

FnL 7000 PRO Series Monitor Guide

Version 1.02

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HighPoint FnL Monitor Software

Your Choice – Graphical or Text-only interfaces

HighPoint understands that one size doesn't fit all - when it comes to maintaining critical storage configurations, each customer has specific needs and preferences. We have developed both graphical and text-based management interfaces for the Controllers:

	P Series	PA Series	PB Series
SRD Series			
SRD7101	\checkmark		\checkmark
SRD7104	\checkmark		\checkmark
SRD7204	\checkmark		
SRD7140	\checkmark		\checkmark
SRD7202	\checkmark		
SRD7502	\checkmark		
SRD7505	\checkmark		
SRD7540	\checkmark	\checkmark	
CRD Series			
CRD7104			\checkmark
CRD7505	\checkmark		
CRD7101			\checkmark
CRD7540	\checkmark	\checkmark	

To simplify installation and upgrade procedures both interfaces are packaged into a single download, and are available for each operating system platform.

Both management interfaces share universal layouts across all major operating systems, and can be administered locally or remotely via an internet connection. – if you are comfortable with the Windows release, you will have no problem managing NVMe AIC RAID Drive configurations installed for a Linux/Mac distribution.

The Web FnL Monitor Interface (**WebGUI**), is a simple, and intuitive web-based management tool available for Windows/ Linux/ Mac operating systems. It is an ideal interface for customers unfamiliar with RAID technology. The Wizard-like Quick Configuration menu allows even the most novice user to get everything up and running with a few simple clicks. Experienced users can fine tune configurations for specific applications using the Advanced Options menu.

The **CLI** (command line interface) is a powerful, text-only management interface designed for advanced users and professional administrators. The universal command lines work with any platform, and are shared across our entire product line. Comprehensive user guides are available for the CLI, and are included with the most recent product updates available from the SRD7101P&PB /7202P /7204P /7104P&PB /7140P&PB /7502P /7505P /7540P&PA、CRD7104PB/ 7505P / 7101PB/ 7540P Software Updates webpage.

Using the HighPoint FnL Monitor (WebGUI) Software

This guide provides an overview of the Web-FnL Monitor graphical user interface, also known as the WebGUI. The WebGUI is an intuitive, yet comprehensive management tool designed for users of any experience level.

Starting the WebGUI

How to login WebGUI in Windows/Mac

Double click the Desktop ICON to start the software using the system's default web browser. It will automatically log-in to the WebGUI.



The password can be set after the first log-in. To change the password, select **Settings>Password Settings** from the menu bar (refer to: Password Setting).

AIC RAID Drive Device In	fo Settings	Event Log SHI Help
	 Seti	inas
Restrict to localhost access.	Enabled V	
Set Fan Speed:	High 🗸	
Temperature Unit:	°F 🗸	
Submit		
	Password	l Settings
Password:		
Confirm:		
Submit		
	Email Notific	ation Settings
SMTP Settings		
Enable Event Notification		
Server Address (name or IP):		
Mail From (E-mail address):		
Login Name:		
Password:		
SMTP Port:	25	
Support SSL:		
	Change Setting	
Recipients		
E-mail	Name	Event Level
Add Recipient		
E-mail:		
Name:		
Event Level:	□Information □	Warning 🗆 Error
AddTest		

How to login WebGUI in Linux

Enter <u>http://127.0.0.1:7406</u> into the **browser** to log into the **WebGUI**, **7**406 is the WebGUI's Port Number, which can be modified.

Verify the Controller Status

- 01. The AIC RAID Drive Tab will display the overall status of the controller.
- 02. RAID array and NVMe SSDs are listed under **Device Info**.

r Example: FnL SRD75	05	Fr
AIC RAID Drive De	vice Info Settings	Event Log SHI Help
nL AIC RAID Drive		
Model:	FnL SRD7505	
Serial Number:	5432139123456	75
Location:	193:0.0	
Current Link Widt	h: x16	
Current Link Spee	d :16.0 GT/s	RAID Level: 0
		Temperature Status:
		4000 GB Used

Obtaining Device Information

The Device Info tab is the default page after clicking the tab of the AIC RAID Drive. This page contains information about your RAID arrays and NVMe SSDs.

RAID Array

Once an array has been created, the RAID content contained in the board is provided here, such as Name, Type, Capacity, OS Name Status, Status.

FnL SRD7505 V

AIC RAID Drive	Device Info	Settings	Event Log SHI	Неір	
RAID Array Information					
RAID Array					
Name	Туре	Capacity	OS Name	Status	
V RAID_0_0	RAID 0	4.00 TB	HPT DISK 0_0	Normal	

NVMe SSDs

According to the RAID above, here are the NVMe SSD members that make up the RAID. It includes NVMe SSDs' model and capacity.

NVM	NVMe SSDs					
	Device 1	Model		Capacity	1.00 TB	
	Device 2	Model		Capacity	1.00 TB	
	Device 3	Model		Capacity	1.00 TB	
	Device 4	Model		Capacity	1.00 TB	

Click Device 1, it shows the NVMe SSD's details.

NVMe SSDs

Device 1	Model		Capacity	1.00 TB
	Revision	3B2QGXA7	PCIe Width	x4
	Location	1	PCIe Speed	Gen 4
	Max Free	0.00 GB		
	Status	Normal		
	Serial Num	S5GXNG0N905363B		

- Model model number of the drive connected
- **Revision** revised version of drive
- Location which controller and port the drive is in
- Max Free total capacity that is not configured
- **Status** Current state of drive

- Serial Num Serial number of the drive
- **Capacity** total capacity of the drive
- **PCIe Width** PCIe width occupied by the drive
- **PCIe Speed** Rate of current bandwidth

Array Information: Normal Status

RAID status - the RAID array's status may change depending on the status of the disks.

RAID Array				
Name	Туре	Capacity	OS Name	Status
🙀 RAID_0_0	RAID 0	4.00 TB	HPT DISK 0_0	Normal

Arrays and NVMe SSDs with the Normal status are healthy and functioning properly

Array Information: Critical Status

Arrays in the **Critical** status can be accessed and utilized, but are no longer fault tolerant. **RAID** Array

	Name		Type	Capacity	OS Name		Status
8	RAID10_0		RAID 1/0	2.00 TB	HPT DISK 0_	0	Critical
۲	Member 1 of "RAID	10_0"	RAID 1	1.00 TB			Critical
Ŷ	Member 2 of "RAID	10_0"	RAID 1	1.00 TB			Normal
NV	Me SSDs						
	Device 2	Model			Capacity	1.00 TB	
	Device 3	Model			Capacity	1.00 TB	
	Device 4	Model			Capacity	1.00 TB	

Array Information: Disabled Status

Disk Status – if any disks were added or removed, or if a disk is no longer responding, the status will change.

RAII	D Array				
N	lame	Туре	Capacity	OS Name	Status
TAID_0_0 RAID 0		4.00 TB		Disabled	
NVM	le SSDs				
	Device 2	Model		Capacity	1.00 TB
	Device 3	Model		Capacity	1.00 TB
	Device 4	Model		Capacity	1.00 TB

An array with the **Disabled** status means that the RAID level does not have enough disks to function.

- Your data will be inaccessible
- Rebuilding will not trigger, since the RAID array does not have enough parity data to rebuild.

Settings

Using this tab, you can change the following:

- Settings
- Password Settings
- Email Notification Settings

AIC RAID Drive Device In	fo Settings	Event Log SHI Help		
Settings				
Restrict to localhost access.	Enabled 🗸			
Set Fan Speed:	High 🗸			
Temperature Unit:	°F 🛩			
Submit				
	Password	l Settings		
Password:				
Confirm:				
Submit				
	Email Notific	ation Settings		
SMTP Settings				
Enable Event Notification				
Server Address (name or IP):				
Mail From (E-mail address):				
Login Name:				
Password:				
SMTP Port:	25			
Support SSL:				
	Change Setting			
Recipients				
E-mail	Name	Event Level		
Add Recipient				
E-mail:				
Name:				
Event Level:	□Information □	Warning Error		
Add Test				

Settings

- Restrict to localhost access
- Set Fan Speed
- Temperature Unit

Note: Fan speed function support products: SRD7101A / 7202 / 7505 / 7140 / 7540 / 7502 CRD7104F / CRD7505, This function is only supported by Windows and Mac, not Linux

Restrict to localhost access (default: Enabled)

Remote access to the controller will be restricted when enabled; other users in your network will be unable to remotely log in to the HRM.

Set Fan Speed (default: High) The default fan speed is High, you can adjust the speed of the fan, There are 5 levels [Auto, Off, Low, Medium and High]

Temperature Unit (default: °F) The default temperature unit is Fahrenheit, you can change it to Celsius.

Password Settings

Setting your HRM password

Under Password Setting, type your new password, confirm it, then click Submit.

Recovering your HRM password

If you forget your password, you can delete the file hptuser.dat. Then, restart the computer and open the WEBGUI to set a new password.

For Windows Users:

- 1. Open File Explorer
- 2. Navigate to C:/Windows/
- 3. Delete hptuser.dat
- 4. Reboot

Email Notification Settings

- SMTP Settings
- Adding Recipients

You can instruct the controller to send an email out to the recipients of your choosing when certain events trigger (for more information, see Event Log Tab).

SMTP settings SMTP Settings

_
Enable Event Notification
Server Address (name or IP):
Mail From (E-mail address):
Login Name:
Password:
SMTP Port:
Support SSL:

smtp.mail.yahoo.com			
hptu@yahoo.com			
hptu@yahoo.com			
•••••			
465			

To set up email alerts:

Using a Yahoo Mail account as an example:

- 01. Check the Enable Event Notification box.
- 02. Enter the ISP server address name or SMTP name

For example: smtp.mail.yahoo.com

- 03. Type in the email address of the **sender** (email account that is going to **send** the alert) For example: **hptu@yahoo.com**
- 04. Type in the account name and password of the sender
- 05. Type in the SMTP port (default: 25)
- 06. Check the **support SSL** box if SSL is supported by your ISP (note the port value will change to **465**).

Email Precautions

If you want to receive notification mail using a Webmail account, you may need to modify the mailbox's permissions. The following example is for a Yahoo webmail account.

Yahoo Setting:

To change permission settings, please refer to the following link: <u>https://help.yahoo.com/kb/account/SLN27791.html?impressions=true</u>

Procedure:

01. Log in to yahoo email; click "Sign in" to log in: https://www.yahoo.com



02. After a successful login, click "Account Info" under the user name:



- 03. Go to the "Account Info" page, click "Account Security".
 - On the "Account Security" page, click the "Allow apps that use less secure sign in" button: Rersonal Info Phone numbers +1 (415) 730-0117 Account Security Recent Activity Add recovery email address = Preferences Two-step verification Phone Number 0 Help Sign in by verifying the code sent to your photon Allow apps that use less secure sign in noo apps and devices use less secure sign-in technology, which co we recommend) or choose to use them despite the risks.

Note: If you are having trouble configuring notification for your Email account, please contact our <u>Technical Support Department</u>.

Outlook Setting:

01. Sign in to mail and set it up, Login email address link: https://outlook.live.com/mail/inbox



02. Click Settings in the upper right corner, select the lower left corner: View all outlook settings



03. Enter the redirect page, select mail, then click Sync email

Settings	Layout	Sync email
Image: Section grad Image: Sectio	Compose and reply Attachments Rules Sweep Junk email Customize actions Sync email	Ves No Devices and apps that use POP can be set to delete message Don't allow devices and apps to delete messages from C Let apps and devices delete messages from Outlook POP setting Server name: outlook office365 com
ie th te	Message handling Forwarding Automatic replies Subscriptions	Port: 995 Encryption method: TLS IMAP setting Server name: outlook.office365.com Port: 993 Encryption method: TLS SMTP setting Server name: smtp.office365.com

- 04. Let devices and apps use pop select 'yes'
- 05. choose 'Let app and devices delete messages from Outlook' Note: The screenshot below can be used as a reference. The POP setting is the mailbox server.

	Outlook	₽ Search		ロ 現在开会 🌖 4日 🗣 😒	? 🖘)
		Settings	Layout	Sync email ×	加更少
	> Fav	P Search settings	Compose and reply	POP ontions	。享更多
R		③ General	Attachments	Let devices and apps use POP	
	> Fold	🖾 Mail	Rules (() Yes	
U	√ Gra	Calendar	Sweep	ONO	
ø	Net	g ^q People	Junk email	Devices and apps that use POP can be set to delete messages from Outlook after download.	Outlook.com 使用
		View quick settings	Customize actions	O Don't allow devices and apps to delete messages from Outlook. It will move the messages to a special POP folder instead.	片甚至更多·
			Sync email	Let apps and devices delete messages from Outlook	
2			Message handling	POP satting	E OneDrive ()
			Forwarding	【 服务器名称: outlook.office365.com 编口: 995	
-			Automatic replies	和努方法: TLS	
				IMAP setting	
				服务器名称, outlook.office365.com 第四: 993	
				加密方法、TLS	

Note: If you are having trouble configuring notification for your Email account, please contact our <u>Technical Support Department</u>

How to Add Recipients

You can add multiple email addresses as receivers of a notice.

- 01. Type the email of the recipient in the **E-mail** text box
- 02. Type the name of the recipient in the Name text box
- 03. Set which type(s) of events will trigger an email using the respective Event Level check boxes.

Add Recipient	
E-mail:	
Name:	
Event Level:	Information Warning Error
Add Test	

04. (Optional) Click test to confirm the settings are correct by sending out a test email.

FnL SRD7505 V	Mail has been sen	t successfully.			. [
				OK	
AIC RAID Drive D	evice Info	Settings	Event Log	SHI	Help
		Set	tings		
Restrict to localhost access.		Enabled V			
Set Fan Speed:		High 🗸			
Temperature Unit:		°F 🗸			
Submit					
		Passwor	d Settings		
Password:					
Confirm:					
Submit					
		Empil Notific	ation Cottingo		
		Email Notific	ation settings		
SMTP Settings					
Enable Event Notification					
Server Address (name or IP):		smtp.mail.yahoo	.com		
Mail From (E-mail address):		hptu@yahoo.cor	n		
Login Name:		nptu@yanoo.cor	n		
Password:		465			
Support SSL		405			
Support SS21		Change Setting			
Recipients					
E-mail	Nam	e	Event Lev	el	
Add Recipient					
E-mail:					
Name:					
Event Level:		□Information □	Warning Error		

- 05. Click add to add the recipient to 'recipient list'
- 06. The added recipient will display in under **Recipients**

E-mail	Name	Event Level
□hptu@yahoo.com	hpt	Information, Warning, Error
Delete		

The email will include the output recorded in the event log.

Event Log

In the Event Log tab, you can see log entries associated with the HighPoint device. The event log provides useful information when troubleshooting your set up.

In the event tab, there are four options available:

- Prev View previous log page
- Next View next log page
- Type of events All, Info, Warning, Error
- Download Save the log file on your computer

The following image shows a downloaded page reminder.

ost productive with Microsoft Ed	g localhost:7406 says			
FnL SRD7505 V	Event log has been saved to your download folder.	ок FnL		
AIC RAID Drive	Device Info Settings Event Log	SHI Help		
Event Log (Page 1)				
● 🜉 All O 🜉 Info O	🔥 Warning 🛛 🚫 Error	Download		
Date Time	Description			
😵 2021/10/18 8:32:11 Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0N905360M' at Device4 failed.				
😵 2021/10/18 8:32:11 Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0NA06288P' at Device3 failed.				
2021/10/10 0.32.11				
× 2021/10/18 8:32:11 × 2021/10/18 8:32:11	Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0N905355Z	Z' at Device2 failed.		

SHI (Storage Health Inspector)

SHI outputs information collected using SMART (Self-Monitoring Analysis and Reporting Technology) Hard Drive Technology. The data provided on this tab helps you to anticipate any disk failures based on a variety of monitored hard disk properties.

In the event tab, there are two options available:

- S.M.A.R.T Details
- Schedule a task (Task list and Health Inspector Scheduler)

How to Enable SMART Monitoring

To access the SMART attributes of an individual disk:

- 01. Log in to the WebGUI
- 02. Select the proper controller using the drop-down menu on the top left
- 03. Click the SHI tab
- 04. Click **Detail** on the desired disk:

AIC RA	ID Drive Device	Info Settings Ever	nt Log	SHI Help	
					Sche
		Storage Health Inspec	tor(SHI)		
ocation#	Device Serial Number	RAID	٩F	Total Bytes Written	S.M.A.R.T
	S5GXNG0N905363B	RAID0_000041A7	118	108.68 TB	Detail
	S5GXNG0N905355Z	RAID0_000041A7	123	148.35 TB	Detail
	S5GXNG0NA06288P	RAID0_000041A7	123	81.24 TB	Detail
	S5GXNG0N905360M	RAID0_000041A7	120	136.66 TB	<u>Detail</u>
Device Name	5	Device_1			
4odel Numbe	er	Samsung SSD 980 PRO 1TB			
[emperature		118°F			
Varning Con	nposite Temperature Thresh	old 179°F			
Critical Comp	osite Temperature Threshol	d 185°F			
		NVME S.M.A.R.T Att	ributes		
lame				Value	
Critical Warni	ing			0x0	
Composite Temperature (C)				48	
Avaliable Spare				100%	
Avaliable Spare Threshold				10%	
Precentage Used				9%	
Data Units Re	ead		0xd44/f19f		
Data Units W	ritten			0xde91de1	
lost Write C	ommands			0x930/32949	
Controller Bu	isy Time			0x2317	
ower Cycles				0x879	
Power On Ho	urs			0xb15	
Jnsafe Shute	lowns			0x6a2	
1edia and Da	ata Integrity Errors			0×0	
lumber of Er	rror Information Log Entries			0×0	
Varning Tem	perature Time			0×1	
Critical Comp	oosite Temperature Time			0×0	
emperature	Sensor 1 (C)			48	
emperature	Sensor 2 (C)			61	
emperature	Sensor 3 (C)			0	
emperature	Sensor 4 (C)			U	
omperature	Sensor 5 (C)			U	
emperature	Sensor 7 (C)			0	
cinperature					

The **TBW** (Total Bytes Written) information can be used to monitor the lifespan of the NVMe drives.

					Schedule
		Storage Health Inspec	ctor(SHI)		
Location#	Device Serial Number	RAID	٩F	Total Bytes Written	S.M.A.R.T
1	S5GXNG0N905363B	RAID0_000041A7	116	108.68 TB	Detail
2	S5GXNG0N905355Z	RAID0_000041A7	123	148.35 TB	Detail
3	S5GXNG0NA06288P	RAID0_000041A7	123	81.24 TB	Detail
4	S5GXNG0N905360M	RAID0_000041A7	120	136.66 TB	<u>Detail</u>

FnL Monitor 1.1.3

How to Use the Health Inspector Scheduler

The **Health Inspector Scheduler** (**HIS**) enables you to schedule disk/array checkups to ensure disks/array are functioning optimally.

If you want to check the disk status on a daily, weekly, or monthly basis, you can enable this using the **HIS** function.

For example:

- 01. Set the 'Task Name' to 't1', select the schedule as 'Daily', and set the time to 10:10:0
- 02. After clicking "Submit", the task you created will be shown under the "Task List".

	Tasks List
Name Description t1 Check all disks every day at 10:10:0 Delete	
He	ealth Inspector Scheduler
Task Name: Select a Schedule: Oaily @ Weekly Bi-Weekly Select a time: Sunday V1 0: Submit	Monthly 0:0
Enl. Monitor 1.1.3	

Log collecting

Note: This function is only supported by Linux.

Diagnostic view

1. Start the WEBGUI, Diagnostic view will appear when Driver or HPT card does not effect, you can see the system information and HPT Product information in this view.

	Diagnos	tic View	
System		Product	
OS: Kernel: CPU: MotherBoar BIOS:	Ubuntu 21.04 x86_64 5.11.0-36-generic AMD Ryzen Threadripper 3960X 24-Core Processor rd: ASUSTEK COMPUTER INC. PRIME TRX40- PRO Rev 1.xx American Megatrends Inc. 1303	Controller: Driver Name: Driver Version:	HighPoint NVMe RAID Controller hptnvme v1.3.1
Disk: Chipset:	Samsung SSD 860 Advanced Micro Devices, Inc. [AMD] Starship/Matisse Root Complex		
Logs Location:	Logs have not been save	d	Save Logs

2. You can also click **'Help'→'Diagnostic'** to enter the diagnostic view.

AIC RAID	D Drive Device Info Settings	Event Log S	HI Help
	Diagnos	stic View	Register Product Diagnostic
System		Product	
OS:	Ubuntu 21.04 x86_64	Controller:	HighPoint NVMe RAID Controller
Kernel:	5.11.0-36-generic	Driver Name:	hptnvme
CPU:	AMD Ryzen Threadripper 3960X 24-Core Processor	Driver Version:	v1.3.1
MotherBoa	rd: ASUSTeK COMPUTER INC. PRIME TRX40- PRO Rev 1.xx		
BIOS:	American Megatrends Inc. 1303 11/11/2020 13.3		
Disk:	Samsung SSD 860		
Chipset:	Advanced Micro Devices, Inc. [AMD] Starship/Matisse Root Complex		
gs Location	: Logs have not been save	ed	Save Lo

Log saving

Enter the Diagnostic view, click '**Save Logs**', your log information will be collected. '**Logs Location**' will display the location of the saving path.



If you have problems in use, please submit the log to our online service (<u>https://www.highpoint-tech.com/websupport/</u>).

Using the HighPoint Command Line Interface (CLI)

Note: CLI function only supports Windows and Linux, not Mac

How to use the CLI in Windows

Method1: Run 'Command Prompt' as Administrator and enter hptraidconf and press Enter



How to use the CLI in a Linux system

.....

e

Windows Kits Windows PowerShell

[]]

3

() ||

Open '**Terminal**' and enter root permissions, then execute the command '**hptraidconf**' to enter the CLI



CLI Command Reference

This chapter discusses the various HighPoint CLI commands: query, switch, events, mail, task, set, clear, help and exit. The following example is for a Windows system:

Query Commands

Syntax:

query drives
query devices | query devices {devices_id} |
query arrays | query arrays {array_id}

query drives

This command will provide the status of the drives. It provides a list of Vender ID, Product ID, SN, Number of PHY, Status. Each drive's status will be listed as one of the following: ACTIVE, INACTIVE.

Example:

FnL CLI> query drives

FnL (ID	CLI > query driv VendorID	ves ProductID	SN	NumberOfPYH	Status
1	нрт	FnL SRD7505	5432139123456	4	ACTIVE
2	нрт	FnL SRD7505		4	INACTIVE

Attributes:

Vender ID:

A vendor ID is an abbreviation for the company name.

Product ID:

Product ID refers to the name of the drive that is connected to the motherboard; E.g. FnL SRD7505 represents the drive is 7505 product.

SN:

Serial Number is the product serial number, it is used to protect the user's genuine rights and interests, enjoy legitimate services.

Number of PHY:

The number it displays represents the number of disks that are accessed and recognized.

Status:

If you pick up a single drive, you will see the status is ACTIVE, if you pick up a double drives, you will see the two status are ACTIVE and INACTIVE;

query devices

This command will provide the status of each physical device hosted by the controller. It provides a list of device ID's, capacity, maxfree, flag, status, and model number. Each device's flag will be listed as one of the following: SINGLE, RAID. Each device's status will be listed as one of the following: NORMAL, LEGACY.

Example:

FnL CLI> query devices

	1 2				
FnL CLI	> query dev	vices			
ID	Capacity	MaxFree	Flag	Status	ModelNumber
1	1000.12	0	RAID	NORMAL	
2	1000.12	0	RAID	NORMAL	
3	1000.12	0	RAID	NORMAL	
4	1000.12	0	RAID	NORMAL	

Attributes:

ID:

A device ID is a string used to represent a disk.

Capacity:

The capacity of the disk in GB.

MaxFree:

The Maximum sequence free space on a disk which can be used by creating array.

Flag:

Shows whether the disk is **SINGLE** or has been created **RAID**.

Status:

This will display the disk status (1 of 2 possible states):

- NORMAL: The disk's status is normal.
- RAID: The disk is a member of a RAID array.

Model Number:

The disk's model number.

query devices {device_id}

This command presents information for the specified device.

Attributes:

Mode Number:

The disk's model number.

Serial Number:

The disk's Serial number.

Firmware Version:

The disk's Firmware version.

Capacity:

The disk's capacity.

Status:

The disk's status.

Flag:

Shows whether the disk is SINGLE or has been created RAID.

PCIe Width:

The disk's PCIe width.

PCIe Speed:

The disk's PCIe speed.

Temperature:

The disk's temperature and setting temperature threshold.

S.M.A.R.T Attributes:

S.M.A.R.T Attributes detailed information reported by hard disk.

Example:

FnL CLI> query devices 1

FnL CLI > query dev <u>ices 1</u>	
Mode Number:	
Serial Number: S5GXNG0N905363B	
Firmware Version: 3B2QGXA7	
Capacity(GB): 1000.12	TotalFree(GB): 0
Status: RAID	Flag: NORMAL
PCIe Width: x4	PCIe Speed: Gen 4
Temperature (F):	95
Warning Composite Temperature Thresh	old (F): 179
Critical Composite Temperature Thres	hold (F): 185
S.M.	A.R.T Attributes
S.M.A.R.T Status OK.	
Name	Value
Critical Warning	: 0x0
Composite Temperature (C)	: 35
Available Spare	: 100%
Available Spare Threshold	: 10%
Percentage Used	: 9%
Data Units Read	: 0xd447f19f
Data Units Written	: 0xde91de1
Host Read Commands	: 0x95c73299e
Host Write Commands	: 0xbdce315d
Controller Busy Time	: 0x2317
Power Cycles	: 0x87f
Power On Hours	: 0xb16
Unsafe Shutdowns	: 0x6a8
Media and Data Integrity Errors	: 0x0
Number of Error Information Log Entr	ies : 0x0
Warning Temperature Time	: 0x1
Critical Composite Temperature Time	: 0x0
Temperature Sensor 1 (C)	: 35
Temperature Sensor 2 (C)	: 43
Temperature Sensor 3 (C)	: 0
Temperature Sensor 4 (C)	: 0
Temperature Sensor 5 (C)	: 0
Temperature Sensor 6 (C)	: 0
Temperature Sensor 7 (C)	: 0
Temperature Sensor 8 (C)	: 0

query arrays

This command lists information for all configured arrays. It will list each array's ID, capacity, type, status, blocks, sector, cache and name.

Attributes:

Status:

- NORMAL: Array status is normal
- CRITICAL: Array is in a degraded status (no data redundancy)
- DISABLED: Array status is disabled, and the RAID maybe be broken.

Block:

Array Block size.

Sector:

Bytes per sector.

Cache:

Array Cache Policy NONE: No Cache policy enabled

Example:

FnL	FnL CLI> query arrays								
FnL	FnL CLI > query arrays								
ID	Capacity(GB)	Туре	Status	Block	Sector	Cache	Name		
1	4000.49	RAIDØ	NORMAL	512k	512B	NONE	RAID0_000041A7		
E - 1									
FNL	CLI > query arra	ays	-						
ID 	Capacity(GB)	Туре	Status	Block	Sector	Cache	Name		
1	4000.49	RAIDØ	DISABLED	512k	512B	NONE	RAID0_000041A7		
FnL	CLI >								

query arrays {arrays_id}

This command will present information of each disk of a specified array.

Example:

FnL CLI> query arrays 1							
FnL CLI	> query	arra	iys 1				
ID:		1		Name	e:	RAID_0_0	
Type:		RAID	00	Stat	tus:	NORMAL	
Capacity	(GB):	4000	.49	Blog	ckSize:	512k	
SectorSi	ze:	5128		Cacl	hePolicy:	NONE	
Progress	::						
ID	Capacity		MaxFree	Flag	Status	ModelNumber	
1	1000.12		0	NORMAL	RAID		
2	1000.12		0	NORMAL	RAID		
3	1000.12		0	NORMAL	RAID		
4	1000.12		0	NORMAL	RAID		

Events Commands

The CLI system will automatically record three types of events: Information (shortened to "Inf"), Warning (shortened to "War"), and Error (shortened to "Err") on the screen output. These commands allow you to query, save, or clear the logged events.

Syntax

events | events clear | events save {file_name}

events

This command will display a list of all the logged events.

Example

FnL CLI> events

Fr 1	nL CLI Inf	> events [10/19/2021 10:10:20]	Scheduled task (t1) started.
2	Err	[10/18/2021 08:32:11]	Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0N905360M' at Device4 failed.
3	Err	[10/18/2021 08:32:11]	Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0NA06288P' at Device3 failed.
4	Err	[10/18/2021 08:32:11]	Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0N905355Z' at Device2 failed.
5	Err	[10/18/2021 08:32:11]	Disk 'Samsung SSD 980 PRO 1TB-S5GXNG0N905363B' at Device1 failed.

events save {file_name}

This command will save all the logged events as a plain text file.

Example

HPT CLI> events save C:/raidlog.txt

FnL CLI > events save C:/raidlog.txt The event log has been saved to C:/raidlog.txt. This command will save all the events to C:/raidlog.txt.							
This	PC > Local Disk (C:)	~	Ō	🔎 Search Local Disk	(C:)		
	Name			Date modified	Туре	Size	
	📄 raidlog			10/19/2021 12:03 AM	Text Document		1 KB

Mail Commands

Syntax

mail recipient
mail recipient add {recipient_name}{mail_address} [Inf|War|Err]
mail recipient delete {recipient_name}
mail recipient test {recipient_name}
mail recipient set {recipient_name}{Inf|War|Err}
mail server
mail server set {server_address}{port} { status } {from_address} [username] [password]
mail server set {a|p|s|m|u|t} {value}

mail recipient

List all of the mail recipients

Example

FnL CLI> mail recipient						
FnL(ID	CLI > mail Name	recipient Mail Address	Notify Types			
1	hpt	luchaonan@highpoint-tech.com	Information Warning Error			

mail recipient add {recipient_name} {mail_address} [Inf|War|Err]

Add a new recipient

Example

FnL	FnL CLI> mail recipient add admin admin@somecompany.com Inf War Err					
FnL (CLI > mail	recipient add high yzhang@highpoint-tech	n.com yzhang@highpoint-tech.com			
FnL (CLI > mail	recipient	Notify Types			
ID	Name	Mail Address				
1	hpt	luchaonan@highpoint-tech.com	Information Warning Error			
2	high	yzhang@highpoint-tech.com	Information Warning Error			

This command will setup the RAID system to send mail to admin@somecompany.com for any logged events.

mail recipient delete {recipient_name}

--- Delete an existing recipient.

Example

Fnl	FnL CLI> mail recipient delete hpt					
FnL	CLI > mail	recipient delete hpt				
FnL ID	CLI ≻ mail Name	recipient Mail Address	Notify Types			
1	high	yzhang@highpoint-tech.com	Information Warning Error			

mail recipient test {recipient_name}

Send a test email to a specified recipient.

Example





mail recipient set {recipient_name} {Inf|War|Err}

Set the notification type for a recipient.

Example

FnL	CLI> mail	recipient set admin Inf War Err	
FnL (CLI > mail	recipient set admin Inf War Err	
ID	Name	Mail Address	Notify Types
1	high	yzhang@highpoint-tech.com	Information Warning Error

mail server

--- display the SMTP server information

Example

FnL CLI> mail server							
FnL CLI > mail serve ServerAddress	er Port	ssl	Status	Mail From	User Name		
smtp.mail.yahoo.com	465	0	Enabled	yzhang@highpoint-te	ch.comyzhang@highpoint-tech.com		

mail server set {server_address} {port} {ssl} {status} {from_address} [username] [password]

Use this command to configure mail server settings. {server_address} – SMTP server address {port} – port, generally 25 {ssl} – used ssl, '1' for enable and port need 465, '0' for disable {status} – status, 'e' for enable or 'd' for disable {from_address} – mail from address {username} –mail username {password} – the user's password

Examples:

FnL CLI> mail server set secure.emailsrvr.com 465 1 e <u>name@somecompany.com</u> name@somecompany.com password



FnL CLI> mail server set mail.somecompany.com 25 0 e admin@somecompany.com password

mail server set {a|p|s|m|u|t} {value}

--- Use this to separate set your mail server value

Parameters

- a SMTP server address
- **p** port, generally 25
- s status, 'e' for enable or 'd' for disable
- **m** mail from address
- **u** username
- t-user's password

Examples:

FnL CLI> mail server set a smtp.somecompany.com

--- Change the server address

Change the se	i voi au	urcss			
FnL CLI > mail serv	ver sey	a smtp	p.mail.ya	hoo.com	
ServerAddress	Port	ssl	Status	Mail From	User Name
smtp.mail.yahoo.co	n 465	0	Enabled	yzhang@highpoint-te	ch.comyzhang@highpoint-tech.com

FnL CLI> mail server set p 465



FnL CLI> mail server set s d

Disable mail	notifica	tion s d				
FnL CLI > mail se ServerAddress	rver Port	ssl	Status	Mail From	User Name	
secre.emailsrvr.c	om 465	0	Disabled	d yzhang@highp	point-tech.comyzhang@highpoint-tech.	com

FnL CLI> mail server set s e

Enable mail notification							
FnL CLI > mail server set s e							
FnL CLI > mail serv ServerAddress	er Port	ssl	Status	Mail From	User Name		
secre.emailsrvr.com	465	0	Enabled	yzhang@highpoint	-tech.comyzhang@highpoint-tech.com		

Task Commands

When an array requires regular verification or rebuilding, you can use the task commands to automate this process in the background. If you have the appropriate privileges, you can add new tasks, and modify or delete existing tasks.

Syntax

task

```
task {smart} {name=} {once|daily|monthly|weekly|biweekly}={day} time=hh:mm:ss
task delete {task_id}
```

task

This command displays detailed information about all scheduled tasks.

Example

FnL CLI> task This command displays the current background tasks. FnL CLI > task ID Name S-F Description

task {smart} {name=} {daily|monthly|weekly|biweekly}={day} time=hh:mm:ss

This command set a scheduled task.

Example

FnL CLI> task smart name=1 daily time=18:00:00

```
FnL CLI > task smart name=1 daily time=18:00:00
```

task delete {task_id}

This command allows you to delete a scheduled task. You can query the task ID by task command.

Example

FnL CLI> task delete 1



This command will delete the task "1".

Set Commands

Syntax

```
set | set [name]={value}
```

set

Show the system settable parameters.



• set FS={Auto|Off|Low|Medium|High}

Change Enclosure Fan Speed.

Note: Fan speed function support products: SRD7101A / 7202 / 7505 / 7140 / 7540 / 7502 / CRD7104F / CRD7505, This function is only supported by Windows and mac, not Linux.

Example

```
FnL CLI> set FS=Medium
```

FnL CLI ≻ set FS=Medium	
FnL CLI > set	
Show the system setable	parameters.
[FS] Fan Speed [TU] Temperature unit [PS] Password	Medium C

• set TU={C|F}

Set temperature unit to Celsius equals or Fahenheit equals. **Example**





• set PS

Set or change your password and confirm it.

Example

```
FnL CLI> set PS
FnL CLI > set PS
Password :*******
Confirm :*******
Password has been changed, please login with your new password.
HighPoint Windows CLI, Please Input
Password:
```

Diag Commands

Note: This function is only supported by Linux.

This command allows you to collect the diagnostic information.

Example

FnL CLI> diag

FnL CLI>diag The diagnostic information has been saved in /usr/share/hpt/HighPoint_hptnvme_v1.3.2_2021.11.01.tar.gz FnL CLI>]

The saving path will be displayed after entering this command.

Help Commands

If you input an unknown or error command, you will be told that the command is unknown, you can use help commands to find correct commands.



Syntax

help | help {command}

help

Show generic help about this utility.

Example

```
FnL CLI> help
FnL CLI > help
help [query|switch|events|mail|task|set|clear|help|exit]
FnL CLI >
```

help {command}

Show help about a specific command.

Example

FnL CLI> help query



Exit Commands

Syntax

exit Exit from the interactive mode and close the window.

Example

FnL CLI> exit FnL CLI > exit

Clear Commands

Syntax

clear This command is used to clear screen.

Example

FnL CLI> clear



Troubleshooting

Debugging an Abnormal RAID status

Please submit a support ticket using our online service at https://www.highpoint-tech.com/websupport/

Table 1. WebGUI Icon Guide

1	Disabled The icon represents a disabled array, meaning more than one disk failed and the array is no longer accessible
	Legacy An existing file system has been detected on the disk. These disks are classified as legacy drives.
Ŷ	Normal The array status is normal
0	Critical – rebuild required The array has all disks, but one disk requires rebuilding.

Туре	Description	Min. disks	Usable space	Advantage	Disadvantage	Application
	Disk Striping		10000	Offers the highest performance	No fault tolerance - failure of one	Temporary file,
RAID 0		4	100%		drive results in complete data loss	performance driven application.
RAID 1	Disk Mirroring	2	50%	Provides convenient low-cost data redundancy for smaller	Useable storage space is 50% of total available capacity. Can	Operating system, backup, and transaction
		-	0070	systems and servers	handle 1 disk failure.	database.
RAID10	Striping with Mirroring	4	50%	High read performance and medium write performance with data protection for up to 2- drive failures	Useable storage capacity equals total capacity of all drives in the array minus two	Fast database and application servers which need performance and data protection

Table 2. RAID Level Reference Guide

HighPoint Recommended List of Motherboards

HighPoint provides a list of motherboards suitable for use with the SRD7101P&PB /7202P /7204P /7104P&PB /7140P&PB /7502P /7505P /7540P&PA. This document is routinely updated, and is available from the SRD7101P&PB /7202P /7204P /7104P&PB /7140P&PB /7502P /7505P /7540P&PA Resources webpage:

SRD7101P&PB:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7101P&PB Compatibility_List_v1.02_21_9_26.pdf

SRD7202P:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7202P_Compatibility_List_v1.02_21_9_26.pdf

SRD7204P:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7204P_Compatibility_List_v1.02_21_9_26.pdf

SRD7104P&PB:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7104P&PB Compatibility_List_v1.02_21_9_26.pdf

SRD7140P&PB:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7140P&PB Compatibility_List_v1.02_21_9_26.pdf

SRD7502P:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7502P_Compatibility_List_v1.02_21_9_26.pdf

SRD7505P:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7505P_Compatibility_List_v1.02_21_9_26.pdf

SRD7540P&PA:

https://highpoint-tech.com/PDF/Compatibility_List/FnL/SRD/PRO/FnL_SRD7540P&PA_ Compatibility_List_v1.02_21_9_26.pdf

Contacting Technical Support

FAQ's, technical articles, and trouble-shooting tips are available from our Support web page and Blog web page: <u>https://www.fnlnvme.com/faq</u>

https://www.fnlnvme.com/blog

If you require technical Support, please go to the page footer our offical website and Click Contact Us for futher support.

https://www.fnlnvme.com