter/Value	Description
None	Display enabled routes with a non-zero SAS address.
d	Display disabled routes.
z	Display routes with no SAS address.
dz	Display all routes.

Examples

The following example shows the default output.

```
cmd > rtr

================================================================================
Route   SAS                 PhyMap              Entry
Index   Address                                 State(1=Disabled)
================================================================================

No Route Table Entries Found
================================================================================

 CLI Success
```

Display Info for All Physical Layers

Description

Display information about physical layers.

Command

```
phyinfo
```

Syntax

```
phyinfo [help | edfb | power | up | cable | <phynum>]
```

Parameters

Parameter/Value	Description
None	Display the default output.

Parameter/Value	Description
help	Display phy help information.
edfb	Display EDFB information.
power	Display power management information.
up	Display connected physical layers.
cable	Display cable management information.
<phynum>	Display number information about specified physical layers.

Examples

The following example shows the default output.

```
cmd > phyinfo
                    SSSSSSS
EE
                PHY  STMSTMA                                ZONE      CONN CONN MAP
DR
PHY  DEV        CNG  PPPPPPT                    ROUTE ZONE CTRL CONN ELEM PHY  PHY
FR
ID   TYPE NLR CNT  IIITTTA ATTACHED SAS ADDR TYPE  GRP  BUS  TYPE INDX LINK ID
BL

00   END  12G 0x07 ---1--- 50000397_1831302A   D   0x08 0x04 0x20 0x01 0x00 000
--
01   END  12G 0x13 ---1--- 5000CCA2_5E146CE5   D   0x08 0x04 0x20 0x00 0x00 001
--
02        0x0 0x01 -------                     D   0x08 0x04 0x20 0x04 0x00 002
--
03        0x0 0x01 -------                     D   0x08 0x04 0x20 0x05 0x00 003
```

The following example shows cable management information.

```
cmd > phyinfo cable
                    SSSSSSS
                PHY  STMSTMA                    MAP  CONN CABLE CABLE

PHY  DEV        CNG  PPPPPPT                    PHY  ELEM MGMT  LINK CABLE SEEPROM
ID   TYPE NLR CNT  IIITTTA ATTACHED SAS ADDR   ID   INDX ENBLD RATE TYPE   VALID

00        0x0 0x11 -------                    000  0x01   N  ---- -------   -
01        0x0 0x15 -------                    001  0x00   N  ---- -------   -
02        0x0 0x01 -------                    002  0x04   N  ---- -------   -
03        0x0 0x01 -------                    003  0x05   N  ---- -------   -
04        0x0 0x00 -------                    004  0x08   N  ---- -------   -
05        0x0 0x00 -------                    005  0x0C   N  ---- -------   -
06        0x0 0x09 -------                    006  0x02   N  ---- -------   -
07        0x0 0x01 -------                    007  0x03   N  ---- -------   -
08        0x0 0x01 -------                    008  0x06   N  ---- -------   -
```

Display or Reset All Physical Layer Counters

Description

Display or reset physical layer counters.

Command

```
counters
```

Syntax

```
counters [config | event | reset]
```

Parameters

Parameter/Value	Description
None	Display error counters and generic broadcast counters of a physical layer.
`config`	Display event configuration of a physical layer.
`event`	Display event counters of a physical layer.
`reset`	Reset all counters of a physical layer.

Examples

The following example shows the default output.

```
cmd > counters

================================================================================
Phy Layer Error Counters
================================================================================
PHY       Event1            Event2            Event3            Event4
Id   ----------------  ----------------  ----------------  ----------------
         InvWrdCnt         DispErrCnt        LossSyncCnt       RstSeqFailCnt
================================================================================
00       00000000          00000000          00000000          00000000
01       00000006          00000006          00000001          00000000
02       00000000          00000000          00000000          00000000
03       00000000          00000000          00000000          00000000
04       00000000          00000000          00000000          00000000
05       00000000          00000000          00000000          00000000
06       00000000          00000000          00000000          00000000
07       00000000          00000000          00000000          00000000
08       00000000          00000000          00000000          00000000
09       00000000          00000000          00000000          00000000
10       00000000          00000000          00000000          00000000
11       00000000          00000000          00000000          00000000
12       00000000          00000000          00000000          00000000
13       00000000          00000000          00000000          00000000
```

Device Control

The CLI commands in this section are related to device commands.

Link Rate

Description

Display the maximum and minimum speed that the SAS JBOD can communicate with other linked devices.

Command

```
link
```

Examples

```
cmd > link
PHY 0 SAS Link- Speed MAX:12 MIN:3
PHY 1 SAS Link- Speed MAX:12 MIN:3
PHY 2 SAS Link- Speed MAX:12 MIN:3
PHY 3 SAS Link- Speed MAX:12 MIN:3
PHY 4 SAS Link- Speed MAX:12 MIN:3
PHY 5 SAS Link- Speed MAX:12 MIN:3
PHY 6 SAS Link- Speed MAX:12 MIN:3
PHY 7 SAS Link- Speed MAX:12 MIN:3
PHY 8 SAS Link- Speed MAX:12 MIN:3
PHY 9 SAS Link- Speed MAX:12 MIN:3
PHY10 SAS Link- Speed MAX:12 MIN:3
PHY11 SAS Link- Speed MAX:12 MIN:3
PHY12 SAS Link- Speed MAX:12 MIN:3
PHY13 SAS Link- Speed MAX:12 MIN:3
PHY14 SAS Link- Speed MAX:12 MIN:3
PHY15 SAS Link- Speed MAX:12 MIN:3
PHY16 SAS Link- Speed MAX:12 MIN:3
PHY17 SAS Link- Speed MAX:12 MIN:3
PHY18 SAS Link- Speed MAX:12 MIN:3
PHY19 SAS Link- Speed MAX:12 MIN:3
PHY20 SAS Link- Speed MAX:12 MIN:3
PHY21 SAS Link- Speed MAX:12 MIN:3
PHY22 SAS Link- Speed MAX:12 MIN:3
PHY23 SAS Link- Speed MAX:12 MIN:3
PHY24 SAS Link- Speed MAX:12 MIN:3
PHY25 SAS Link- Speed MAX:12 MIN:3
PHY26 SAS Link- Speed MAX:12 MIN:3
PHY27 SAS Link- Speed MAX:12 MIN:3
PHY28 SAS Link- Speed MAX:12 MIN:3
PHY29 SAS Link- Speed MAX:12 MIN:3
PHY30 SAS Link- Speed MAX:12 MIN:3
PHY31 SAS Link- Speed MAX:12 MIN:3
```

Link Rate Control

Description

Set the highest and lowest speed of a physical layer.

Syntax

```
link {<phynumber> <maximum speed> <minimum speed>}
```

Parameters

Parameter/Value	Description
`<phynumber>`	Specify the physical layer number.
`<maximum speed>`	Set the maximum speed. **Note** You can set speeds to 3, 6, or 12.
`<minimum speed>`	Set the minimum speed. **Note** You can set speeds to 3, 6, or 12.

Examples

The following example sets phy 0 to a maximum and minimum speed of six and three.

```
cmd > link 0 6 3
0 6 3
phy=0, spx=6, spi=3
Setting PHY 0 SAS Link- Speed MAX:6 MIN:3
CLI Success
```

Fan Speed

Description

Display the name, speed status, current speed, and the overall status of the fan.

Command

`fan`

Examples

```
cmd > fan
Fan01 Auto 1318 OK
Fan02 Auto 1311 OK
Fan03 Auto 1375 OK
CLI Success
```

Fan Speed Control

Description

Set the fan speed.

Command

`fan`

Syntax

`fan {<fan speed>}`

Parameters

`<fan speed>`

Enter `auto` or a number between one to seven.

Examples

The following example changes the fan speed to automatic to match the device's current state.

```
cmd > fan auto

CLI Success
```

The following example changes the fan speed to two.

```
cmd > fan 2

CLI Success
```

Enable or Disable EDFB

Description

Enable or disable EDFB.

Command

`edfb`

Syntax

`edfb {on | off}`

Parameters

Parameter/Value	Description
`on`	Enable EDFB.
`off`	Disable EDFB.

Examples

The following example enables and then disables EDFB.

```
cmd > edfb on
CLI Success

cmd > edfb off
CLI Success
```

Locate Disk

Description

Locate a disk by its position.

Command

`locate`

Syntax

`locate {<disk number>}`

Parameter

`<disk number>`

Enter a disk number.

Example

The following example locates disk one.

```
cmd > locate 1
Start Locate Disk[1]

CLI Success
```

Enable or Disable Buzzer

Description

Enable or disable the buzzer.

Command

`buzzer`

Syntax

`buzzer {on | off}`

Parameters

Parameter/Value	Description
`on`	Enable the buzzer.
`off`	Disable the buzzer.

Examples

The following example enables and disables the buzzer.

```
cmd > buzzer on

CLI Success

cmd > buzzer off

CLI Success
```

Zone

Description

Configure the zone information.

Command

`phyzone`

Syntax

`phyzone {on | off | default | get | clr <group number> | clr all | <group number> <start slot> <end slot> <SAS port>}`

Parameters

Parameter/Value	Description
`on`	Enable the zone.
`off`	Disable the zone.
`default`	Set the zone to the default setting.
`get`	Display the zone status and the current group.
`clr`	Clear the zone settings.
`<group number>`	Set the zone to the specified group number. **Note** Enter a number between zero and seven.
`<start slot>`	Set the zone group to start with the specified slot number.
`<end slot>`	Set the zone group to end with the specified slot number.
`<sas port>`	Set the zone to the specified SAS port. **Note** Enter a SAS port between c1 to c4.

Examples

The following example sets the zone on, off, and to its default setting.

```
cmd > phyzone on
CLI Success

cmd > phyzone off
CLI Success

cmd > phyzone default
CLI Success
```

The following example clears all zone settings and then displays the zone status.

```
cmd > phyzone clr all
CLI Success

cmd > phyzone get
Zone status: Disable
group0:
group1:
group2:
group3:
CLI Success
```

The following example clears the settings in zone zero and then displays the zone status.

```
cmd > phyzone clr 0
CLI Success

cmd > phyzone get
Zone status: Disable
group0:
group1:c3 c4  9 13 12 16 11 10 15 14
PhySelection:0x0000f00ffc30
group2:
group3:
CLI Success
```

The following example sets the zone group to zero, with the start slot as one, end slot as eight, and SAS port as c1.

```
cmd > phyzone 0 1 8 c1
CLI Success

cmd > phyzone get
Zone status: Disable
group0:c1  2 1 5 6 3 4 7 8
PhySelection:0x00000f0003cf
group1:
group2:
group3:
CLI Success
```

Reset Expander

Description

Reset the device.

Command

`reset`

Note
After resetting the device, you are required to enter the device password.

Example

```
cmd > reset

Performing POST for Smart Serial

Boot Cause: Internal Register Reset

Enter QNAP CLI ....
Password: 00000000
cmd >
```