

RJ-07 SERIES JBOD USER GUIDE



Version 2.0

2024/1/4

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2 Introduction

2.1 Overview

In-Win's RJ-07 Series JBOD System is a high performance, reliable storage system with sensors to monitor system health and high-density maximum to 24-bay enclosure. We provide state-of-the-art management functionality for users to monitor and manage JBOD systems efficiently and flexibly. Users can manage JBOD systems through serial port and/or Ethernet according to the system configuration on the system.

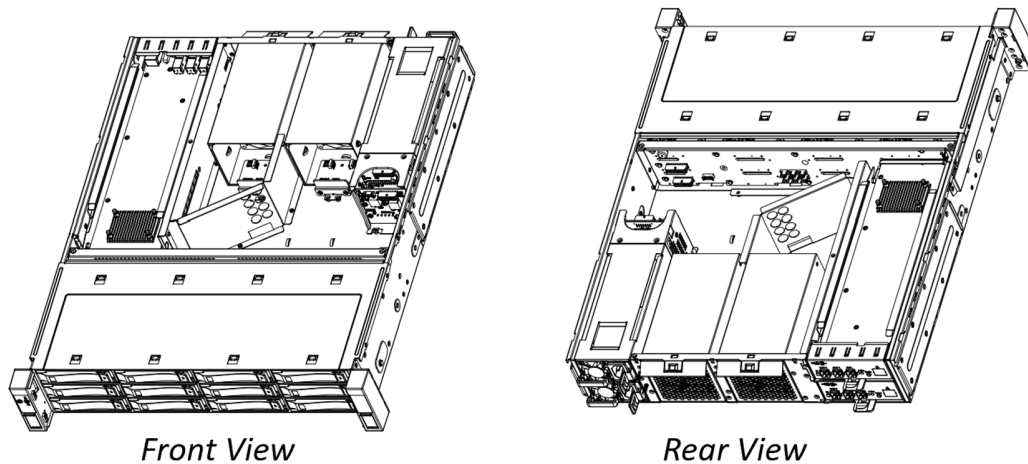


FIGURE 1 RJ-212-07 VIEWS

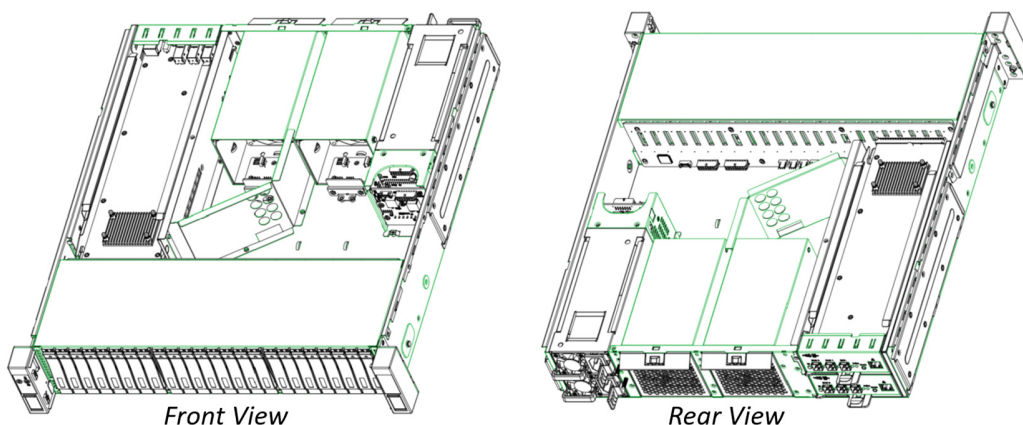


FIGURE 2 RJ-224-07 VIEWS

RJ-07 Series JBOD has four model – RJ-212-07, RJ-316-07, RJ-424-07 and RJ-224-07. The model including front panel, backplane, fan modules and power suppliers are shared by primary and secondary expander modules. The secondary domain is optional for redundant applications. Benefits list as below:

Storage Capacity: RJ-07 JBOD series provide a large storage capacity by allowing you to connect multiple hard disk drives together. A 12~24-bay JBOD system can offer significant storage space for storing large amounts of data.

Cost-Effective: RJ-07 JBOD series are generally more cost-effective compared to other storage solutions like RAID (Redundant Array of Independent Disks) systems. They do not require additional hardware for data redundancy or striping, which can help keep costs lower.

Flexibility: RJ-07 JBOD series offer flexibility in terms of drive types and sizes. They can accommodate a mix of SAS (Serial Attached SCSI) and SATA (Serial ATA) drives, as well as different sizes such as 3.5" and 2.5". This flexibility allows you to choose the drives that best suit your storage needs.

Easy Expansion: RJ-07 JBOD series are designed for easy expansion. You can add additional drives to the system as your storage requirements grow, simply by inserting them into the available drive bays. This makes scaling up your storage capacity a relatively straightforward process.

2.2 Key Features

- **Reliable High Data Rate Support (up to 12Gbps)**
 - SAS3 12Gbps support and SATA3 6Gbps support to provide a reliable high-performance data rate.
- **Dual SAS3 Domain Support**
 - System can accommodate dual domain expanders to support data redundancy capability.
- **Power Redundancy**
 - System can accommodate 2 sets of power modules as redundancy. Either power module could work independently while the peer is out of order or not selected.
- **Hot-swappable Modules**
 - The PSUs are hot-swappable. System can keep operating during PSU replacement.

- The fan modules are hot-swappable. System can keep operating during fan module replacement.
- The HDDs are hot-swappable. No need to shut down the system for HDD installation and/or replacement when needed.
- TCP/IP Network Support
 - Support ethernet 10/100Mb TELNET/TFTP/HTTP network. User can use ethernet port to enter console and control the system.
- Faulty System Alarm
 - The Faulty System red LED indicator on the front panel illuminates along with a beeping sound while there is faulty part(s) in the system. The buzzing alarm can be muted by pressing the mute button on the front panel.
- Smart Fan Control
 - The fan modules possess a smart control feature set by the providing seven levels of speed RPM according to the detected system temperature.
- Zoning
 - This system support feature dividing disk drives into two or three different groups depending on the system preference. Each group can own users-configurable number of HDDs independently. This feature enables single JBOD to serve multiple hosts.
- Cascading
 - There are cascading ports for cascading another JBOD system to expand disk space when more space is required

2.3 SAS Topology

RJ-07 JBOD series can support path redundancy applications. It constructs path-redundant topologies using multi-ported devices as the Figure 3 illustrates. This topology is suitable for high-availability systems since it can fail over to a different path when one path fails.

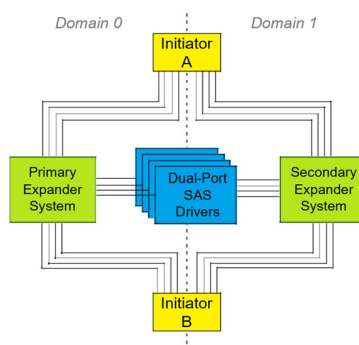


FIGURE 3 REDUNDANT SAS SYSTEM

Figure 4 and 5 show RJ-424-07 managed by the RAID application view. RJ-424-07 has 24 SAS hard disks installed.

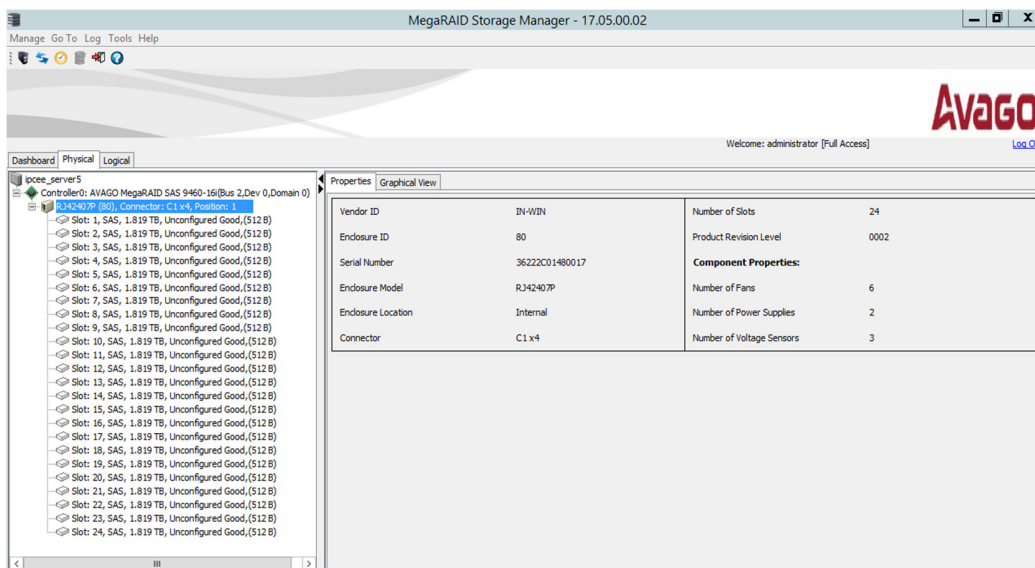


FIGURE 4 MEGARAID EXAMPLE

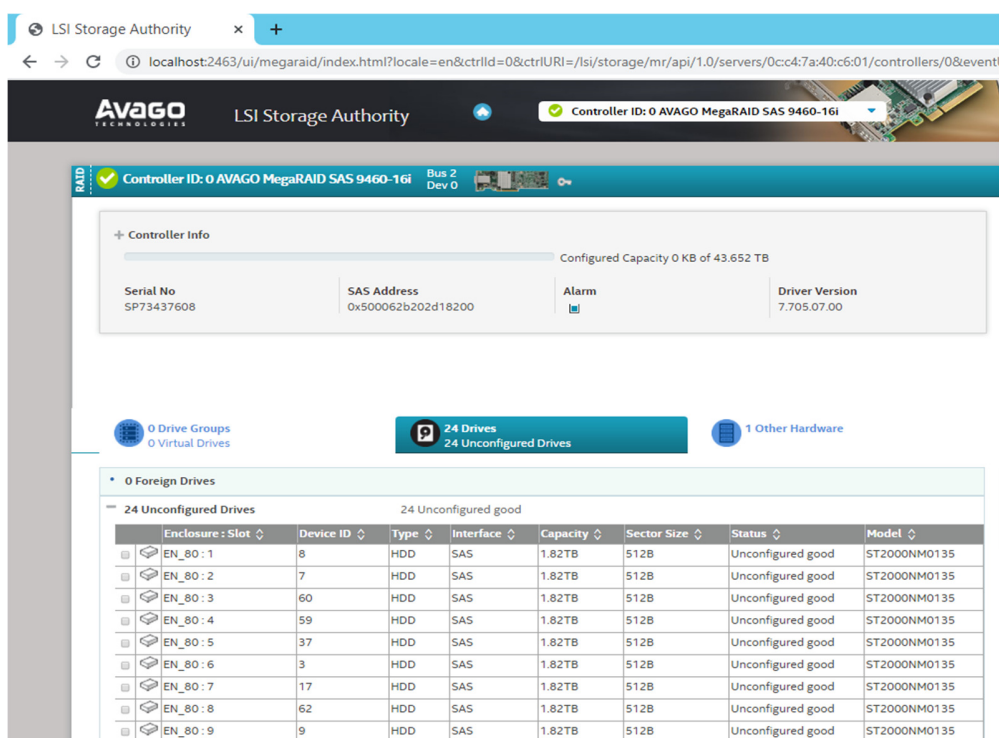


FIGURE 5 LSI STORAGE AUTHORITY EXAMPLE

3 System Interface

3.1 Overview

The RJ-07 JBOD series components include:

- Front HDD trays and status LEDs
- Front left minor panel with power, ID, and mute buttons and system status and ID LED.
- Rear side with fan, expander and CRPS modules
- Inside of the chassis with backplane.

3.2 Front Panel

Figure 6 shows the buttons, LEDs detail on front panel.

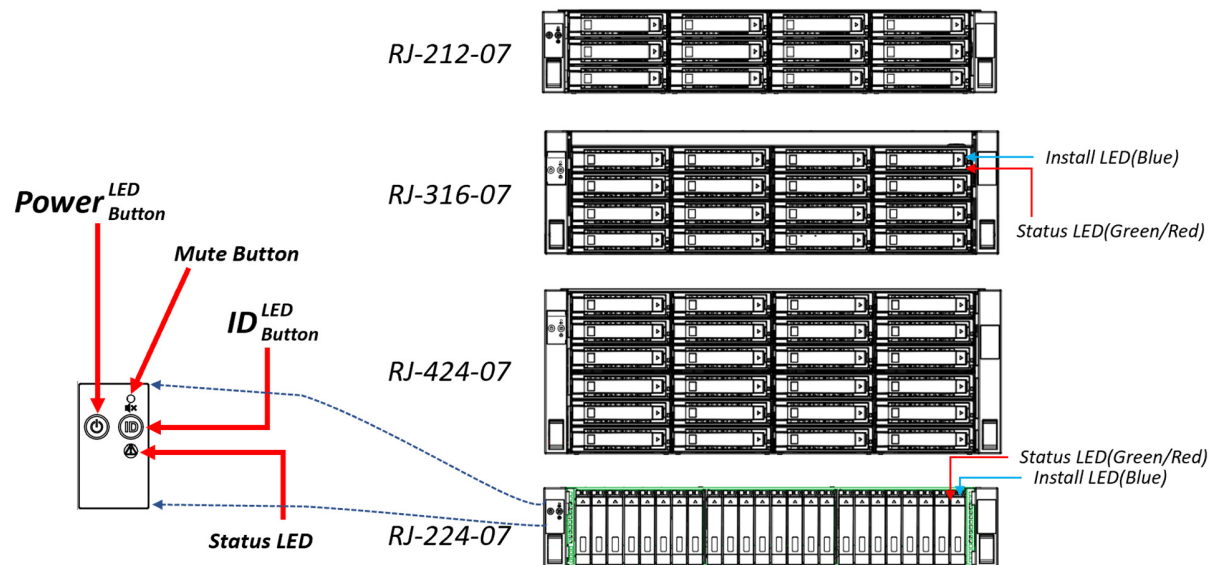


FIGURE 6 FRONT PANEL DETAIL

3.2.1 LED

The system is equipped with LEDs to provide status information for indicating component current state.

Power LED (green color)

- Power is applied to the system(PSU). LED is illuminated when system is in operating.

Bay LED (R/G/B color)

- Indicates hard disk current state. There are dual color LED that blue is used for operational and red is used for warning, error or failure.
 - Blue LED steady ON – hard disk is inserted
 - Green LED steady ON – hard disk is installed and powered
 - Green LED in 4 Hz blinking – hard disk is accessed or in activity
 - Red LED steady ON – hard disk is failed
 - Red LED in 0.5 Hz blinking – hard disk is identified (LOCATE)
 - Red LED in 1 Hz blinking – hard disk is in RAID rebuild state

Status LED (red color)

- System current status
 - Steady ON – System overheats
 - 1 Hz blinking – System fans in error condition

ID LED (blue color)

- Push button and turn on/off to identify the enclosure

3.2.2 Button Control

There are three push-buttons on front panel and two push-buttons on rear side (on bridge expander module).

Power button

- The button is for applying or removing power from the power supply to the system
 - Turn on – Press and hold for more than 3 seconds to power on system
 - Turn off – Press and hold for more than 3 seconds to shutdown system

ID button

- Press the button to toggle the ID LED ON and OFF

Mute button

- Press the button to toggle the buzzer beeping or silence

3.2.3 Advance Button Control

Feature	Description
Auto Power-ON	Press ID + Power buttons simultaneously to toggle this feature. Power LED blinks when this feature is engaged.
Cooling Mode	Press and hold ID button for more than 5 seconds to change mode in turns. There are three fan cooling modes to setup - quiet, normal, aggressive . Default is normal mode. ID LED blinks when cooling mode is engaged.
Mute Mode	Press and hold Mute button for more than 5 seconds to toggle mute feature. Status LED blinks when feature engaged.

3.2.4 Buzzer

The buzzer is to notify system warning states

System Status	Description
Fan Error	0.25s beep and 1.75s silence repeatedly. (slow beeps)
Thermal Error	0.25s beep, 0.25 silence, 0.25 beep and 1.25s silence repeatedly. (fast beeps)
Fan & Thermal Error	Alter 'Fan Error' and 'Thermal Error' repeatedly
PSU Error	continuous beep

3.3 Backside

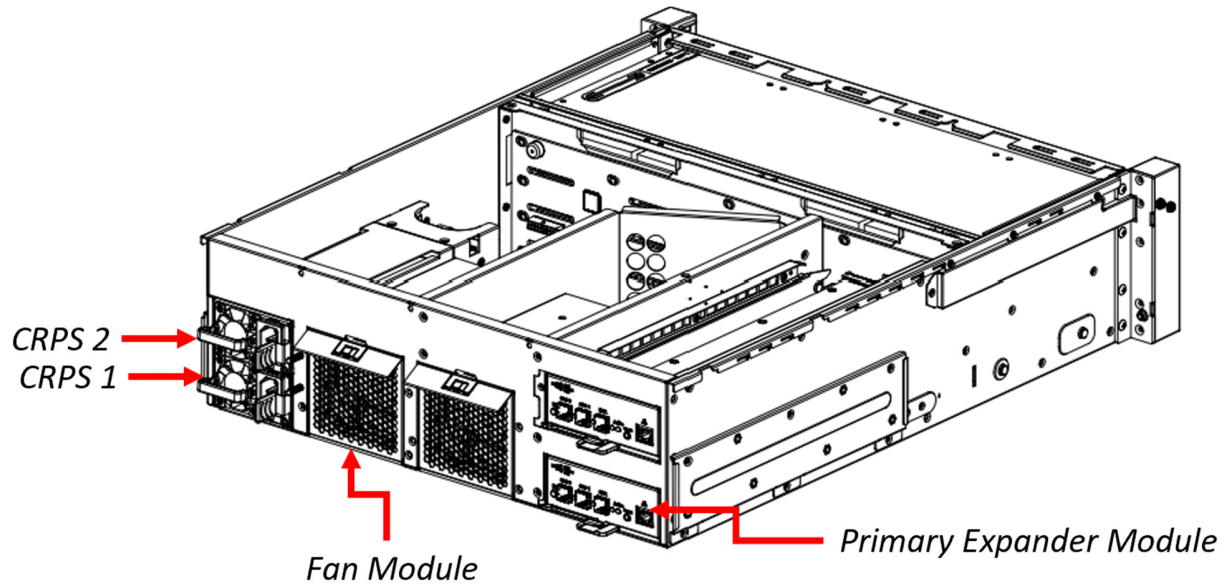


FIGURE 7 BACKSIDE DETAIL

Fan modules, expanders and PSU modules can be plug-in/out on the backside (rear-side). Figure 7 depicts the location of the components.

3.4 Expander Module

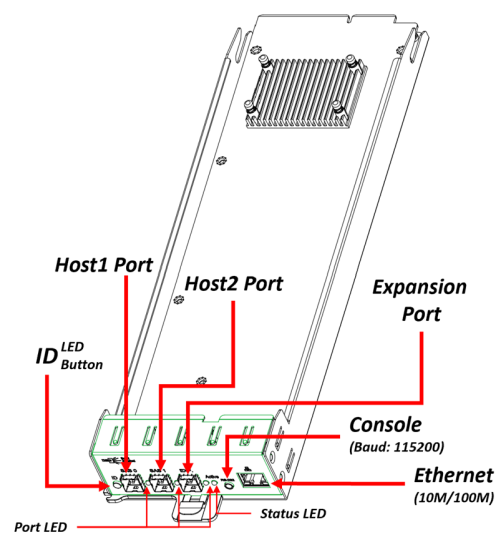


FIGURE 8 EXPANDER MODULE

Expander module (Figure 8) is the main component that controls and manages the RJ-07 JBOD system. Users can use ethernet or RS-232 console cable to connect to the expander module using telnet or some console applications to command it by CLI.

Host port (SFF-8644)

- External uplink port
- RAID or HBA card connect to the expander module
- There are 2 ports (Host1 and Host2) for host connection

Expansion port (SFF-8644)

- External downlink port to cascade another expander

Status LED

- Works like front panel status LED
- Indicates the system current state
 - Steady ON – the system overheats
 - 1 Hz blinking – the system fans in error condition

Port LED

- There are Host1, Host2 and Expansion port LEDs
- Illuminated LED Indicates host port connection (from RAID or HBA) or expansion expander is physically connected

ID LED

- Works synchronously with front panel ID LED
- Illuminate to identify the chassis

ID button

- Works synchronously with front panel ID button
- Press to toggle the ID LED ON/OFF

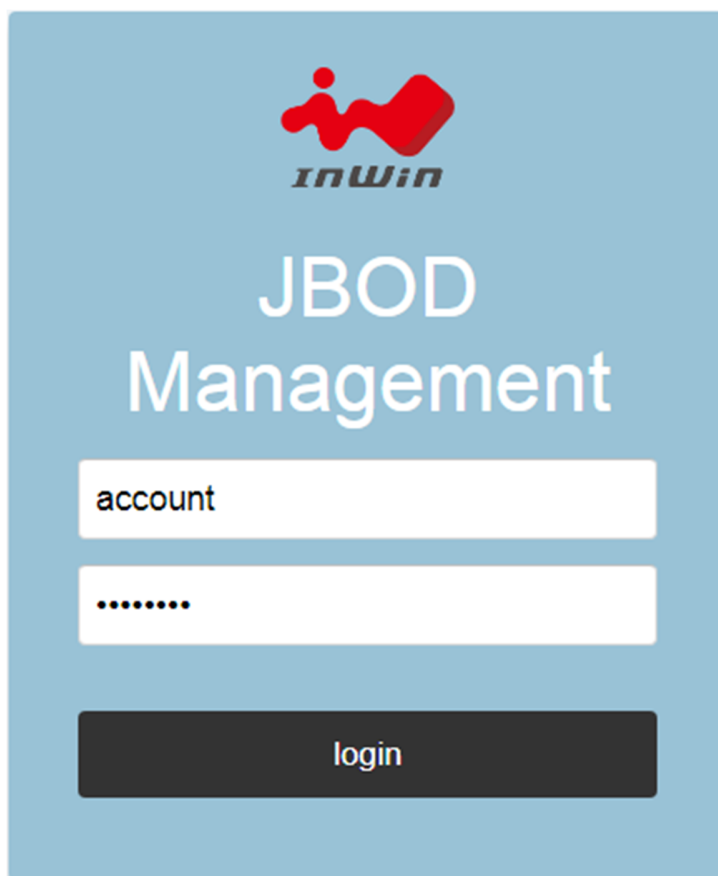
UART Console

- The RS-232 port on the expander module provides a serial connection for users to manage the JBOD system with terminal application such as Tera Term, Hyper Term...etc. To manage the JBOD system through the serial port, configure the terminal console as per the settings below to connect it.

Parameter	Value
Baud Rate	115200
Data	8 bit
Parity	None
Stop Bit	1 bit
Flow Control	None

Ethernet

- Support 10M/100M bps ethernet PHY
- Support TCP/IP protocol
- Support Telnet CLI
- Support Webpages (http). Provide an account password security setting interface. IP address could be check from CLI then view the webpages for system information on a web browser. Figure 9-13 are the examples of the web pages.



The image shows a web page for 'JBOD Management'. At the top is the InWin logo. Below it, the title 'JBOD Management' is displayed in large white text on a blue background. There are two input fields: the first is labeled 'account' and contains the text 'account'; the second is a password field with dots. Below these fields is a black button with the word 'login' in white text.

FIGURE 9 VERSION PAGE



Version

System

Network

HardDisk

Management Board

Model	RJ-424-07
Board ID	RJ-424-07(P)
Serial Number	test001
SAS Address	5FAE1901_200010BF
Hardware Version	1.0
Firmware Version	1.0.4.0
MFG Version	1.0.2.0
MAC Address	FA.E1.90.00.10.BF

Enclosure

Enclosure Height	4U
Bay Number	24
HDD Type	3.5"

Backplane

MCU Version	RJ-07 Series,HW:2.0,SW:1.0.6.3
-------------	--------------------------------

FIGURE 10 VERSION PAGE



Version

System

Network

HardDisk

Temperature Status ^(C)

Expander Die	53
Backplane Left	28
Backplane Right	26
Another ExpDie	49

Voltage Status ^(V)

3.3V	3.4
5V	5.0
12V	11.8

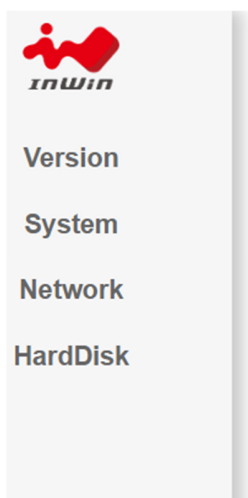
Fan Status ^(RPM)

Fan1	4560
Fan2	3840
Fan3	4380
Fan4	3780

Power Supply Status

CRPS Module 1	OK
CRPS Module 2	OK

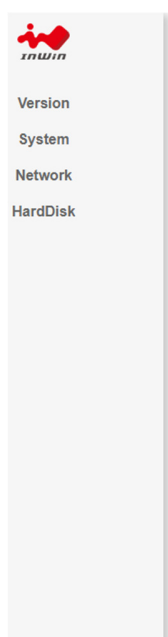
FIGURE 11 SYSTEM PAGE



Network Status

Physical Address	FA.E1.90.00.10.BF
Ethernet Link Status	Up
Ethernet Link Speed	100
Ethernet Link Duplex Mode	Full
DHCP Enabled	No
IP Address	192.168.100.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.100.254
Host Name	RJ7_fa:e1:90:0:10:bf

FIGURE 12 NETWORK PAGE



Disk Slot Status

Bay#	PHY ID	Link	Disk Type
1	12	12 GBPS	SAS
2	18	12 GBPS	SAS
3	19	12 GBPS	SAS
4	20	12 GBPS	SAS
5	13	12 GBPS	SAS
6	21	12 GBPS	SAS
7	22	12 GBPS	SAS
8	23	12 GBPS	SAS
9	14	12 GBPS	SAS
10	24	12 GBPS	SAS
11	25	12 GBPS	SAS
12	26	12 GBPS	SAS
13	15	12 GBPS	SAS
14	27	12 GBPS	SAS
15	32	12 GBPS	SAS
16	33	12 GBPS	SAS
17	16	12 GBPS	SAS
18	34	12 GBPS	SAS
19	35	12 GBPS	SAS
20	28	12 GBPS	SAS
21	17	6 GBPS	SAS
22	29	12 GBPS	SAS
23	30	12 GBPS	SAS
24	31	12 GBPS	SAS

FIGURE 13 HARD DISK PAGE

3.5 Fan Module

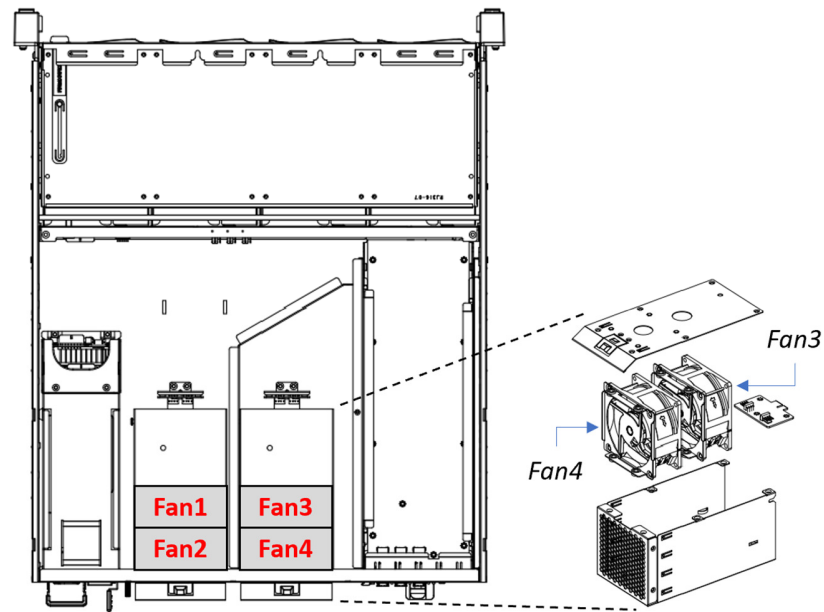


FIGURE 14 FAN LOCATION (TOP VIEW)

The fan modules are connected to the system at backside and can be hot-plug. Fan1 and Fan2 are combined at the same module case on the left side. Fan3 and Fan4 are combined at another module case on the right side. User may manage it through CLI interface (ethernet or RS-232). SES-3 also can report these fans information.

4 Command Line Interface (CLI)

The RJ-07 JBOD series provide flexible and useful commands to monitor and manage hard disk, expanders and backplane system. Users can use telnet or console applications to manage the system with CLI commands.

4.1 help

List all command list and the usage

Syntax

```
help [Command]
- X means a mandatory argument described as x
- [X] means an optional argument
- <X> means replace argument with value
- X(D) means a decimal value
- X(H) means a hexadecimal value
- X(*) means special formatting is specified
- X(s) means a decimal value in seconds
- X(ms) means a decimal value in milliseconds
- opt1|opt2|opt3 means literally specify "opt1", "opt2", or "opt3"
- X1 X2 ... means a variable number of arguments
```

Example

```
PRIMARY>help

=====
Description          Command
=====

Show Sensors          sensor

Remote Command        rcmd

Show hard disks info  hdd

Show/Set Backplane   bpsys [ power <0|1> |
System prameters to  default 0 |
control              fan <0|1|2>] |
                    mute <0|1> |
                    thermal <37~52>|
                    id <0|1> |
                    reset 1      ]

PRIMARY>help fd1
```

=====	
Description	Command
=====	
File download	fdl <BufferID(H)> <Offset(H)> <Erase(*)> - Erase is replaced with "Y" or "N"
=====	

4.2 rev

Show vendor ID, product ID, active firmware and firmware version information

Syntax

```
rev
```

Example

```
PRIMARY>rev

=====
Hardware Revision Information:-
=\\=====

Vendor ID           :IN-WIN
Product ID          :RJ-424-07(P)
Product Revision Level :Minor = 0x00, Unit = 0x04
Component Type       :Cub-R
Component ID         :0x023b (Bond Option :36)
Component Revision Level :1      (B0)

=====
Firmware Revision Information:-
=====

Active Firmware: Firmware Copy 1

Boot Image:
Revision: 1.0.4.1
Platform Name: IN-WIN Cub Expander System
Version Name: SAS35xFW-01.00.04.01 11/26/23
Firmware Family: 0 OemFamily: 0
Fast Boot: Yes Image Address: 0x10000000

Firmware Copy 1:
Revision: 1.0.4.0
Platform Name: IN-WIN Cub Expander System
Version Name: SAS35xFW-01.00.04.00 11/26/23
Firmware Family: 0 OemFamily: 0
Fast Boot: Yes Image Address: 0x10180000

Firmware Copy 2:
```

```
Revision: 1.0.4.1
Platform Name: IN-WIN Cub Expander System
Version Name: SAS35x_FW-01.00.04.01 11/26/23
Firmware Family: 0 OemFamily: 0
Fast Boot: Yes Image Address: 0x10300000
```

```
=====
SDK Revision:-
=====
```

```
HAL      Revision: 0.16.0.0
SES      Revision: 0.16.0.0
SCE      Revision: 0.16.0.0
Spico Fw Revision: 0x8a69_014f
CSWLib   Revision: 0.0.17.0
```

```
=====
Current Toolchain Revision:-
=====
```

```
=====
ARM RVDS v.410713
=====
```

4.3 showmfg

Show manufacture configuration version information

Syntax

```
showmfg
```

Example

```
PRIMARY>showmfg

=====
Manufacturing Image Version Information:-
=====
Product ID : 19
Platform ID: 7
Associated Firmware Revision: 0:11:0:0
Mfg Revision: 1:0:2:0
Product Name: RJ-424-07(P)
Platform Name: RJ-07 Cub x36
Mfg Image Creation time stamp: 11/29/23 5:58 (mm/dd/yy hr:min)
```

4.4 sasaddr

display expander's SAS address

Syntax

```
sasaddr
```

Example

```
PRIMARY>sasaddr
```

```
Expander SAS Addresses -
```

```
SxP Port 0 SAS Address: 0x5FAE1901200010BD
SxP Port 1 SAS Address: 0x5FAE1901200010BF
SxP Port 2 SAS Address: 0x0000000000000000
```

4.5 date

Show or set current date time. There are no RTC in system. System always starts up at incorrect date. System log will record event with datetime. User can set datetime and broadcast the new value to other expanders by 'date send'

Syntax

```
date [ set <newdate(*)> | send [<SasAddrHi(H)> <SasAddrLow(H)>] |
      recv [<SasAddrHi(H)> <SasAddrLow(H)>] ]
- no arguments, output local expander date/time and uptime
- 'set <newdate(*)>' Set local expander date/time using format for <newdate> of
  YYYYMMDDHHMMSS
- 'send [sas_addr]' If sas_addr set then set the remote expander's clock using the
  local expander's current clock value. If sas_addr not specified then set clock
  for all expanders in the domain.
- 'recv [sas_addr]' If sas_addr set then fetch the remote expander's current clock
  and output the result. If sas_addr not specified then get and output the current
  clock for all expanders in the domain.
```

Example

```
PRIMARY>date
```

```
Wed Nov 29 14:21:50 2023
```

```
Current expander uptime is 0 days, 0 hours, 41 minutes, 50 seconds
```

```
PRIMARY>date set 20231204155800
```

```
Expander date/time set to Mon Dec 4 15:58:00 2023
```

4.6 showlogs

Show the current system logs

Syntax

```
showlogs [hex|detail|default]
```

Example

```
PRIMARY>showlogs
```

```
<Nov 29 2023 13:40:00.189>:PLATFORM:Firmware initialization started
<Nov 29 2023 13:40:01.402>:CONFIG:Expander MFG image is not valid
<Nov 29 2023 13:40:00.189>:PLATFORM:Firmware initialization started
<Nov 29 2023 13:40:01.403>:CONFIG:Expander MFG image is not valid
<Nov 29 2023 18:50:33.763>:CLI:This is a thermal test
***
```

4.7 clearlogs

Clear the system logs

Syntax

```
clearlogs
```

Example

```
PRIMARY>clearlogs

PRIMARY>showlogs

PRIMARY>
```

4.8 showpost

Show POST (Power-On-Self-Test) status of expander

Syntax

```
showpost
```

Example

```
PRIMARY>showpost

POST status of expander on-chip devices

=====

On-Chip Device          POST Status
=====

Smart Serial            :PASS
Watchdog Timer          :PASS
Timer 1                 :PASS
Timer 2                 :PASS
Timer 3                 :PASS
```

```

Timer 4                :PASS
PLLS                   :PASS
Interrupt               :PASS
Phy Loopback           :PASS
ISTWI Channel 00       :PASS
ISTWI Channel 01       :PASS
ISTWI Channel 02       :PASS
ISTWI Channel 03       :PASS
ISTWI Channel 04       :PASS
ISTWI Channel 05       :PASS
ISTWI Channel 06       :PASS
ISTWI Channel 07       :PASS
ISTWI Channel 08       :PASS
ISTWI Channel 09       :PASS
ISTWI Channel 10       :PASS
ISTWI Channel 11       :PASS
True Random Num Generator:PASS
Internal RAM Test       :PASS
Forced ECC Error Test   :PASS
SXP Port Buffers Test   :PASS
=====

```

4.9 sesinfo

Display SES-2 devices information

Syntax

```
sesinfo
```

Example

```

PRIMARY>sesinfo

Show SES Enclosure Elements

Current Fan Level(1~7): 1 1
Fan01      FanSpd: 4440  SpdCode: 1 Fail: 0
Fan02      FanSpd: 3780  SpdCode: 1 Fail: 0
Fan03      FanSpd: 4620  SpdCode: 1 Fail: 0
Fan04      FanSpd: 3780  SpdCode: 1 Fail: 0
FanX5      FanSpd: 0     SpdCode: 0 Fail: 0
FanX6      FanSpd: 0     SpdCode: 0 Fail: 0
Expander Die.C Fail: 0 Tempt: 53  UTWarn: 0  UTFail: 0  OTWarn: 0  OTFail:
0
BP Left.C   Fail: 0 Tempt: 28  UTWarn: 0  UTFail: 0  OTWarn: 0  OTFail:
0
BP Right.C  Fail: 0 Tempt: 27  UTWarn: 0  UTFail: 0  OTWarn: 0  OTFail:
0
BP 3.3V 340
BP 5V 500
BP 12V 1180
PowerSupplyElement00 Install: 1, Fail: 0
PowerSupplyElement01 Install: 1, Fail: 0

```

4.10 sensor

Display backplane system sensor information

Syntax

```
sensor
```

Example

```
PRIMARY>sensor

BP Description: RJ-07 Series,HW:2.0,SW:1.0.6,3
Status: 5(SMBus)      08(BP)  00(FAN)
Expander Installed: 03
CRPS: 00(Status)      03(Installed)
Temperature: (C)
  ExpDie: 53,        another: 50
  Left: 28.2
  Right: 27.2
Voltage: (V)
  3.3V: 3.4
  5V: 5.0
  12V: 11.8
Fan RPM:
  4500, 3840, 4440, 3840,  0,  0,
Fan PWM:
  0,    0,    32,   30,   1,   1,
```

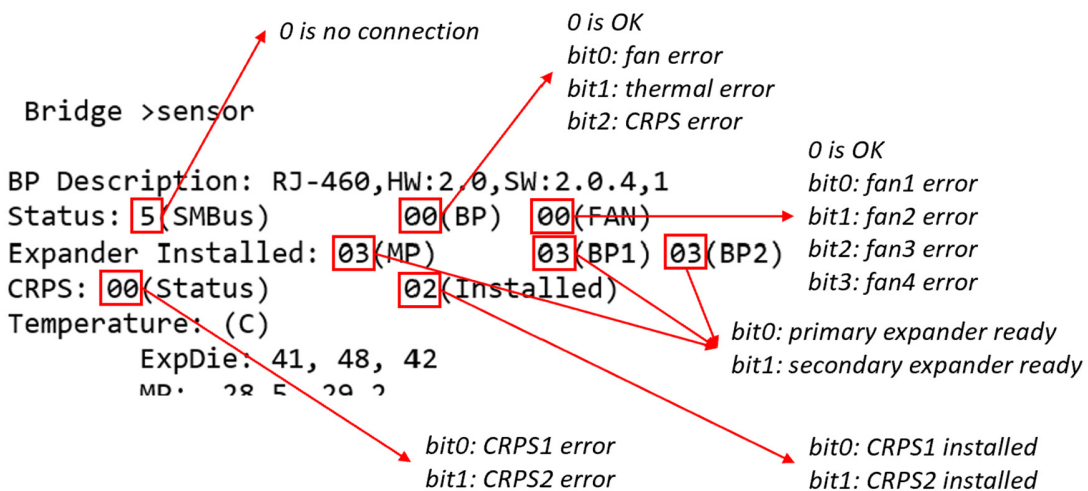


FIGURE 15 SENSOR INFORMATION DETAIL

4.11 hdd

Display bays hard disk PHY information

Syntax

```
hdd
```

Example

```
PRIMARY>hdd
```

HDD No	DEV TYPE	PHY CNG NLR CNT	ATTACHED SAS ADDR	ROUTE TYPE	ZONE GRP	CTRL BUS	CONN TYPE	ELEM INDX	CONN PHY LINK	CONN PHY ID
1	END	12G 0x03	5000C500_94D5CC81	D	0x01	0x04	0x20	0x01	0x00	012
2	END	12G 0x03	5000C500_94D5CBF9	D	0x01	0x04	0x20	0x02	0x00	018
3	END	12G 0x03	5000C500_94D5CB01	D	0x01	0x04	0x20	0x03	0x00	019
4	END	12G 0x03	5000C500_94D5D575	D	0x01	0x04	0x20	0x04	0x00	020
5	END	12G 0x03	5000C500_94D5D60D	D	0x01	0x04	0x20	0x05	0x00	013
6	END	12G 0x03	5000C500_94D5D725	D	0x01	0x04	0x20	0x06	0x00	021
7	END	12G 0x03	5000C500_94D5C80D	D	0x01	0x04	0x20	0x07	0x00	022
8	END	12G 0x03	5000C500_94D5CA8D	D	0x01	0x04	0x20	0x08	0x00	023
9	END	12G 0x03	5000C500_94D5C941	D	0x01	0x04	0x20	0x09	0x00	014
10	END	12G 0x03	5000C500_94D5CF71	D	0x01	0x04	0x20	0x0A	0x00	024
11	END	12G 0x03	5000C500_94D5CA11	D	0x01	0x04	0x20	0x0B	0x00	025
12	END	12G 0x03	5000C500_94D5D21D	D	0x01	0x04	0x20	0x0C	0x00	026
13	END	12G 0x03	5000C500_94D5D7A5	D	0x01	0x04	0x20	0x0D	0x00	015
14	END	12G 0x03	5000C500_94D5D449	D	0x01	0x04	0x20	0x0E	0x00	027
15	END	12G 0x03	5000C500_94D5D4E1	D	0x01	0x04	0x20	0x0F	0x00	032
16	END	12G 0x03	5000C500_94D5D379	D	0x01	0x04	0x20	0x10	0x00	033
17	END	12G 0x03	5000C500_94D5CAA1	D	0x01	0x04	0x20	0x11	0x00	016
18	END	12G 0x03	5000C500_94D5CB15	D	0x01	0x04	0x20	0x12	0x00	034
19	END	12G 0x03	5000C500_94D5CC99	D	0x01	0x04	0x20	0x13	0x00	035
20	END	12G 0x03	5000C500_94D5D7FD	D	0x01	0x04	0x20	0x14	0x00	028
21	END	12G 0x03	5000C500_94D5D6F5	D	0x01	0x04	0x20	0x15	0x00	017
22	END	12G 0x03	5000C500_94D5CBB9	D	0x01	0x04	0x20	0x16	0x00	029
23	END	12G 0x03	5000C500_94D5D01D	D	0x01	0x04	0x20	0x17	0x00	030
24	END	12G 0x03	5000C500_94D5C915	D	0x01	0x04	0x20	0x18	0x00	031

4.12 bpsys

Display backplane system control parameters that are saved in persistent storage (flash)

Syntax

```
bpsys
```

Example

```
PRIMARY>bpsys

BP System NVRAM Config:
  Fan Speed Profile: Normal
  Auto Power UP: 0
  Mute Enable: 0
  Fan Control Temperature Base: 45

BP System Running Status:
  Test Enable: 0
  ID LED Enable: 0
```

bpsys power <0|1>

set backplane system auto power-on and startup after power suppliers ready. Default value 0 requires users to press power button for more than 3 seconds to power up system.

Syntax

```
bpsys power <0|1>
```

Example

```
PRIMARY>bpsys power 1
Set Auto Power UP: 1
```

bpsys default <0>

reset backplane system configuration to default

Syntax

```
bpsys default <0>
```

Example

```
PRIMARY>bpsys default 0
Reset bpsys to default configuration!
Reboot system to use the new setting

Bridge >reset
Performing POST for Smart Serial
...
```

bpsys fan <0|1|2>

Set backplane system fan speed profile mode. There are 3 modes for fan speed profile. Default value is 1 (Normal)

Mode ID	Name	Description
0	Quiet	4 fan RPM levels – 25%, 35%, 45%, 55%, 65%, 75%, 85%, 95%
1	Normal	4 fan RPM levels – 32%, 43%, 52%, 61%, 70%, 79%, 88%, 97%
2	Aggressive	4 fan RPM levels – 40%, 50%, 60%, 68%, 76%, 84%, 92%, 100%

Syntax

```
bpsys fan <0|1|2>
```

Example

```
Bridge >bpsys fan 0
Set Fan Speed Profile: 0
```

bpsys thermal <37~52>

Set maximum temperature (Celsius) for fan speed maximum level control. Default value is 45 (Celsius). Fan controller get thermal sensors' readings in Celsius and use the maximum value to map the SES fan level for PWM(or RPM) control. User can adjust fan speed control level by the command.

Below figure shows "bpsys thermal 42" and "bpsys thermal 45" cases. For example, system set fan speed profile to normal mode and the highest value in system temperature sensors (not including expander die temperature) is 40.1. If configure "bpsys thermal 42" then the fan speed will reach highest level (97% speed). If configure "bpsys thermal 45" then the fan speed will reach second highest level (89% speed). Because the hard divers may install partial and make cooling airflow too much or less. User can adjust the value to find the efficient fan speed.

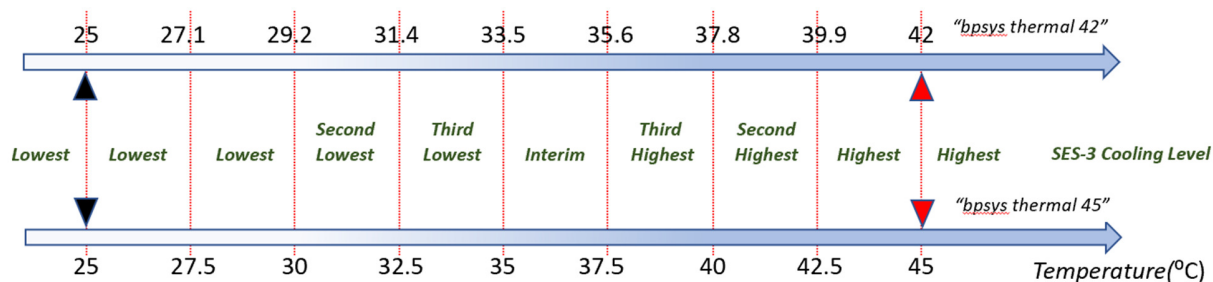


FIGURE 16 BPSYS THERMAL EXAMPLE

Syntax

```
bpsys thermal <37~52>
```

Example

```
Bridge >bpsys thermal 45
Set Fan Control Max Temperature (37C~52C): 45
```

bpsys mute <0|1>

Set backplane system buzzer to mute mode. Default (0) is to enable beeping when system occurs some errors.

Syntax

```
bpsys mute <0|1>
```

Example

```
PRIMARY>bpsys mute 1  
Set Mute Enable: 1
```

bpsys id <0|1>

Turn backplane system ID LED on or off. The value is not saved to storage. Default (0) is to turn off ID LED. This command enable user to turn on ID LED from remote.

Syntax

```
bpsys id <0|1>
```

Example

```
PRIMARY>bpsys id 1  
ID LED Enable: 1
```

bpsys test <0|1>

Set backplane system to test mode that blinks all LEDs and play buzzer for test. The value is not saved to storage. Default (0) is to quit the test mode.

Syntax

```
bpsys test <0|1>
```

Example

```
PRIMARY>bpsys test 1  
Test Enable: 1
```

bpsys reset <1>

Make backplane system to reset all backplanes, expanders, front panel, middle plane and PDB. The command will power down all expanders, front panel, BP1, BP2, BP3. Then reset middle plan and PDB modules. System will then power on BP1, BP2, BP3 and front panel in few seconds, and wait another few seconds to power on expanders and HDDs.

Syntax

```
bpsys reset <1>
```

Example

```
PRIMARY>bpsys reset 1

Reset MCU System

PRIMARY>
Performing POST for Smart Serial
***
```

4.13 ipconfig

Show or configure network interface IP address for RJ-460-08 bridge board.

ipconfig [verbose]

Display bridge expander module ethernet port configuration that are saved in persistent storage (flash). Default setting is static IP address (192.168.100.1).

Syntax

```
ipconfig [verbose]
```

Example

```
PRIMARY>ipconfig

=====
Physical Address . . . . . : FA-E1-90-00-10-BF
DHCP Enabled . . . . . : No
IP Address . . . . . : 192.168.100.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.100.254
Ethernet Link Status . . . . . : Up
Ethernet Link Speed . . . . . : 100 Mbps
Ethernet Link Duplex Mode . . . . . : Full
=====

PRIMARY>ipconfig verbose

=====
Physical Address . . . . . : FA-E1-90-00-10-BF
DHCP Enabled . . . . . : No
IP Address . . . . . : 192.168.100.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.100.254
Ethernet Link Status . . . . . : Up
Ethernet Link Speed . . . . . : 100 Mbps
Ethernet Link Duplex Mode . . . . . : Full
Host Name . . . . . : RJ7_fa:e1:90:0:10:bf
```

```
VLAN Enabled . . . . . : No
VLAN CFI/PCP/ID . . . . . : 0/6/ffe
=====
```

ipconfig dhcp

configure ethernet port IP address to DHCP mode.

Syntax

```
ipconfig dhcp
```

Example

```
PRIMARY>ipconfig dhcp

Writing
Please reboot for new setting

PRIMARY>reset

Reset expander board
Waiting M487 reset
...

PRIMARY>ipconfig

=====
Physical Address . . . . . : FA-E1-90-00-10-BF
DHCP Enabled . . . . . : No
IP Address . . . . . : 192.168.100.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.100.254
Ethernet Link Status . . . . . : Up
Ethernet Link Speed . . . . . : 100 Mbps
Ethernet Link Duplex Mode . . . . . : Full
=====
```

ipconfig static <ip_addr> <netmask> <gateway>

Configure ethernet port to static mode and assign the IP address, netmask and gateway.

Syntax

```
ipconfig static <IP_addr> <Netmask> <Gateway>
```

Example

```
PRIMARY>ipconfig static 192.168.100.1 255.255.255.0 192.168.100.254

Please reboot for new setting
```

```
PRIMARY>reset

...
PRIMARY>ipconfig

=====
Physical Address . . . . . : FA-E1-90-00-10-BF
DHCP Enabled . . . . . : No
IP Address . . . . . : 192.168.100.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.1.254
Ethernet Link Status . . . . . : Up
Ethernet Link Speed . . . . . : 100 Mbps
Ethernet Link Duplex Mode . . . . . : Full
=====
```

4.14 fdl

fdl <0|1> <0> <y>

Download firmware or manufacture config (MFG) image from console or telnet. The download protocol is XMODEM, refer to Figure 17

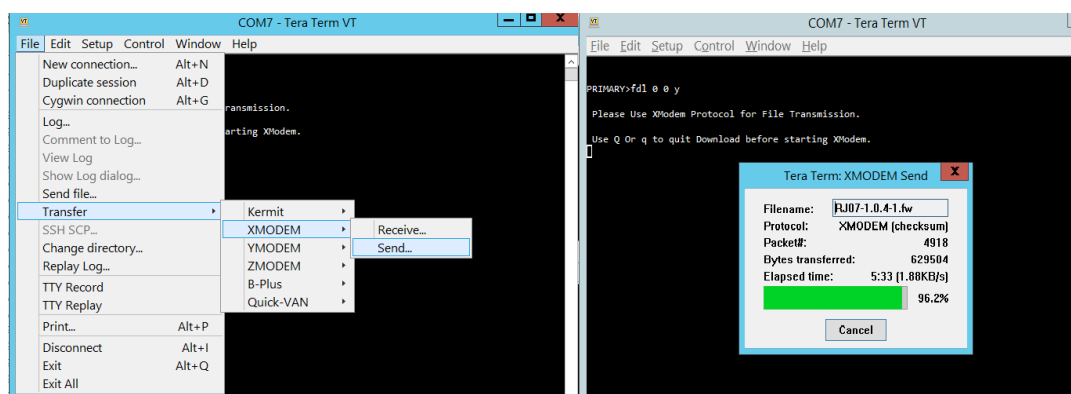


FIGURE 17 FIRMWARE UPGRADE BY XMODEM

Syntax – Download Firmware

```
fdl 0 0 y
```

Syntax – Download MFG

```
fdl 1 0 y
```

Example

```
PRIMARY>fdl 0 0 y

Please Use XModem Protocol for File Transmission.

Use Q Or q to quit Download before starting XModem.
```

```
Received 654720Bytes
Buffer Download Complete

PRIMARY>fdl 1 0 y

Please Use XModem Protocol for File Transmission.

Use Q Or q to quit Download before starting XModem.

Received 65536Bytes
Buffer Download Complete
```

4.15 tftpfdl

tftpfdl <0|1> <0> <y> <tftp_server_ip> <filename>

To upgrade firmware through TFTP, open a TFTP server (Figure 18) on your console host and specify the path in TFTP server to the directory where the firmware is stored. Please be sure the TFTP server is reachable to the JBOD system.

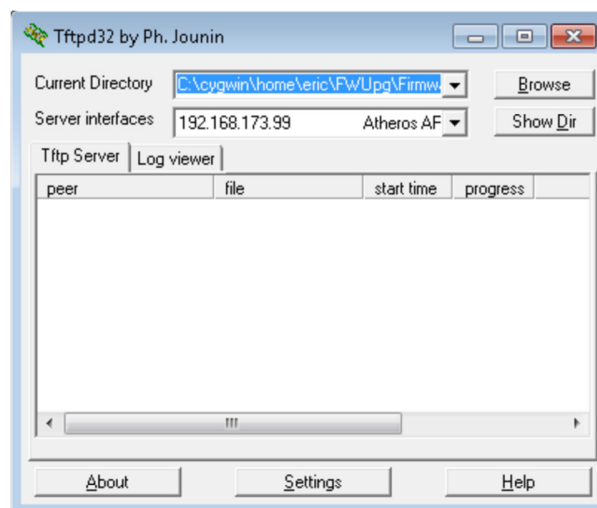


FIGURE 18 TFTP SERVER FOR UPGRADE

Syntax – Download Firmware through TFTP

```
tftpfdl 0 0 y <tftp_server_ip> <fw_filename>
```

Syntax – Download MFG through TFTP

```
tftpfdl 1 0 y <tftp_server_ip> <mfg_filename>
```

Example

```
PRIMARY>tftpfdl 0 0 y 192.168.173.99 RJ07-1.0.4.fw

TFTP Downloading.....
File Size: 654720
```

Burning...OK

4.16 user

Assign or show user account and password for WEB and TELNET login

The login session will be closed after 5 minutes (timeout) if no activities

The default user account is 'account'

The default user password is 'password'

Syntax

```
user [<account> <password>]
```

Example

```
PRIMARY>user  
  
ACCOUNT: account  
PASSWORD: password  
  
PRIMARY>user test 123  
  
New ACCOUNT: test  
New PASSWORD: 123
```